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# AMERICAN SOCIETY OF ANIMAL SCIENCE

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# DRAFT

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## REGISTRATION

Iowa Events Center, Lobby

Sunday, March 13, 3:00 pm – 5:00 pm

Monday, March 14, 7:00 am – 6:00 pm

Tuesday, March 15, 7:00 am – 4:00 pm

Wednesday, March 16, 7:00 am – 11:00 am

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## COMPLIMENTARY SHUTTLE SCHEDULE

Continuous shuttle service between the noted hotels (per route)  
and the Convention Center during these time periods:

### SHUTTLE 1

Des Moines Marriott – Renaissance Savery – Iowa Events Center

<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>
7:30 am to 8:30 am	7:00 am to 9:00 am	7:00 am to 9:00 am
4:00 pm to 7:30 pm	6:00 pm to 8:00 pm	11:00 am to 1:00 pm

### SHUTTLE 2

Embassy Suites – Holiday Inn Downtown – Iowa Events Center

<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>
7:30 am to 8:30 am	7:00 am to 9:00 am	7:00 am to 9:00 am
12:00 pm to 2:00 pm	12:00 pm to 2:00 pm	11:00 am to 1:00 pm
4:00 pm to 7:30 pm	6:00 pm to 8:00 pm	

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## IMPORTANT PHONE NUMBERS

Des Moines Marriott (Downtown):	515.245.5500
Renaissance Savery:	515.244.2151
Embassy Suites:	515.244.1700
Holiday Inn Downtown:	515.283.0151
Holiday Inn Express and Suites Des Moines (Downtown):	515.657.8181
Hyatt Place Des Moines (Downtown):	515.282.5595

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## **JOB RESOURCE CENTER**

The traditional Job Resource Center and the Cyber Café will be located in the Foyer on Level Three in the Community Choice Credit Union Convention Center. Sign-up sheets for making “connections” and instructions for use of the Placement Center will be posted.

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 beginning at noon on Monday, March 14, 2016.

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## **ARPAS CONTINUING EDUCATION UNITS**

The 2016 Midwest Meeting has been approved for up to 16 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

## **ASAS CAREER CENTER**

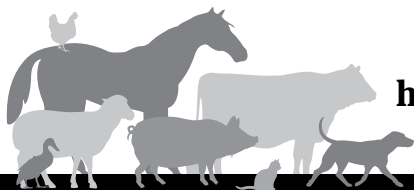
ASAS Career Center is the premier electronic recruitment resource for the animal science industry. This site is a great tool that offers benefits to both employers and job seekers alike.

### **EMPLOYERS**

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

### **JOB SEEKERS**

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



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

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## SCHEDULE OF EVENTS

All rooms are at the Community Choice Credit Union Convention Center (CCCUCC) unless otherwise noted.

### Schedule note

Continued in 2016: All posters will be presented as ePosters. This format offers some new and exciting options for poster presenters and attendees. Most notably, all posters will be on display for the duration of the meeting and available to all attendees to view at their leisure. The posters have been divided into six mini poster sessions to allow greater access to the presenters. Please see page 12 for a full description of the ePosters and a list of the poster sessions.

### MONDAY, MARCH 14, 2016

- 7:30 AM Gary Allee Breakfast, Grand Ballroom A  
7:30 AM Graduate Student Breakfast and Learn, 101/102  
8:00 AM AQ Written Exams, CCCUCC (See AQ organizer for room assignments)  
8:00 AM Gary Allee Symposium: Changing Consumer/Customer Demands, Opportunities for Nutritionists, Grand Ballroom A  
8:30 AM ADSA/ASAS Midwest Board of Directors, Boardroom 2  
10:00 AM AQ Quiz Bowl Preliminary Rounds, 103, 104 and 105  
12:00 PM Bentley Symposium and Lunch, Grand Ballroom B  
12:45 PM Poster Session I, Grand Ballroom Foyer  
1:00 PM David H. Baker Amino Acid Symposium, 318/319/320  
1:30 PM Graduate Student Oral Competition – MS, 302/303  
1:30 PM Graduate Student Oral Competition – PhD, 306/307  
1:30 PM Undergraduate Student Oral Competition I, 312/313  
1:30 PM Undergraduate Student Oral Competition II, 304/305  
5:00 PM Poster Session II, Grand Ballroom Foyer  
6:00 PM Reception and Recognition of Young Scholar Winners, Grand Ballroom A  
7:00 PM AQ Quiz Bowl Finals and Awards Presentation, Grand Ballroom A  
8:00 PM Graduate Student Mixer, Johnny's Hall of Fame (off-site)

### TUESDAY, MARCH 15, 2016

#### MORNING

- 7:30 AM Poster Session III, Grand Ballroom Foyer  
8:30 AM Animal Behavior, Housing and Well-Being Symposium: Part I, 302/303  
8:30 AM Breeding and Genetics Symposium, 304/305  
8:30 AM David Schingoethe Symposium, 306/307  
8:30 AM Growth, Development, Muscle Biology and Meat Science Symposium, 318/319  
8:30 AM Harlan Ritchie Symposium, 312/313  
8:30 AM Nonruminant Nutrition: Grow/Finish I, 314/315



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- 8:30 AM Nonruminant Nutrition Symposium, 316/317
  - 8:30 AM Physiology, 401
  - 8:30 AM Ruminant Nutrition: By-Products 308/309

**AFTERNOON**

- 12:00 PM Digestive Physiology of Pigs Lecture and Lunch, Grand Ballroom A
- 12:30 PM AQ Lunch, 101/102
- 12:45 PM Poster Session IV, Grand Ballroom Foyer
- 1:30 PM Animal Behavior, Housing and Well-Being Symposium: Part II, 302/303
- 1:30 PM Breeding and Genetics, 304/305
- 1:30 PM Extension – Dairy Symposium, 306/307
- 1:30 PM Growth, Development, Muscle Biology and Meat Science, 318/319
- 1:30 PM Nonruminant Nutrition: Feed Additives, 314/315
- 1:30 PM Nonruminant Nutrition: Feed Manufacturing, 316/317
- 1:30 PM Reproductive Physiology, 401
- 1:30 PM Ruminant Nutrition, 308/309
- 1:30 PM Ruminant Nutrition Symposium, 312/313
- 3:15 PM Nonruminant Nutrition: Sow/Boar
- 5:00 PM Poster Session V, Grand Ballroom Foyer
- 6:00 PM Business Meeting and Awards Program, Grand Ballroom A
- 7:00 PM Reception, Grand Ballroom A

**WEDNESDAY, MARCH 16, 2016**

- 7:30 AM Poster Session VI, Grand Ballroom Foyer
- 8:30 AM Animal Behavior, Housing and Well-Being, 312/313
- 8:30 AM Equine Welfare Symposium, 304/305
- 8:30 AM Extension – Swine, 314/315
- 8:30 AM Extension – Beef/Small Ruminant, 318/319
- 8:30 AM Nonruminant Nutrition: Grow/Finish II, 306/307
- 8:30 AM Nonruminant Nutrition: Nursery Pigs, 308/309
- 8:30 AM Physiology Symposium, 316/317
- 8:30 AM Ruminant Nutrition: Feed Additives, 302/303
- 8:30 AM Teaching Symposium: Evolving the Science Curriculum, 401

**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 Midwest ASAS Program Secretary.

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## POSTER SCHEDULE

### **\*\*Returning in 2016 – ePosters\*\***

All posters will be presented as ePosters. This format offers exciting options for poster presenters and attendees. Most notably, all posters will be on display for the duration of the meeting and available to all attendees to view at their leisure. This new technology is less expensive than printed posters and is easily transportable. Some features of the ePosters include:

- Posters are no longer constrained to a single page; ePosters offer the option to have multiple pages per poster.
- Videos, animations, graphs and images can be embedded into the poster.
- Graphs and images can be expanded to full screen view with a single click, allowing for a more detailed presentation.
- The ePosters will be available after the meeting to attendees to view via the meeting website.

The posters have been divided into six mini poster sessions to allow greater access to presenters. The list of poster sessions, with presentation times, appears below.

### **MONDAY, MARCH 14, 2016**

***Poster Session I – Authors present 12:45 pm – 1:30 pm***

Graduate Student Poster Competition-M.S  
Growth, Development, Muscle Biology, and Meat Science  
Physiology  
Undergraduate Student Poster Competition I

***Poster Session II – Authors present 5:00 pm – 5:45 pm***

Graduate Student Poster Competition-Ph.D  
Nonruminant Nutrition I  
Undergraduate Student Poster Competition II

### **TUESDAY, MARCH 15, 2016**

***Poster Session III – Authors present 7:30 am – 8:15 am***

Nonruminant Nutrition II  
Ruminant Nutrition I

***Poster Session IV – Authors present 12:45 pm – 1:30 pm***

Animal Behavior, Housing and Well-Being  
Extension - Swine  
Nonruminant Nutrition III

***Poster Session V – Authors present 5:00 pm – 5:45 pm***

Extension - Dairy  
Extension – Beef/Small Ruminant  
Nonruminant Nutrition IV  
Ruminant Nutrition II

### **WEDNESDAY, MARCH 16, 2016**

***Poster Session VI – Authors present 7:30 am – 8:15 am***

Nonruminant Nutrition V  
Odor and Nutrient Management

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## SPECIAL EVENTS

### **Bentley Lecture**

**Monday, March 14 • 12:00 pm • Grand Ballroom**

**Dietary strategies to ameliorate the physiological effects of heat stress in livestock**  
*Dr. Frank Dunshea, The University of Melbourne*

To view information about Dr. Dunshea and his research, please visit his website:  
<http://www.findanexpert.unimelb.edu.au/display/person28608#tab-affiliation>

Sponsored by: Bentley Appreciation Club

*Registration is required; attendance is limited to the first 400 registrants. Registration fee is \$10.00.*

### **Reception & Recognition of Young Scholar Winners**

**Monday, March 14 • 6:00 pm • Grand Ballroom A**

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

### **ASAS Undergraduate Midwestern Academic Quadrathlon Quiz Bowl Finals & Award Presentation**

**Monday, March 14 • 7:00 pm • Grand Ballroom**

ASAS is excited to offer our undergraduates the chance to compete in the Midwestern Section Academic Quadrathlon (AQ). The AQ competition will conclude 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 Salt Lake City. Following the Quiz Bowl final the AQ Awards will be presented. Please come out and support our undergraduates.

### **Graduate Student Breakfast and Learn**

**Monday, March 14 • 7:30 AM-8:30 AM • Room 101/102**

This Breakfast and Learn event will provide a valuable experience for individuals interested in both academic or industry positions! Dr. Mike (Mose) Moseley represents a potential employer and will conduct an interactive “interview workshop” discussing the interviewing process, how to prepare yourself before the interview, and conduct mock interviews, providing examples from experiences with potential job candidates. Mose’s 35 year tenure has run through Upjohn, Pharmacia, Pfizer, and Zoetis serving in both Discovery and Development. He ultimately landed a job as Director in Global Development & Operations and Global Project Team Leader for Zoetis as well as being a Dale Carnegie Instructor for the last 25 years.

*Preregistration is required. Registration fee is \$10.00.*

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## **Graduate Student Mixer**

**Monday, March 14 • 8:00 pm • Johnny's Hall of Fame**

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 so don't miss it.

*Preregistration is highly recommended; all students are welcome. Registration fee is \$10.00.*

## **Digestive Physiology of Pigs Lecture and Lunch (sponsored by DPP-NA)**

**Tuesday, March 15 • 12:00 pm • Grand Ballroom**

**Microbial colonisation, metabolism and immunity in the young piglet**

*Mick Bailey, University of Bristol, School of Clinical Veterinary Science, Langford House, Langford, Bristol, UK*

Optimal function of the intestinal microbiota is a critical component to enteric health: maintaining intestinal barrier function; immune responses to pathogens; and maintaining optimal metabolism. This presentation will address the development and function of the intestinal microbiota as well as pre-, pro- and syn-biotics. What is the science telling us, and how do we make progress in this area, against a backdrop of increasing pressure on antibiotics?

Sponsored by: ASAS Midwestern Section/ADSA Midwestern Branch Joint Board  
*Registration is required; attendance is limited to first 400 registrants. Registration is \$10.00.*

## **Business Meeting and Awards Program**

**Tuesday, March 15 • 6:00 pm • Grand Ballroom A**

Please join the ASAS Midwestern Section / ADSA Midwestern Branch Joint Board this evening for the annual Business Meeting and 2016 Awards Program. Immediately following the Awards Program, everyone is invited to come to the final reception of the 2016 meeting.

## **Reception**

**Tuesday, March 15 • 7:00 pm • Grand Ballroom A**

Come and join us after the Business Meeting and Awards Program to celebrate and congratulate all of the 2016 Midwest award winners.

# SYMPOSIA AND ORAL SESSIONS

Monday, March 14, 2016

## GARY ALLEE SYMPOSIUM

Chair: Dustin Kendall, Prestage Farms, Inc

Sponsor:

Grand Ballroom

- 8:00 AM            **Welcome - Changing Consumer/Customer Demands, Opportunities for Nutritionists.**
- 8:05 AM    89        **Challenges of shifting consumer demand in the pork processing industry.**  
*C. Kaster\*, Smithfield Foods, Kansas City, MO*
- 8:50 AM    90        **Electronic Sow Feeding (ESF): The Lemonade of Pen Gestation.**  
*T. D. Parsons\*, Department of Clinical Studies, School of Veterinary Medicine, University of Pennsylvania, Kenneth Square*
- 9:30 AM    91        **Crate-free sow housing and electronic feeding systems – a value proposition for improved sow nutrition.**  
*O. F. Mendoza\* and A. M. Gaines, The Maschhoffs, LLC, Carlyle, IL*
- 10:05 AM            **Break.**
- 10:15 AM    92        **Exploring connections between metabolic profiles, stress responses and immune function.**  
*J. A. Carroll\*, N. C. Burdick Sanchez, and P. R. Broadway, USDA-ARS, Livestock Issues Research Unit, Lubbock, TX*
- 11:00 AM    93        **Production Specific Marketing Programs: What Do They Mean for Nutritionists and How Do We Adapt?.**  
*M. J. Bertram\*, First Choice Livestock, Urbandale, IA*
- 11:45 AM            **Panel Discussion.**
- 11:55 AM            **Concluding Remarks.**

## DAVID H. BAKER AMINO ACID SYMPOSIUM

Chair: Nathalie L. Trottier, Michigan State University

Sponsor:

320

- 1:00 PM            **Welcoming Remarks.**
- 1:05 PM    38        **David H. Baker: A Study in Academic Scholarship.**  
*R. A. Easter\*, University of Illinois at Urbana-Champaign*

- 1:45 PM 39 **Comparison of the effects of reduced CP, amino acid supplemented diets on growth performance in swine.**  
*C. E. Vonderohe<sup>\*1</sup>, K. M. Mills<sup>1</sup>, M. D. Asmus<sup>1</sup>, E. R. Otto-Tice<sup>1</sup>, C. V. Maxwell<sup>2</sup>, B. T. Richert<sup>1</sup>, and J. S. Radcliffe<sup>1</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*
- 2:00 PM 40 **Quantifying variable amino acid efficiencies in lactating sows.**  
*R. R. White<sup>\*1</sup>, S. Zhang<sup>2</sup>, N. Regmi<sup>2</sup>, and N. L. Trottier<sup>2</sup>, <sup>1</sup>Virginia Tech, Blacksburg, <sup>2</sup>Michigan State University, East Lansing*
- 2:15 PM 41 **Citrulline and de novo arginine synthesis in perinatal and young pigs.**  
*J. C. Marini<sup>\*1,2</sup>, U. Agarwal<sup>1</sup>, I. C. Didelija<sup>1</sup>, B. Stoll<sup>1</sup>, and D. G. Burrin<sup>1</sup>, <sup>1</sup>USDA-ARS Children's Nutrition Research Center, Baylor College of Medicine, Houston, TX, <sup>2</sup>Section of Critical Care Medicine, Baylor College of Medicine, Houston, TX*
- 2:55 PM **Break.**
- 3:10 PM 42 **An update on modeling dose response relationships: accounting for correlated data structures and heterogeneous variance in linear and non-linear mixed models.**  
*M. A. D. Goncalves, N. M. Bello<sup>\*</sup>, S. S. Dritz, M. D. Tokach, J. M. DeRouche, J. C. Woodworth, and R. D. Goodband, Kansas State University, Manhattan*
- 3:50 PM 43 **Effects of standardized ileal digestible valine:lysine ratio on growth performance of 25- to 45-kg pigs under commercial conditions.**  
*M. A. D. Goncalves<sup>\*1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, N. M. Bello<sup>1</sup>, K. J. Touchette<sup>2</sup>, R. D. Goodband<sup>1</sup>, J. M. DeRouche<sup>1</sup>, and J. C. Woodworth<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL*
- 4:05 PM 44 **Determination of lysine adequacy on a population basis for growing pigs.**  
*C. E. Zier-Rush<sup>1</sup>, C. Neill<sup>2</sup>, S. B. Jungst<sup>2</sup>, N. Matthews<sup>2</sup>, D. S. Rosero<sup>\*1</sup>, and R. D. Boyd<sup>1</sup>, <sup>1</sup>The Hanor Company, Inc., Franklin, KY, <sup>2</sup>PIC, Hendersonville, TN*
- 4:20 PM 45 **Evaluating protein quality of human foods using the pig as a model.**  
*H. Stein<sup>\*</sup>, J. Mattai, University of Illinois at Urbana-Champaign*

## GRADUATE STUDENT ORAL COMPETITION-M.S

Chair: ,  
 Sponsor:  
 302-303

- 1:30 PM 94 **Effect of harvest method on corn residue quality and RUP supplementation on residue quality and performance of growing calves.**  
*T. M. King\**, R. G. Bondurant, J. L. Harding, J. C. MacDonald, and T. J. Klopfenstein, University of Nebraska-Lincoln
- 1:45 PM 95 **Evaluation of a xylanase and an emulsifier in broilers fed different levels of dried yeast.**  
*N. J. Rodriguez*<sup>1</sup>, J. Less<sup>2</sup>, T. R. Radke<sup>2</sup>, A. Hesse<sup>2</sup>, and V. G. Perez<sup>2</sup>, <sup>1</sup>UNAM, Mexico City, Mexico, <sup>2</sup>ADM Animal Nutrition, Decatur, IL
- 2:00 PM 96 **Effect of Sorting Boar Spermatozoa by Sex Chromosomes on Oviduct Cell Binding.**  
*R. A. Winters*<sup>1</sup>, L. M. Nettenstrom<sup>2</sup>, D. G. Lopez<sup>2</sup>, K. L. Willenburgh<sup>2</sup>, R. Vishwanath<sup>2</sup>, and D. J. Miller<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Sexing Technologies Inc., DeForest, WI
- 2:15 PM 97 **Effects of standardized ileal digestible valine:lysine ratio on nursery pig performance.**  
*A. B. Clark*<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, K. J. Touchette<sup>2</sup>, M. A. D. Goncalves<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, and J. C. Woodworth<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL
- 2:30 PM 98 **Impact of elevated preovulatory estradiol during a fixed-time AI protocol on uterine environment and embryonic survival to day 16.**  
*E. J. Northrop*<sup>1</sup>, J. J. Rich<sup>1</sup>, R. A. Cushman<sup>2</sup>, and G. A. Perry<sup>3</sup>, <sup>1</sup>Department of Animal Science, South Dakota State University, Brookings, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>Department of Animal Science, South Dakota State University, Brookings
- 2:45 PM 99 **2015 National Retail Benchmarking Study: effect of enhancement on pork quality.**  
*L. A. Bachmeier*<sup>1</sup>, S. J. Moeller<sup>2</sup>, C. Carr<sup>3</sup>, J. M. Young<sup>1</sup>, X. Sun<sup>1</sup>, J. H. Liu<sup>1</sup>, S. B. Schauunaman<sup>1</sup>, and D. J. Newman<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>The Ohio State University, Columbus, <sup>3</sup>University of Florida, Gainesville
- 3:00 PM 100 **Post-mortem proteolysis and meat tenderness in crossbred steers identified as lowly or highly feed efficient.**  
*C. P. Blank*<sup>\*</sup>, J. R. Russell, S. M. Lonergan, and S. L. Hansen, Iowa State University, Ames

- 3:15 PM 101 **In vitro investigations on the use of non-nutritive sorbent additives to sequester boar taint compounds.**  
*P. Park<sup>\*1</sup>, I. B. Mandell<sup>1</sup>, C. F. M. de Lange<sup>2</sup>, and J. Squires<sup>1</sup>,  
<sup>1</sup>Department of Animal and Poultry Science, University of Guelph, ON, Canada, <sup>2</sup>University of Guelph, ON, Canada*
- 3:30 PM 102 **Changes in Late Gestation Beef Cow Circulating Metabolite and Metabolic Hormone Concentrations Due to Feeding Stockpiled Tall Fescue Versus Tall Fescue Hay.**  
*J. M. Larson<sup>\*1</sup>, K. N. Niederecker<sup>1</sup>, and A. M. Meyer<sup>2</sup>, <sup>1</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>2</sup>University of Missouri, Columbia*
- 3:45 PM 103 **Effects of treating sorghum wet distillers grains plus solubles with calcium hydroxide in steam-flaked corn-based finishing diets on dry matter intake and ruminal fermentation characteristics.**  
*W. W. Gentry<sup>\*1</sup>, C. P. Weiss<sup>1</sup>, C. M. Meredith<sup>1</sup>, C. L. Brauer<sup>1</sup>, F. T. McCollum<sup>1</sup>, N. A. Cole<sup>2</sup>, and J. S. Jennings<sup>1</sup>, <sup>1</sup>Texas A & M AgriLife Research and Extension Center, Amarillo, <sup>2</sup>USDA-ARS, Bushland, TX*
- 4:00 PM 104 **Gross return to corn acres through cattle feeding as influenced by choice of harvest endpoint.**  
*T. A. Johnson<sup>\*1</sup>, A. Hohertz<sup>1</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul*

## GRADUATE STUDENT ORAL COMPETITION-PH.D

Chair: ,  
 Sponsor:  
 306-307

- 1:30 PM 105 **Effect of Feeding a Corn Hybrid Containing Alpha Amylase on Finishing Cattle Performance and Carcass Characteristics.**  
*M. L. Jolly-Breithaupt<sup>\*1</sup>, M. E. Harris<sup>1</sup>, B. L. Nuttelman<sup>1</sup>, D. B. Burken<sup>1</sup>, G. E. Erickson<sup>1</sup>, J. C. MacDonald<sup>1</sup>, and M. K. Luebke<sup>2</sup>,  
<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*
- 1:45 PM 106 **Effects of supplemental soy peptide on growth performance and gut health of nursery pigs.**  
*L. Zheng<sup>\*</sup>, I. Park, and S. W. Kim, North Carolina State University, Raleigh*



- 2:00 PM 107 **Evaluating the inclusion level of medium chain fatty acids to reduce the risk of PEDV in feed and spray-dried animal plasma.**  
*R. A. Cochrane<sup>\*1</sup>, M. Saensukjaroenphon<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. C. Woodworth<sup>1</sup>, A. R. Huss<sup>1</sup>, C. R. Stark<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. F. Bai<sup>1</sup>, Q. Chen<sup>2</sup>, J. Zhang<sup>2</sup>, P. C. Gauger<sup>2</sup>, R. Main<sup>2</sup>, and C. K. Jones<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames*
- 2:15 PM 108 **Liquid Feeding Fermented DDGS to Weanling Pigs: Improvement of Growth Performance with Added Enzymes and Microbial Inoculants.**  
*M. Wiseman<sup>\*1</sup>, D. Wey<sup>1</sup>, and C. F. M. de Lange<sup>2</sup>, <sup>1</sup>Department of Animal Biosciences, University of Guelph, ON, Canada, <sup>2</sup>University of Guelph, ON, Canada*
- 2:30 PM 109 **Impact of sex on composition and quality of fresh loins, bellies, and fresh and processed hams.**  
*E. K. Arkfeld<sup>\*1</sup>, D. A. Mohrhauser<sup>2</sup>, D. A. King<sup>3</sup>, T. L. Wheeler<sup>3</sup>, A. C. Dilger<sup>1</sup>, S. D. Shackelford<sup>3</sup>, and D. D. Boler<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Smithfield Foods, Denison, IA, <sup>3</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 2:45 PM 110 **Immune system stimulation (ISS) induced by E. coli lipopolysaccharide (LPS) alters amino acid metabolism in growing pigs.**  
*W. D. Stuart<sup>\*1</sup>, T. E. Burkey<sup>2</sup>, N. K. Gabler<sup>3</sup>, K. J. Schwartz<sup>3</sup>, D. Klein<sup>1</sup>, J. A. Dawson<sup>1</sup>, A. R. Pendleton<sup>4</sup>, C. F. M. de Lange<sup>5</sup>, and A. Rakhshandeh<sup>1</sup>, <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>Iowa State University, Ames, <sup>4</sup>Amarillo College, Amarillo, <sup>5</sup>University of Guelph, ON, Canada*
- 3:00 PM 111 **Effects of Heat Stress and Zinc Supplementation on the Lipidome of Growing Pigs.**  
*L. Wang<sup>\*1</sup>, P. E. Urriola<sup>2</sup>, Z. Luo<sup>2</sup>, Z. J. Rambo<sup>3</sup>, M. E. Wilson<sup>3</sup>, J. L. Torrison<sup>3</sup>, G. C. Shurson<sup>2</sup>, and C. Chen<sup>1</sup>, <sup>1</sup>Department of Food Science and Nutrition, University of Minnesota, St. Paul, <sup>2</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>3</sup>Zinpro Corporation, Eden Prairie, MN*
- 3:15 PM 112 **Genetic Parameters and Genomic Regions Associated with Piglet Response to Vaccination for Porcine Reproductive and Respiratory Syndrome (PRRS) Virus and Co-Infection with PRRS Virus and Porcine Circovirus Type 2b (PCV2b).**  
*J. R. Dunkelberger<sup>\*1</sup>, N. V. L. Serão<sup>1,2</sup>, M. A. Kerrigan<sup>3</sup>, J. K. Lunney<sup>4</sup>, R. R. Rowland<sup>3</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>North Carolina State University, Raleigh, <sup>3</sup>Kansas State University, Manhattan, <sup>4</sup>USDA, ARS, BARC, APDL, Beltsville, MD*

- 3:30 PM 113 **Optimizing Cost and Environmental Impact of Pig Diets.**  
*J. Burek<sup>1</sup>, G. Thoma<sup>1</sup>, C. V. Maxwell<sup>2</sup>, J. Popp<sup>3</sup>, and R. Ulrich<sup>1</sup>,*  
<sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Department of  
 Animal Science, Division of Agriculture, University of Arkansas,  
 Fayetteville, <sup>3</sup>University of Arkansas, Fayetteville

## UNDERGRADUATE STUDENT ORAL COMPETITION I

Chair: Paul M. Walker, Illinois State University

Sponsor:

312-313

- 1:30 PM 400 **Spinning Straw into Milk: Can a 95% Byproduct Diet Support Milk Production?.**  
*M. Hulett<sup>1</sup>, C. M. Ylloja<sup>1</sup>, T. A. Wickersham<sup>2</sup>, and B. J. Bradford<sup>1</sup>,*  
<sup>1</sup>Department of Animal Sciences and Industry, Kansas State University, Manhattan, <sup>2</sup>Texas A&M University, College Station
- 1:45 PM 401 **Impact of initiating a fixed-time AI program on herd calving date and weaning weight.**  
*L. K. Quail<sup>1</sup>, R. A. Cushman<sup>2</sup>, and G. A. Perry<sup>3</sup>,*  
<sup>1</sup>South Dakota State University, Brookings, SD, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>Department of Animal Science, South Dakota State University, Brookings
- 2:00 PM 402 **Circulating Blood Urea Nitrogen and Glucose Concentrations of Neonatal Beef Calves during the First 72 Hours.**  
*K. A. Pearl<sup>1</sup>, J. M. Larson<sup>1</sup>, and A. M. Meyer<sup>2</sup>,*  
<sup>1</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>2</sup>University of Missouri, Columbia
- 2:15 PM 403 **Effects of Neonatal Litter Size and Age on Ovarian Gene Expression and Follicular Development in Gilts.**  
*M. W. McClure<sup>1</sup>, R. A. Cushman<sup>2</sup>, D. J. Nonneman<sup>2</sup>, and C. A. Lents<sup>2</sup>,*  
<sup>1</sup>University of Tennessee-Martin, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 2:30 PM 404 **Effects of Copper Oxide Bolus Supplementation on Performance of Stocker Calves Grazing Endophyte Infected Tall Fescue.**  
*G. R. Pettig<sup>1</sup>, B. C. Shanks<sup>1</sup>, J. D. Caldwell<sup>2</sup>, A. L. Bax<sup>3</sup>, H. L. Bartimus<sup>1</sup>,*  
*C. A. DeOrnellis<sup>1</sup>, C. L. Boeckmann<sup>1</sup>, J. J. Markway<sup>1</sup>, and M. J. Kramer<sup>1</sup>,*  
<sup>1</sup>Lincoln University, Jefferson City, MO, <sup>2</sup>Purina Animal Nutrition Center LLC, Gray Summit, MO, <sup>3</sup>Department of Agriculture and Environmental Science, Lincoln University, Jefferson City, MO

- 2:45 PM 405 **Evaluation of Parasite Resistance to Commonly Used Commercial Anthelmintics in Meat Goats.**  
*M. K. Goolsby<sup>\*1</sup>, M. L. Leite-Browning<sup>2</sup>, and R. Browning, Jr.<sup>1</sup>, <sup>1</sup>Tennessee State University, Nashville, <sup>2</sup>Alabama A&M University, Huntsville*
- 3:00 PM 406 **Differential expression of genes in the liver associated with gain and intake in beef steers.**  
*C. M. Zarek<sup>\*1</sup>, A. K. Lindholm-Perry<sup>2</sup>, and H. C. Freetly<sup>3</sup>, <sup>1</sup>U.S. Meat Animal Research Center, Clay Center, NE, <sup>2</sup>USDA, ARS, US MARC, Clay Center, NE, <sup>3</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*

## UNDERGRADUATE STUDENT ORAL COMPETITION II

Chair: ,  
 Sponsor:  
 304-305

- 1:30 PM 407 **The Effect of Diet on Serum Antibody Response to Vaccine in Horses.**  
*O. A. Kendall<sup>\*1</sup>, A. Young<sup>1</sup>, E. D. Lamprecht<sup>2</sup>, J. L. Leatherwood<sup>3</sup>, and R. C. Bott<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Cargill, Elk River, MN, <sup>3</sup>Sam Houston State University, Huntsville, TX*
- 1:45 PM 408 **Determining the standardized ileal digestible lysine requirement of 6.8 to 15.9 kg pigs.**  
*C. M. Vier<sup>\*</sup>, I. B. De Souza, J. A. De Jong, M. A. D. Goncalves, A. M. Jones, R. D. Goodband, M. D. Tokach, J. M. DeRouchey, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan*
- 2:00 PM 409 **Comparison of delayed weaning on lamb growth and parasitism while grazing red clover.**  
*K. Nickles<sup>\*1</sup>, J. S. McCutcheon<sup>2</sup>, D. Clevenger<sup>3</sup>, G. Lowe<sup>3</sup>, M. Sword<sup>3</sup>, and F. L. Fluharty<sup>3</sup>, <sup>1</sup>The Ohio State University, Columbus, <sup>2</sup>The Ohio State University, Mount Gilead, <sup>3</sup>The Ohio State University, Wooster*
- 2:15 PM 410 **Effects of commercial formaldehyde inclusion and lysine level on nursery pig performance.**  
*L. G. Sica<sup>\*</sup>, R. A. Cochrane, J. C. Woodworth, S. S. Dritz, C. R. Stark, and C. K. Jones, Kansas State University, Manhattan*

- 2:30 PM 411 **Increased dietary soybean meal does not affect performance during a PRRSV-Mycoplasma hyopneumoniae challenge.**  
*A. L. O'Connell<sup>1</sup>, W. P. Schweer<sup>1</sup>, K. Schwartz<sup>1</sup>, G. Gourley<sup>2</sup>, M. A. FitzSimmons<sup>3</sup>, and N. K. Gabler<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Gourley Research Group LLC, Webster City, IA, <sup>3</sup>Swine Graphics Enterprises, Webster City, IA*
- 2:45 PM 412 **Concentrations of progesterone, estrogen, and insulin in serum during early pregnancy in crossbred Angus beef heifers**  
**Concentrations of progesterone, estrogen, and insulin in serum during early pregnancy in crossbred Angus beef heifers.**  
*T. L. Ellig<sup>\*1</sup>, K. J. McLean<sup>1</sup>, C. R. Dahlen<sup>1,2</sup>, P. P. Borowicz<sup>1,2</sup>, L. P. Reynolds<sup>1,2</sup>, and J. S. Caton<sup>1,2</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Center for Nutrition and Pregnancy, Fargo, ND*
- 3:00 PM 413 **Calcium and magnesium absorption and retention by growing goats offered diets with different calcium sources.**  
*J. E. Long<sup>1</sup>, K. P. Coffey<sup>2</sup>, J. D. Caldwell<sup>3</sup>, D. Philipp<sup>2</sup>, R. T. Rhein<sup>1</sup>, and A. N. Young<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>University of Arkansas, Division of Agriculture, Fayetteville, <sup>3</sup>Purina Animal Nutrition Center LLC, Gray Summit, MO*
- 3:15 PM 414 **Influence of semen handling on post-thaw sperm motility.**  
*C. L. Mogck<sup>\*</sup> and G. A. Perry, Department of Animal Science, South Dakota State University, Brookings*

**SYMPOSIA AND ORAL SESSIONS**  
**TUESDAY, MARCH 15, 2016**

**ANIMAL BEHAVIOR, HOUSING AND WELL-BEING**  
**SYMPOSIUM: PART I**

**Chair: Jennifer A. Brown, Prairie Swine Centre**

**Sponsor:**  
**302-303**

- 8:30 AM            **Welcoming Remarks.**
- 8:40 AM    10    **The Role of Breeding in Positive Welfare Change.**  
*S. P. Turner\*, R. Roehe, J. Conington, S. Desire, R. B. D'Eath,  
and C. M. Dwyer, SRUC, Edinburgh, United Kingdom*
- 9:25 AM    11    **Implementing animal well-being technologies, U.S. producer  
perspective.**  
*A. E. DeDecker\*, Smithfield Hog Production Division, Rose Hill,  
NC*
- 10:10 AM            **Break.**
- 10:25 AM    12    **Engineering solutions to address challenges to animal well-  
being.**  
*A. R. Green\*, University of Illinois at Urbana-Champaign*
- 11:10 AM    13    **Six questions for veterinarians.**  
*J. Deen\*, Dept. of Veterinary Population Medicine, University of  
Minnesota, St. Paul*

**BREEDING AND GENETICS SYMPOSIUM**

**Chair: Juan P. Steibel, Department of Animal Science,  
Michigan State University**

**Sponsor:**  
**304-305**

- 8:30 AM            **Welcoming Remarks.**
- 8:35 AM    34    **Genomic prediction using a model based on haplotype  
clusters.**  
*S. D. Kachman\*, University of Nebraska-Lincoln*
- 9:10 AM            **Break.**
- 9:20 AM    35    **Advances in Genomic Selection and GWA.**  
*I. Misztal\*, University of Georgia, Athens*

- 9:55 AM 36 **Discovery of QTL using a QTL-Effects Model in a Multi-Generational Pedigree.**  
*R. L. Fernando<sup>1</sup>, J. Zeng<sup>1</sup>, H. Cheng<sup>2</sup>, D. Habier<sup>1</sup>, A. Wolc<sup>3</sup>, D. J. Garrick<sup>4</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Hy-Line International, Dallas Center, IA, <sup>4</sup>Massey University, Palmerston North, New Zealand*
- 10:30 AM 37 **Modeling Networks for Prediction and Causal Inference in Quantitative Genetics and Genomics.**  
*G. J. M. Rosa<sup>\*</sup>, University of Wisconsin-Madison*

## DAVID SCHINGOETHE SYMPOSIUM

Chair: Daryl H Kleinschmit, Zinpro Corporation

Sponsor:  
**306-307**

- 8:30 AM 46 **Modifying the composition of milk to increase marketability.**  
*D. J. Schingoethe<sup>\*</sup>, South Dakota State University, Brookings*
- 9:10 AM 47 **The History, Mechanism, and Modification of Milk Fat Synthesis in Ruminants.**  
*K. J. Harvatine<sup>\*</sup>, Penn State University, State College*
- 9:50 AM 48 **Milk composition and synthesis in dairy goats and sheep.**  
*M. Rovai<sup>1</sup> and G. Caja<sup>2</sup>, <sup>1</sup>South Dakota State University, Brookings, SD, <sup>2</sup>Group of Ruminant Research (G2R), Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*
- 10:30 AM 49 **(Young Scholar) Physiological and molecular mechanisms associated with performance, immunometabolic status, and liver function in transition dairy cows fed rumen protected methionine or choline.**  
*Z. Zhou<sup>\*</sup>, M. Vailati Riboni<sup>1</sup>, O. Bulgari<sup>1</sup>, E. Trevisi<sup>2</sup>, T. A. Garrow<sup>1</sup>, J. K. Drackley<sup>1</sup>, P. Cardoso<sup>1</sup>, D. N. Luchini<sup>3</sup>, and J. J. Looor<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Università Cattolica del Sacro Cuore, Piacenza, Italy, <sup>3</sup>Adisseo S.A.S., Alghetta, GA*
- 11:00 AM 50 **(Young Scholar) Control of bovine pyruvate carboxylase expression by saturated and unsaturated fatty acids and impact on fatty acid metabolism.**  
*K. E. Boesche<sup>\*</sup>, S. L. Koser, and S. S. Donkin, Purdue University, West Lafayette, IN*

- 11:30 AM 51 **(Young Scholar) Postpartum protein nutrition for dairy cows.**  
*W. D. Weich<sup>1</sup>, K. F. Kalscheur<sup>2</sup>, and D. P. Casper<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>USDA-ARS Dairy Forage Research Center, Madison, WI*

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

**Chair: Chad A. Stahl, F.A.C.T.S.**

**Sponsor:  
318-319**

- 8:30 AM 137 **Use of Visible and Near Infrared Spectroscopy to Predict Beef and Pork Quality.**  
*S. D. Shackelford\*, D. A. King, and T. L. Wheeler; USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 9:15 AM 138 **The quandaries of measuring meat quality.**  
*J. K. Apple\*<sup>1</sup> and J. W. S. Yancey<sup>2</sup>, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>Department of Animal Science, University of Arkansas, Fayetteville*
- 10:00 AM 139 **Differentiating Lamb Flavor.**  
*D. R. Woerner\*, T. W. Hoffman, J. D. Tatum, and K. E. Belk, Colorado State University, Fort Collins*

**HARLAN RITCHIE SYMPOSIUM**

**Chair: W. J. Sexten, Certified Angus Beef LLC**

**Sponsor:  
312-313**

- 8:30 AM **Welcoming Remarks.**
- 8:35 AM 150 **Alternative cow-calf production systems: Opportunities and challenges.**  
*R. J. Rasby\*<sup>1</sup>, J. M. Warner<sup>2</sup>, K. H. Jenkins<sup>3</sup>, and T. J. Klopfenstein<sup>2</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>University of Nebraska, Scottsbluff*
- 9:20 AM **Implementing the 2015 Beef NRC Changes in Cow Herd Nutrition.**  
*Ron Lemenager; Purdue University, West Lafayette, IN*
- 10:05 AM **Break.**

- 10:20 AM      **Implementing the 2015 Beef NRC Changes in Growing and Finishing Cattle.**  
*Galen Erickson, University of Nebraska-Lincoln*
- 11:05 AM      **Transparency in the Food System: Communicating Science to the Consumer.**  
*J. Jones, The Center for Food Integrity*

**NONRUMINANT NUTRITION: GROW/FINISH I**

**Chair: Victor G. Perez; Roman Moreno,  
 ADM Animal Nutrition; Seaboard Foods**

**Sponsor:  
 314-315**

- 8:30 AM    218    **(Young Scholar) Characterization of variability in the U.S. pork supply.**  
*E. K. Arkfeld<sup>1</sup>, S. D. Shackelford<sup>2</sup>, A. C. Dilger<sup>1</sup>, and D. D. Boler<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 9:00 AM    219    **(Young Scholar) Requirements for digestible Ca by growing pigs.**  
*J. C. González-Vega<sup>\*1</sup>, C. L. Walk<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>AB Vista, Marlborough, United Kingdom*
- 9:30 AM    220    **Digestible calcium requirements for 25 to 50 kg pigs.**  
*J. C. González-Vega<sup>\*1</sup>, C. L. Walk<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>AB Vista, Marlborough, United Kingdom*
- 9:45 AM    221    **Impact of increasing dietary energy concentration through graded levels of corn oil or choice white grease on carcass characteristics in pigs.**  
*T. Kellner<sup>\*1</sup>, S. Wisdom<sup>2</sup>, G. Gourley<sup>3</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Swine Graphics Enterprises, Webster City, IA, <sup>3</sup>Gourley Research Group, Webster City, IA*
- 10:00 AM    222    **Impact of the source and level of dietary fat on growth performance as well as apparent and true total tract digestibility of acid hydrolyzed ether extract in growing and finishing pig diets.**  
*T. Kellner<sup>\*1</sup>, G. Gourley<sup>2</sup>, S. Wisdom<sup>3</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Gourley Research Group, Webster City, IA, <sup>3</sup>Swine Graphics Enterprises, Webster City, IA*



- 10:15 AM 223 **Efficacy of supplemental liquid L-lysine for pigs in comparison to crystalline L-lysine HCl.**  
*W. Parnsen<sup>1</sup>, J. Wang<sup>1</sup>, K. J. Touchette<sup>2</sup>, Z. Jiang<sup>2</sup>, and S. W. Kim<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL*
- 10:30 AM 224 **Diet nutrient digestibility and growth performance of weaned pigs fed canola meal samples varying in nutritive quality.**  
*L. F. Wang<sup>1</sup>, E. Beltranena<sup>1,2</sup>, and R. T. Zijlstra<sup>1</sup>, <sup>1</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, <sup>2</sup>Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 10:45 AM 225 **Prediction of the concentration of standardized ileal digestible (SID) amino acids among sources of distillers dried grains with solubles (DDGS) for growing pigs: A meta-analysis.**  
*Z. Zeng<sup>\*</sup>, G. C. Shurson, and P. E. Urriola, Department of Animal Science, University of Minnesota, St. Paul*
- 11:00 AM 226 **Amino acid digestibility of five samples of canola meal fed to ileal-cannulated grower pigs.**  
*B. V. Le Thanh<sup>1</sup>, X. Zhou<sup>1</sup>, E. Beltranena<sup>2</sup>, and R. T. Zijlstra<sup>3</sup>, <sup>1</sup>University of Alberta, Edmonton, AB, Canada, <sup>2</sup>Alberta Agriculture and Forestry, Edmonton, AB, Canada, <sup>3</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*
- 11:15 AM 227 **Amino Acid Digestibility in Dairy Proteins Compared with Plant Proteins.**  
*J. K. Mathai<sup>\*</sup>, Y. Liu, and H. H. Stein, University of Illinois at Urbana-Champaign*
- 11:30 AM 228 **Effect of fat sources on ATTD of minerals.**  
*L. A. Merriman<sup>1</sup>, C. L. Walk<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>AB Vista, Marlborough, United Kingdom*
- 11:45 AM 233 **Evaluating the effects of sodium sesquicarbonate in the grow-finish phase fed during summer months.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>1</sup>, B. Knopf<sup>1</sup>, and W. Plocher<sup>2</sup>, <sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Tronox Specialty Alkali Corporation, Green River, WY*
- 12:00 PM 230 **Effect of divergent selection for Residual Feed Intake on whole body protein turnover in growing gilts fed either adequate or lysine deficient diets.**  
*D. J. Hewitt<sup>1</sup>, C. F. M. de Lange<sup>2</sup>, T. Antonick<sup>1</sup>, J. C. M. Dekkers<sup>3</sup>, A. R. Pendleton<sup>4</sup>, and A. Rakhshandeh<sup>1</sup>, <sup>1</sup>Texas Tech University, Lubbock, <sup>2</sup>University of Guelph, ON, Canada, <sup>3</sup>Iowa State University, Ames, <sup>4</sup>Amarillo College, Amarillo, TX*

**NONRUMINANT NUTRITION SYMPOSIUM**

Chair: Thomas E. Burkey, University of Nebraska

Sponsor:

316-317

- 8:30 AM **Welcoming Remarks.**
- 8:50 AM 267 **What is ‘gut health’ and how do you quantify/measure it?**  
*A. J. Moeser\**, North Carolina State University, Raleigh
- 9:20 AM 268 **New probiotic Bacillus strain improving gut health in piglets.**  
*B. Lantz\*<sup>1</sup>, B. K. Nielsen<sup>2</sup> and R. Cernat<sup>2</sup>, <sup>1</sup>Chr. Hansen A/S, Columbus, Ohio, <sup>2</sup>Chr. Hansen A/S, Hoersholm, Denmark*
- 9:35 AM 269 **Use of dietary carbohydrates as prebiotic in swine diets.**  
*R. T. Zijlstra\*<sup>1</sup>, J. M. Fouhse<sup>2</sup>, E. Beltranena<sup>3</sup>, A. M. H. Le<sup>2</sup>, and M. G. Gaenzle<sup>2</sup>, <sup>1</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, <sup>2</sup>University of Alberta, Edmonton, AB, Canada, <sup>3</sup>Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 10:05 AM 270 **Impact of different high fiber diets on intestinal cell proliferation and differentiation in finishing pigs.**  
*Z. Huang\*, P. E. Urriola, G. C. Shurson, and M. Saqui-Salces, Department of Animal Science, University of Minnesota, St. Paul*
- 10:20 AM **Break.**
- 10:35 AM 271 **Effects of dietary supplementation of phytobiotics on growth performance and health status of growing-finishing pigs.**  
*I. Park\*, W. Parnsen, and S. W. Kim, North Carolina State University, Raleigh*
- 10:50 AM 428 **Lysozymes as an alternative to antibiotics in swine feed.**  
*W. T. Oliver and J. E. Wells, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 11:20 AM 272 **Alternatives to antibiotics: biotechnological approach to deliver recombinant bioactive proteins.**  
*E. Huynh, C. F. M. de Lange, and J. Li\*, University of Guelph, ON, Canada*

## PHYSIOLOGY

Chair: Patrick J. Gunn, Department of Animal Science,  
Iowa State University

Sponsor:  
401

- 8:30 AM 336 **Heat stress affects the serum concentrations of free amino acids in growing pigs.**  
*A. Morales<sup>1</sup>, M. Cota<sup>1</sup>, N. Ibarra<sup>1</sup>, N. Arce<sup>1</sup>, J. K. Htoo<sup>2</sup>, and M. Cervantes<sup>\*1</sup>, <sup>1</sup>ICA - Universidad Autónoma de Baja California, Mexicali, Mexico, <sup>2</sup>Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*
- 8:45 AM 305 **Does heat stress alter the pig's response to dietary fat source, as it relates to apparent or true total tract digestibility of dietary lipids?.**  
*T. Kellner<sup>\*</sup>, L. H. Baumgard, and J. F. Patience, Iowa State University, Ames*
- 9:00 AM 306 **Effects of dietary chromium propionate during heat stress on finishing pigs.**  
*E. J. Mayorga<sup>\*1</sup>, S. K. Stoakes<sup>1</sup>, J. T. Seibert<sup>1</sup>, E. A. Horst<sup>1</sup>, M. Abuajamieh<sup>1</sup>, S. Lei<sup>1</sup>, L. Ochoa<sup>2</sup>, B. Kremer<sup>2</sup>, and L. H. Baumgard<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Kemin Industries, Inc., Des Moines, IA*
- 9:15 AM 307 **Supplementation of a Lactobacillus acidophilus fermentation product can attenuate the acute phase response following a lipopolysaccharide challenge in pigs.**  
*P. R. Broadway<sup>\*1</sup>, J. A. Carroll<sup>1</sup>, N. C. Burdick Sanchez<sup>1</sup>, B. E. Bass<sup>2</sup>, and J. W. Frank<sup>2</sup>, <sup>1</sup>USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, <sup>2</sup>Diamond V, Cedar Rapids, IA*
- 9:30 AM 308 **Intestinal microbiota and expression of genes involved in immunity are modulated in nursing piglets by growth performance in the first week of life.**  
*M. Lessard<sup>\*1</sup>, K. Deschêne<sup>2</sup>, B. Morissette<sup>2,3</sup>, M. Blais<sup>2</sup>, F. Beaudoin<sup>2</sup>, K. Lauzon<sup>2</sup>, and G. Talbot<sup>2</sup>, <sup>1</sup>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, <sup>2</sup>Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada, <sup>3</sup>Université de Sherbrooke, Sherbrooke, QC, Canada*
- 9:45 AM 309 **Evaluation of a QTL for porcine circovirus type 2b (PCV2) viral load on growth performance in inoculated and vaccinated pigs for PCV2.**  
*D. M. van Sambeek<sup>\*</sup>, E. R. Tosky, P. S. Miller, D. C. Ciobanu, and T. E. Burkey, University of Nebraska-Lincoln*

- 10:00 AM 310 **Piglet Growth Before Weaning has Long-Term Effects on Intestinal Barrier Function.**  
*A. Mereu<sup>\*</sup>, J. J. Pastor<sup>1</sup>, D. Chin<sup>2</sup>, G. Rimbach<sup>2</sup>, and I. R. Ipharraguerre<sup>1,2</sup>, <sup>1</sup>Lucta S.A., Barcelona, Spain, <sup>2</sup>Institute of Human Nutrition and Food Science, University of Kiel, Kiel, Germany*
- 10:30 AM 311 **Dietary D-xylose effects on growth performance and portal-drained viscera nutrient fluxes, insulin production, and oxygen consumption in growing pigs.**  
*A. K. Agyekum<sup>\*</sup>, M. C. Walsh<sup>2</sup>, E. Kiarie<sup>1,3,4</sup>, J. S. Sands<sup>1,5</sup>, and C. M. Nyachoti<sup>1</sup>, <sup>1</sup>University of Manitoba, Winnipeg, MB, Canada, <sup>2</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom, <sup>3</sup>DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, United Kingdom, <sup>4</sup>University of Guelph, ON, Canada, <sup>5</sup>BioQuest UK Ltd, Marlborough, United Kingdom*
- 10:45 AM 312 **Use of AliveCor Heart Monitor for Heart Rate and Rhythm Evaluation in Domestic Water Buffalo Calves.**  
*J. Smith<sup>\*</sup>, J. Ward<sup>1</sup>, T. Urbano<sup>2</sup>, and M. Mueller<sup>3</sup>, <sup>1</sup>Iowa State University College of Veterinary Medicine, Ames, <sup>2</sup>School of Veterinary Medicine, University of California, Davis, <sup>3</sup>Blue Pearl Veterinary Partners, Seattle, WA*
- 11:00 AM 313 **Plasma analytes concentrations of beef heifers diverging in frame size and known feed efficiency group.**  
*A. B. P. Fontoura<sup>\*</sup>, F. E. Doscher, C. R. Dahlen, K. Ringwall, K. A. Vonnahme, L. L. L. H. Hanna, and K. C. Swanson, North Dakota State University, Fargo*

## RUMINANT NUTRITION: BY-PRODUCTS

**Chair: Mary Drewnoski, University of Nebraska-Lincoln**

**Sponsor:  
308-309**

- 8:30 AM 366 **Accurate Amounts and Nutritive Values of Corn Residue.**  
*S. E. Gardine<sup>\*</sup>, A. K. Watson<sup>2</sup>, J. L. Harding<sup>1</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Department of Animal Science, University of Nebraska-Lincoln*
- 8:45 AM 367 **Evaluation of different byproduct combinations along with treated corn stover on growing steer performance.**  
*K. M. Ulmer<sup>\*</sup>, C. J. Bittner, F. H. Hilscher, G. E. Erickson, and J. C. MacDonald, University of Nebraska-Lincoln*

- 9:00 AM 368 **Effects of co-ensiling high moisture corn stover with co-products on spoilage, aerobic stability, nutrient composition, and in situ digestibility.**  
*M. H. Sena\**, *T. L. Felix*, *W. T. Meteer*, and *D. W. Shike*,  
*University of Illinois at Urbana-Champaign*
- 9:15 AM 369 **The effect of delayed corn silage harvest on performance of yearling steers fed 15 or 45% silage finishing diets.**  
*F. H. Hilscher\**, *C. J. Bittner*, *D. B. Burken*, *T. J. Klopfenstein*,  
and *G. E. Erickson*, *University of Nebraska-Lincoln*
- 9:30 AM 370 **The effect of corn silage harvest DM and rumen undegradable protein supplementation in silage growing diets growing beef cattle.**  
*F. H. Hilscher\**, *J. L. Harding*, *R. G. Bondurant*, *T. J. Klopfenstein*,  
and *G. E. Erickson*, *University of Nebraska-Lincoln*
- 9:45 AM 371 **Influence of two fat levels of dry distillers grains in diets with corn or barley on growing and finishing feedlot and carcass performance of steers.**  
*C. L. Engel*<sup>1</sup>, *V. L. Anderson*<sup>2</sup>, and *K. C. Swanson*<sup>3</sup>, <sup>1</sup>*North Dakota State University, Carrington Research Extension Center, Carrington, ND*, <sup>2</sup>*Carrington Research Extension Center, North Dakota State University, Carrington*, <sup>3</sup>*North Dakota State University, Fargo*
- 10:00 AM 372 **Evaluation of the Value of Fiber in Distillers Grains Plus Solubles on Performance of Finishing Cattle.**  
*J. E. Burhoop*<sup>1</sup>, *L. J. Schneider*<sup>2</sup>, *C. J. Bittner*<sup>1</sup>, *F. H. Hilscher*<sup>1</sup>,  
*J. C. MacDonald*<sup>1</sup>, *R. A. Moxley*<sup>3</sup>, *D. R. Smith*<sup>2</sup>, and *G. E. Erickson*<sup>1</sup>, <sup>1</sup>*University of Nebraska-Lincoln*, <sup>2</sup>*Mississippi State University, Mississippi State*, <sup>3</sup>*School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln*
- 10:15 AM 373 **Effects of Feeding Isolated Nutritional Components in Distillers Grains on Growing Cattle Performance.**  
*B. B. Conroy*<sup>1</sup>, *C. J. Bittner*<sup>2</sup>, *J. C. MacDonald*<sup>2</sup>, *M. K. Luebbeck*<sup>1</sup>,  
and *G. E. Erickson*<sup>2</sup>, <sup>1</sup>*University of Nebraska, Scottsbluff*,  
<sup>2</sup>*University of Nebraska-Lincoln*
- 10:30 AM 374 **Effects of feeding corn condensed distillers solubles and crude glycerin alone or in combination on growth performance and carcass characteristics of finishing steers.**  
*C. P. Weiss*<sup>1</sup>, *W. W. Gentry*<sup>1</sup>, *C. L. Brauer*<sup>1</sup>, *F. T. McCollum*<sup>1</sup>, *N. A. Cole*<sup>2</sup>,  
and *J. S. Jennings*<sup>1</sup>, <sup>1</sup>*Texas A & M AgriLife Research and Extension Center, Amarillo*,  
<sup>2</sup>*USDA-ARS, Bushland, TX*
- 10:45 AM 375 **Effect of crude glycerin concentration on growing steer performance in forage diets.**  
*R. G. Bondurant\**, *J. C. MacDonald*, *G. E. Erickson*, and *T. J. Klopfenstein*,  
*University of Nebraska-Lincoln*

- 11:00 AM 376 **Effects of ruminal alkalinizing and/or buffering agents fed to feedlot steers on performance and carcass characteristics.**  
*N. A. Lancaster\* and J. P. Schoonmaker, Purdue University, West Lafayette, IN*
- 11:15 AM 377 **Effects of Different Inoculum Used for in vitro and in situ Digestion Procedures Performed on Corn Residue Samples.**  
*H. C. Hamilton<sup>1</sup>, J. L. Harding<sup>2</sup>, J. C. MacDonald<sup>1</sup>, and T. J. Klopfenstein<sup>2</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska-Lincoln*
- 11:30 AM 378 **Relationship Between TDN and OM Digested in Beef Cattle Finishing Diets.**  
*H. C. Hamilton<sup>1</sup>, J. L. Harding<sup>2</sup>, J. C. MacDonald<sup>1</sup>, T. J. Klopfenstein<sup>2</sup>, and A. K. Watson<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska-Lincoln*
- 11:45 AM 379 **Effects of diet type and feeding phase on intake and feed efficiency of beef cattle.**  
*C. Cassady\*, T. L. Felix, and D. W. Shike, University of Illinois at Urbana-Champaign*

**ANIMAL BEHAVIOR, HOUSING AND WELL-BEING  
SYMPOSIUM: PART II**

**Chair: Jennifer A. Brown, Prairie Swine Centre**

**Sponsor:**

**302-303**

- 1:30 PM 23 **Opportunities for monitoring and improving animal welfare using precision dairy monitoring technologies.**  
*J. M. Bewley\*, University of Kentucky, Lexington*
- 2:15 PM 24 **Improving Welfare, Health and Productivity in Pigs by Optimizing Adaptation.**  
*J. E. Bolhuis\* and B. Kemp, Adaptation Physiology Group, Wageningen University, Wageningen, Netherlands*

**BREEDING AND GENETICS**

**Chair: Juan P. Steibel, Department of Animal Science,  
Michigan State University**

**Sponsor:  
304-305**

- 1:30 PM 25 **Number born alive accuracy changes by including crossbred records when estimating Large White and Landrace breeding values from a large seedstock supplier.**  
*D. L. Beam<sup>\*1</sup>, J. W. Mabry<sup>2</sup>, and K. J. Stalder<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames*
- 1:45 PM 26 **Genome-wide association study (GWAS) for residual feed intake (RFI) and component traits of feed efficiency in pigs divergently selected for RFI.**  
*N. V. Serão<sup>\*1,2</sup>, E. D. Mauch<sup>2</sup>, S. K. Onteru<sup>3</sup>, M. F. Rothschild<sup>2</sup>, and J. C. M. Dekkers<sup>2</sup>, <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>National Dairy Research Institute, Karnal, India*
- 2:00 PM 27 **Performance of Genomic Prediction using Haplotypes in New Zealand Dairy Cattle.**  
*M. K. Hayr<sup>\*1</sup>, T. Druet<sup>2</sup>, and D. J. Garrick<sup>3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>University of Liège, Liège, Belgium, <sup>3</sup>Massey University, Palmerston North, New Zealand*
- 2:15 PM 28 **The use of alternative genomic metrics in swine nucleus herds to manage the diversity of purebred and crossbred animals.**  
*J. T. Howard<sup>1</sup>, F. Tiezzi<sup>1</sup>, Y. Huang<sup>2</sup>, K. A. Gray<sup>2</sup>, and C. Maltecca<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Smithfield Premium Genetics, Rose Hill, NC*
- 2:30 PM 29 **Mitigating the effect of seasonality on sow reproductive performance using genetic selection.**  
*M. R. Bryan<sup>1</sup>, C. Maltecca<sup>1</sup>, K. A. Gray<sup>2</sup>, Y. Huang<sup>2</sup>, and F. Tiezzi<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Smithfield Premium Genetics, Rose Hill, NC*
- 2:45 PM 30 **Genome-wide association study for meat quality traits in an F2 Duroc x Pietrain population.**  
*S. Casiro<sup>\*1</sup>, D. Velez-Irizarry<sup>1</sup>, R. O. Bates<sup>1</sup>, C. W. Ernst<sup>2</sup>, and J. P. Steibel<sup>1</sup>, <sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, <sup>2</sup>Genetics Program, Michigan State University, East Lansing*

- 3:00 PM 31 **Characterization of objective feet and leg joint measurements between selection and second gestation and between separate gestation ages in swine.**  
*J. D. Stock<sup>\*1</sup>, J. A. Calderón Díaz<sup>2</sup>, B. E. Mote<sup>3,4</sup>, and K. J. Stalder<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>Fast Genetics Inc., Saskatoon, SK, Canada*
- 3:15 PM 32 **QTL and candidate genes associated with heifer pregnancy rate and stayability in beef cattle.**  
*M. Saatchi<sup>\*1,2</sup> and D. J. Garrick<sup>1,3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>American Simmental Association, Bozeman, MT, <sup>3</sup>Massey University, Palmerston North, New Zealand*

### EXTENSION - DAIRY SYMPOSIUM

Chair: Jill L. Anderson, South Dakota State University

Sponsor:  
306-307

- 1:30 PM 66 **Midwest Dairy Processing Needs, Trends, and changes.**  
*V. V. Mistry<sup>\*</sup>, South Dakota State University, Brookings*
- 2:00 PM 67 **Organic pasture versus conventional dairying – is there a difference in sustainability.**  
*B. J. Heins<sup>\*</sup>, University of Minnesota West Central Research and Outreach Center, Morris, MN*
- 2:30 PM 68 **Field observations of automated dairy calf feeding systems in the upper Midwest.**  
*N. B. Litherland<sup>\*</sup> and A. M. Hoskins, Vita Plus Corporation, Madison, WI*
- 3:00 PM 69 **Key Factors Affecting Automated Milking System Performance.**  
*J. A. Salfer<sup>\*1</sup> and M. I. Endres<sup>2</sup>, <sup>1</sup>University of Minnesota, St. Cloud, <sup>2</sup>University of Minnesota, Saint Paul*
- 3:30 PM 70 **(Young Scholar) Effects of milk replacer feeding regimen to the pre-ruminant calf on crude protein utilization, digestibility, and growth.**  
*C. E. Chapman<sup>\*</sup>, University of New Hampshire, Durham*
- 4:00 PM 71 **(Young Scholar) Potential Body Site Reservoirs for Coagulase Negative Staphylococcal Intramammary Infection in Heifers.**  
*P. R. F. Adkins<sup>\*</sup> and J. R. Middleton, University of Missouri, Columbia*
- 4:30 PM 72 **(Young Scholar) Strategies for Programming the Lactation.**  
*A. J. Carpenter<sup>\*</sup>, Department of Animal Sciences and Industry, Kansas State University, Manhattan*



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

Chair: Chad A. Stahl, F.A.C.T.S.

Sponsor:

318-319

- 1:30 PM 127 **Pork Quality: 2015 National Retail Benchmarking Study.**  
*L. A. Bachmeier<sup>\*1</sup>, S. J. Moeller<sup>2</sup>, C. Carr<sup>3</sup>, J. M. Young<sup>1</sup>, X. Sun<sup>1</sup>, J. H. Liu<sup>1</sup>, S. B. Schauunaman<sup>1</sup>, and D. J. Newman<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>The Ohio State University, Columbus, <sup>3</sup>University of Florida, Gainesville*
- 1:45 PM 128 **Moringa oleifera as an alternative protein source to soybean meal in pig production.**  
*A. Ruckli<sup>1</sup> and G. Bee<sup>\*2</sup>, <sup>1</sup>Institute for Livestock Sciences, Posieux, Switzerland, <sup>2</sup>Agroscope Institute for Livestock Sciences, Posieux, Switzerland*
- 2:00 PM 129 **Effect of marketing group on the variability of fresh loin, belly, and fresh and processed ham quality from pigs sourced from a commercial processing facility.**  
*E. K. Arkfeld<sup>1</sup>, K. B. Wilson<sup>1</sup>, M. F. Overholt<sup>1</sup>, B. N. Harsh<sup>1</sup>, J. E. Lowell<sup>1</sup>, E. K. Hogan<sup>1</sup>, B. J. Klehm<sup>1</sup>, B. M. Bohrer<sup>1</sup>, B. C. Peterson<sup>1</sup>, K. A. Kroscher<sup>1</sup>, C. R. Stites<sup>1</sup>, D. A. Mohrhauser<sup>2</sup>, D. A. King<sup>3</sup>, T. L. Wheeler<sup>3</sup>, A. C. Dilger<sup>1</sup>, S. D. Shackelford<sup>3</sup>, and D. D. Boler<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Smithfield Foods, Denison, IA, <sup>3</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 2:15 PM 130 **Carcass length is a poor predictor of the number of boneless chops from a pork loin.**  
*K. B. Wilson<sup>\*1</sup>, M. F. Overholt<sup>1</sup>, E. K. Hogan<sup>1</sup>, C. M. Shull<sup>2</sup>, A. C. Dilger<sup>1</sup>, and D. D. Boler<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 2:30 PM 131 **Intramuscular Variation in Fresh Ham Muscle Color.**  
*D. A. King<sup>\*</sup>, S. D. Shackelford, and T. L. Wheeler; USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 2:45 PM 132 **A mitochondrial protein increases glycolytic flux in muscle postmortem.**  
*S. K. Matarneh<sup>1</sup>, E. M. England<sup>2</sup>, T. L. Scheffler<sup>3</sup>, C. N. Yen<sup>1</sup>, and D. E. Gerrard<sup>1</sup>, <sup>1</sup>Virginia Polytechnic Institute and State University, Blacksburg, VA, <sup>2</sup>The Ohio State University, Columbus, <sup>3</sup>University of Florida, Gainesville*

- 3:00 PM 133 **Low fat ground beef patties have increased oxidation compared with high fat ground beef patties.**  
*D. R. Reynolds<sup>1</sup>, J. V. Cooper<sup>1</sup>, B. R. Wiegand<sup>1</sup>, Z. D. Callahan<sup>2</sup>, A. B. Koc<sup>3</sup>, L. Schumacher<sup>1</sup>, L. Fernando<sup>1</sup>, and C. L. Lorenzen<sup>1</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>3</sup>Clemson University, Clemson*
- 3:15 PM 134 **Comparison of new and modern lighting technologies on ground beef color.**  
*J. V. Cooper<sup>1</sup>, D. R. Reynolds<sup>1</sup>, B. R. Wiegand<sup>1</sup>, Z. D. Callahan<sup>2</sup>, A. B. Koc<sup>3</sup>, L. Schumacher<sup>1</sup>, and C. L. Lorenzen<sup>1</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>3</sup>Clemson University, Clemson*
- 3:30 PM 135 **Grass fed or DFD?.**  
*A. Apaoblaza<sup>1</sup>, S. K. Matarneh<sup>1</sup>, E. M. England<sup>2</sup>, T. L. Scheffler<sup>3</sup>, S. K. Duckett<sup>4</sup>, and D. E. Gerrard<sup>1</sup>, <sup>1</sup>Virginia Polytechnic Institute and State University, Blacksburg, <sup>2</sup>The Ohio State University, Columbus, <sup>3</sup>University of Florida, Gainesville, <sup>4</sup>Clemson University, Clemson*
- 3:45 PM 136 **Autophagy Induction in the Pig Follicular Stage Ovary during Heat Stress.**  
*B. J. Hale<sup>\*</sup>, C. L. Hager, A. A. Al-Shaibi, J. T. Seibert, L. H. Baumgard, A. F. Keating, and J. W. Ross, Iowa State University, Ames*

## NONRUMINANT NUTRITION: FEED ADDITIVES

**Chair: Huyen Tran; Tofuko Awori Woyengo,  
 University of Nebraska; University of Alberta**

**Sponsor:  
 314-315**

- 1:30 PM 151 **Evaluation of copper source addition in the grow-finish phase.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>1</sup>, B. Knopf<sup>1</sup>, R. J. Harrell<sup>2</sup>, and J. Connor<sup>3</sup>, <sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Professional Swine Management, Carthage, IL, <sup>3</sup>Carthage Veterinary Service, Ltd, Carthage, IL*
- 1:45 PM 152 **Effects of Lactobacillus acidophilus fermentation product supplementation in different nutrient density diets on growth performance, nutrient digestibility, fecal microbiota and fecal noxious gas emissions in weanling pigs.**  
*R. X. Lan<sup>1</sup>, J. M. Koo<sup>2</sup>, S. I. Lee<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Shinhan BioChem Co., Hwaseong, South Korea*

- 2:00 PM 153 **Inclusion of a hydrolyzed yeast product in grow/finish pig diets reduced mortality.**  
*C. L. Levesque<sup>1</sup>, S. Jalukar<sup>2</sup>, N. Gutierrez<sup>3</sup>, and J. F. Patience<sup>3</sup>,  
<sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Arm and Hammer Animal Nutrition, Mason City, IA, <sup>3</sup>Iowa State University, Ames*
- 2:15 PM 154 **The effects of feeding narasin or virginiamycin on growth and harvest performance of pigs during the grow-finish period.**  
*R. A. Arentson<sup>1</sup> and J. J. Chewning<sup>2</sup>, <sup>1</sup>Elanco, Greenfield, IN, <sup>2</sup>Swine Research Services, Inc., Springdale, AR*
- 2:30 PM 155 **Growth Performance and Serum IgA Concentrations in Weanling Pigs Fed Dietary Prebiotics.**  
*Y. S. Li<sup>1</sup>, M. D. Trenhaile<sup>1</sup>, M. M. Lima<sup>2</sup>, K. C. Moore<sup>1</sup>, D. M. van Sambeek<sup>1</sup>, T. E. Burke<sup>1</sup>, and P. S. Miller<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil*
- 2:45 PM 156 **Effects of modified yeast cell wall extract on growth performance and health status of pigs fed diets with low level mycotoxins.**  
*I. Park<sup>1</sup>, J. Guo, and S. W. Kim, North Carolina State University, Raleigh*
- 3:00 PM 157 **Effects of dietary Cu, Zn, and ractopamine-HCl on finishing pig growth performance, carcass characteristics, and antimicrobial susceptibility of enteric bacteria.**  
*J. A. Feldpausch<sup>1</sup>, R. Amachawadi<sup>1</sup>, M. D. Tokach<sup>1</sup>, H. M. Scott<sup>2</sup>, S. S. Dritz<sup>1</sup>, T. G. Nagaraja<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. C. Woodworth<sup>1</sup>, and J. M. DeRouche<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Texas A&M University, College Station*
- 3:15 PM 158 **Lactobacillus acidophilus fermentation product modulates inflammatory activity by regulating the TLR4 and NFκB expression in porcine peripheral blood mononuclear cells after lipopolysaccharide challenge.**  
*S. I. Lee<sup>1</sup>, J. M. Koo<sup>2</sup>, R. X. Lan<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Shinhan BioChem Co., Hwaseong, South Korea*
- 3:30 PM 159 **Effects of copper source and level on growth performance and bone mineralization in pigs fed phytase-supplemented diets.**  
*R. Davin<sup>1</sup>, F. N. Almeida<sup>2</sup>, J. Zhao<sup>2</sup>, J. Escobar<sup>2</sup>, and M. Vázquez-Añón<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Novus International, Inc., St. Charles, MO*

- 3:45 PM 160 **The effect of feeding a phytogenic (Ambitine™MFT) with and without added copper on late finishing pig performance.**  
*S. A. Crowder<sup>1</sup>, T. L. Weeden<sup>1</sup>, M. B. Lachmann Sevilla<sup>1</sup>, B. De Rodas<sup>1</sup>, and T. P. Karnezos<sup>2</sup>, <sup>1</sup>Purina Animal Nutrition LLC, Shoreview, MN, <sup>2</sup>PMI Nutritional Additives, Shoreview, MN*
- 4:00 PM 161 **Effects of Fiber, a Direct-Fed Microbial, and Feeding Duration on Ileal and Total Tract Digestibility of Energy and Nutrients by Pigs.**  
*N. W. Jaworski<sup>1</sup>, M. C. Walsh<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom*
- 4:15 PM 162 **Improved growth performance of nursery pigs fed diets supplemented with a *Bacillus subtilis*-based direct-fed microbial feed additive.**  
*N. R. Augspurger<sup>1</sup>, J. D. Spencer<sup>1</sup>, S. Son<sup>2</sup>, J. A. Ley<sup>1</sup>, and M. R. King<sup>2</sup>, <sup>1</sup>JBS United, Inc., Sheridan, IN, <sup>2</sup>Microbial Discovery Group, Franklin, WI*
- 4:30 PM 265 **(Young Scholar) Evaluating the impact of maternal dietary vitamin D supplementation on sow performance, serum 25OHD3, and subsequent pig performance.**  
*J. R. Flohr<sup>1</sup>, J. R. Bergstrom<sup>2</sup>, J. C. Woodworth<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, S. S. Dritz<sup>1</sup>, and R. D. Goodband<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>DSM Nutritional Products, Parsippany, NJ*

## NONRUMINANT NUTRITION: FEED MANUFACTURING

Chair: Omarh F Mendoza, The Maschhoffs

Sponsor:  
316-317

- 1:30 PM 163 **Utilizing feed sequencing to decrease the risk of porcine epidemic diarrhea virus (PEDV) cross-contamination during feed manufacturing.**  
*L. L. Schumacher<sup>1</sup>, R. A. Cochrane<sup>1</sup>, J. C. Woodworth<sup>1</sup>, A. R. Huss<sup>1</sup>, C. R. Stark<sup>1</sup>, C. K. Jones<sup>1</sup>, Q. Chen<sup>2</sup>, R. Main<sup>2</sup>, J. Zhang<sup>2</sup>, P. C. Gauger<sup>2</sup>, S. S. Dritz<sup>1</sup>, and M. D. Tokach<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames*
- 1:45 PM 164 **Evaluating the effect of manufacturing porcine epidemic diarrhea virus (PEDV)-contaminated feed on subsequent feed mill environmental surface contamination.**  
*L. L. Schumacher<sup>1</sup>, R. A. Cochrane<sup>1</sup>, C. E. Evans<sup>1</sup>, J. R. Kalivoda<sup>1</sup>, J. C. Woodworth<sup>1</sup>, A. R. Huss<sup>1</sup>, C. R. Stark<sup>1</sup>, C. K. Jones<sup>1</sup>, Q. Chen<sup>2</sup>, R. Main<sup>2</sup>, J. Zhang<sup>2</sup>, P. C. Gauger<sup>2</sup>, S. S. Dritz<sup>1</sup>, and M. D. Tokach<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames*

- 2:00 PM 165 **To determine if hand held near infrared spectroscopy can be used to measure corn particle size, corn particle distribution and corn moisture.**  
*A. Criado\*<sup>1</sup>, C. Piotrowski<sup>1</sup>, P. Wilcock<sup>2</sup>, C. L. Bradley<sup>2</sup>, B. Haber<sup>3</sup>, and B. C. Smith<sup>3</sup>, <sup>1</sup>Aunir, Towcester, United Kingdom, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>3</sup>Iowa Select Farms, Iowa Falls*
- 2:15 PM 166 **(Young Scholars) Effects of feed truck unloading and swine barn feed line location on pellet quality and nutrient segregation.**  
*J. A. De Jong<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. C. Woodworth<sup>1</sup>, C. K. Jones<sup>1</sup>, C. R. Stark<sup>1</sup>, H. E. Williams\*<sup>1</sup>, L. McKinney<sup>2</sup>, G. Smith<sup>2</sup>, and B. Haber<sup>3</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>DFS, Newell, IA, <sup>3</sup>Iowa Select Farms, Iowa Falls*
- 2:45 PM 167 **Effect of ground corn fractionation on flowability.**  
*J. R. Kalivoda\*, C. K. Jones, and C. R. Stark, Kansas State University, Manhattan*
- 3:00 PM 168 **The evaluation of liquid disinfectants to reduce Salmonella contamination on animal food manufacturing surfaces.**  
*M. B. Muckey\*, A. R. Huss, and C. K. Jones, Kansas State University, Manhattan*

## REPRODUCTIVE PHYSIOLOGY

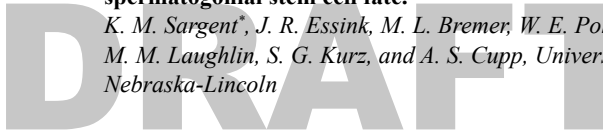
**Chair: Patrick J. Gunn, Department of Animal Science,  
 Iowa State University**

**Sponsor:  
 401**

- 1:30 PM 325 **(Young Scholar) The Effects of the Nitric Oxide (NO) System and Nutritional Plane on Ovarian Function in Sheep.**  
*C. Bass\*, D. A. Redmer, and A. T. Grazul, North Dakota State University, Fargo*
- 2:00 PM 326 **Rapid fluctuations in ambient temperature before conception reduce fetal viability in replacement gilts.**  
*J. S. Johnson\*<sup>1</sup>, K. L. Martin<sup>2</sup>, and K. R. Stewart<sup>2</sup>, <sup>1</sup>USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, <sup>2</sup>Purdue University, West Lafayette, IN*

- 2:15 PM 327 **Gonadotropin-releasing hormone II receptor (GnRHR-II) knockdown reduces testis size and decreases testosterone secretion during pubertal development in swine.**  
*A. T. Desaulniers<sup>\*1</sup>, R. A. Cederberg<sup>1</sup>, G. A. Mills<sup>1</sup>, C. A. Lents<sup>2</sup>, and B. R. White<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 2:30 PM 328 **Physiological characteristics of late puberty gilts administered P.G. 600.**  
*E. B. Kennedy<sup>\*</sup>, M. T. Knauer, and W. L. Flowers, North Carolina State University, Raleigh*
- 2:45 PM 329 **Effects of feeding melatonin during proestrus and early gestation in gilts and P1 sows to minimize the effects of seasonal infertility.**  
*L. Arend<sup>\*1</sup>, R. V. Knox<sup>1</sup>, L. Greiner<sup>2</sup>, A. Graham<sup>2</sup>, and J. Connor<sup>3</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>3</sup>Carthage Veterinary Service, Ltd, Carthage, IL*
- 3:00 PM 330 **(Young Scholar) Effect of Inducing High or Low Progesterone Concentrations During Ovulatory Follicle Development on Double Ovulation and Fertility of Lactating Dairy Cows.**  
*J. P. N. Martins<sup>\*1</sup>, D. Wang<sup>1,2</sup>, N. Mu<sup>1,2</sup>, A. P. Martini<sup>1,3</sup>, G. F. Rossi<sup>1,4</sup>, V. R. Martins<sup>1</sup>, and J. R. Pursley<sup>1</sup>, <sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, MI, <sup>2</sup>Shuozhou Vocational and Technical College, Shuozhou City, China, <sup>3</sup>Universidade Federal de Santa Maria, Santa Maria, Brazil, <sup>4</sup>FCAV-UNESP, Jaboticabal, Brazil*
- 3:30 PM 331 **Reproducibility of Heat Stress Susceptibility and Future Reproductive Success During Heat Stress in Pigs.**  
*J. T. Seibert<sup>\*</sup>, K. L. Graves, T. Johnson, A. F. Keating, L. H. Baumgard, and J. W. Ross, Iowa State University, Ames*
- 3:45 PM 332 **Use of an Electronic Activity Detection System to Characterize Estrus Activity in Crossbred Beef Heifers Differing in Follicle Number.**  
*R. A. Cushman<sup>\*1</sup>, S. C. Tenley<sup>2</sup>, M. Soares<sup>3</sup>, A. K. McNeel<sup>1</sup>, R. S. Gomes<sup>2</sup>, R. G. Tait, Jr.<sup>1</sup>, A. S. Cupp<sup>2</sup>, L. A. Kuehn<sup>1</sup>, W. M. Snelling<sup>4</sup>, R. M. Thallman<sup>1</sup>, G. A. Perry<sup>5</sup>, and C. C. Chase, Jr.<sup>1</sup>, <sup>1</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>Federal University of Santa Maria, Santa Maria, Brazil, <sup>4</sup>USDA, ARS, US MARC, Clay Center, NE, <sup>5</sup>Department of Animal Science, South Dakota State University, Brookings*

- 4:00 PM 333 **Influence of Vaccination with an Inactivated or Modified Live Viral Reproductive Vaccine on Reproductive Parameters in Beef Cows.**  
*G. A. Perry<sup>1</sup>, E. L. Larimore<sup>1</sup>, M. R. Crosswhite<sup>2</sup>, B. W. Neville<sup>3</sup>, V. Cortese<sup>4</sup>, R. F. Daly<sup>5</sup>, G. L. Stokka<sup>2</sup>, J. C. Rodgers<sup>4</sup>, J. T. Seeger<sup>4</sup>, and C. R. Dahlen<sup>2</sup>, <sup>1</sup>Department of Animal Science, South Dakota State University, Brookings, <sup>2</sup>Department of Animal Sciences, North Dakota State University, Fargo, <sup>3</sup>Central Grasslands REC, North Dakota State University, Streeter, <sup>4</sup>Beef Veterinary Technical Services, Zoetis, Florham Park, NJ, <sup>5</sup>Department of Veterinary and Biomedical Sciences, South Dakota State University, Brookings*
- 4:15 PM 334 **Evaluation of physiological indicators of heat stress and their association with seasonal infertility in first parity sows.**  
*E. A. Hines<sup>\*</sup>, J. T. Seibert, S. K. Stoakes, K. L. Graves, B. J. Hale, M. Abuajamieh, C. L. Hager, C. Rademacher, L. H. Baumgard, A. F. Keating, and J. W. Ross, Iowa State University, Ames*
- 4:30 PM 335 **(Young Scholar) Divergent VEGFA signaling determines spermatogonial stem cell fate.**  
*K. M. Sargent<sup>\*</sup>, J. R. Essink, M. L. Bremer, W. E. Pohlmeier, M. M. Laughlin, S. G. Kurz, and A. S. Cupp, University of Nebraska-Lincoln*



**RUMINANT NUTRITION**

**Chair: Kristen E. Hales, USDA - ARS**

**Sponsor:  
308-309**

- 1:30 PM 354 **A Pragmatic Challenge of Total Mixed Ration: Time to Contemplate Component Feeding.**  
*A. Nikkhah<sup>\*</sup>, University of Zanjan, Zanjan, Iran*
- 1:45 PM 355 **Effects of wintering system on cow and calf performance in a summer-calving intensive production system.**  
*S. E. Gardine<sup>\*</sup>, J. M. Warner<sup>1</sup>, C. J. Bittner<sup>1</sup>, R. G. Bondurant<sup>1</sup>, K. H. Jenkins<sup>2</sup>, R. J. Rasby<sup>3</sup>, M. K. Luebke<sup>2</sup>, G. E. Erickson<sup>1</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff, <sup>3</sup>Department of Animal Science, University of Nebraska-Lincoln*
- 2:00 PM 356 **Feeding microbially-enhanced soy protein in starter pellets to dairy calves.**  
*N. D. Senevirathne<sup>\*</sup>, J. L. Anderson, and W. R. Gibbons, South Dakota State University, Brookings*

- 2:15 PM 357 **Seasonal effects and husbandry practices on fat-soluble vitamin status of beef and dairy cows and their offspring.**  
*M. R. O'Neil<sup>1</sup>, D. C. Beitz<sup>1</sup>, and R. L. Stuart<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Stuart Products Inc, Bedford, TX*
- 2:30 PM 358 **Effect of supplementing methionine hydroxy analog on beef cow performance, milk production and reproduction.**  
*A. R. Clements<sup>\*</sup>, F. A. Ireland, and D. W. Shike, University of Illinois at Urbana-Champaign*
- 2:45 PM 359 **Effect of delayed wrapping and wrapping source on intake and digestibility of alfalfa silage in sheep.**  
*V. Niyigena<sup>\*1</sup>, K. P. Coffey<sup>2</sup>, W. K. Coblenz<sup>3</sup>, D. Philipp<sup>2</sup>, A. N. Young<sup>1</sup>, R. T. Rhein<sup>1</sup>, and J. K. Clark<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>University of Arkansas, Division of Agriculture, Fayetteville, <sup>3</sup>US Dairy Forage Research Center, Marshfield, WI*
- 3:00 PM 360 **Effect of winter distillers grains supplementation level on spayed heifer performance.**  
*R. G. Bondurant<sup>\*</sup>, B. L. Nuttelman, C. J. Bittner, J. C. MacDonald, and T. J. Klopfenstein, University of Nebraska-Lincoln*
- 3:15 PM 361 **Effect of Increasing Protein and Fat Inclusion in the Diet of Beef Cows During Gestation and Lactation on Performance, Milk Production, Pregnancy Rate, and Pre-Weaning Progeny Growth.**  
*A. J. C. Nuñez<sup>\*</sup>, R. P. Lemenager, K. R. Stewart, E. G. Taylor, and J. P. Schoonmaker, Purdue University, West Lafayette, IN*
- 3:30 PM 362 **Effects of enzymatically hydrolyzed yeast supplementation and supplementation frequency on nitrogen balance and apparent diet digestibility in periparturient beef cows.**  
*J. E. Swartz<sup>1</sup>, D. W. Brake<sup>1</sup>, E. E. Grings<sup>1</sup>, E. A. Nelson<sup>1</sup>, C. L. Wright<sup>1</sup>, J. A. Walker<sup>1</sup>, E. J. Blom<sup>1</sup>, and G. A. Perry<sup>2</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Department of Animal Science, South Dakota State University, Brookings*
- 3:45 PM 363 **Evaluation of rumen bacterial composition in Holstein and Jersey cows under similar dietary conditions using different sampling methods.**  
*H. A. Paz Manzano<sup>\*</sup>, P. J. Kononoff, and S. C. Fernando, University of Nebraska-Lincoln*



4:00 PM 364 **The influence of grain source and dried corn distiller's grains plus solubles oil concentration on finishing cattle performance and feeding behavior.**  
*M. A. Rodenhuis<sup>1</sup>, F. E. Keomanivong<sup>1</sup>, J. J. Gaspers<sup>1</sup>, T. C. Gilbery<sup>1</sup>, S. R. Underdahl<sup>1</sup>, M. L. Bauer<sup>1</sup>, V. L. Anderson<sup>2</sup>, C. L. Engel<sup>3</sup>, and K. C. Swanson<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>North Dakota State University, Carrington, <sup>3</sup>North Dakota State University, Carrington Research Extension Center, Carrington*

4:15 PM 337 **Evaluation of the relative contribution of protein in distillers grains in finishing diets on performance and carcass characteristics.**  
*Z. E. Carlson<sup>1</sup>, G. E. Erickson<sup>1</sup>, J. C. MacDonald<sup>1</sup>, and M. K. Luebke<sup>2</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*

4:30 PM 365 **(Young Scholar) Impact of nutrition on the ruminal microbiome and epithelial tissue.**  
*J. C. McCann<sup>1</sup>, F. C. Cardoso<sup>2</sup>, E. Khafipour<sup>3</sup>, D. W. Shike<sup>2</sup>, and J. J. Loor<sup>2</sup>, <sup>1</sup>Texas A&M University, College Station, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>Department of Medical Microbiology and Infectious Diseases, Winnipeg, MB, Canada*

**DRAFT**

**RUMINANT NUTRITION SYMPOSIUM**

**Chair: Phil Cardoso, University of Illinois at Urbana-Champaign**

**Sponsor:  
312-313**

1:30 PM **Welcoming Remarks.**

1:35 PM 391 **Veterinary Feed Directive (VFD) and its Practical Considerations for the Beef Industry.**  
*N. A. Pyatt\*, G. D. Hufstедler, C. A. Guthrie, B. W. Hoffman, and K. Keffaber, Elanco Animal Health, Greenfield, IN*

2:20 PM 392 **Gut Bacterial Communities and Their Association with Production Parameters in Beef Cattle.**  
*P. R. Myer<sup>1</sup>, J. E. Wells<sup>2</sup>, T. P. L. Smith<sup>2</sup>, L. A. Kuehn<sup>2</sup>, and H. C. Freetly<sup>2</sup>, <sup>1</sup>The University of Tennessee Institute of Agriculture, Knoxville, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*

3:05 PM 393 **Alternatives to Antibiotics.**  
*J. P. Schoonmaker\*, Purdue University, West Lafayette, IN*

**NONRUMINANT NUTRITION: SOW/BOAR****Chair: Luis Ochoa, Carthage Innovative Swine Solutions, LLC****Sponsor:****316-317**

- 3:15 PM 260 **(Young Scholar) Insights into Nutrient Inputs that Affect the Initiation of Bone Lesions in Pigs.**  
*L. A. Amundson\**, University of Wisconsin-Madison
- 3:45 PM 261 **The evaluation of increasing lysine or feed amounts in late gestation on piglet birth weights.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>1</sup>, K. J. Touchette<sup>2</sup>, and C. R. Neill<sup>3</sup>*,  
<sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL, <sup>3</sup>Genus PIC, Hendersonville, TN
- 4:00 PM 262 **Effect of natural betaine on estimates of semen quality in mature AI boars during summer heat stress.**  
*F. A. Cabezon<sup>1</sup>, K. R. Stewart<sup>1</sup>, A. P. Schinckel<sup>1</sup>, B. Barnes<sup>2</sup>, R. D. Boyd<sup>3</sup>, P. Wilcock<sup>4</sup>, and J. Woodliff<sup>1</sup>*, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>The Hanor Company Inc, Franklin, KY, <sup>3</sup>The Hanor Company, Franklin, KY, <sup>4</sup>AB Vista, Plantation, FL
- 4:15 PM 263 **Effect of betaine supplementation during summer on sow lactation performance and subsequent farrowing performance.**  
*F. A. Cabezon<sup>1</sup>, A. P. Schinckel<sup>1</sup>, B. T. Richert<sup>1</sup>, K. R. Stewart<sup>1</sup>, M. Gandarillas<sup>2</sup>, and W. A. Peralta<sup>3</sup>*, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Universidad Austral de Chile, Valdivia, Chile, <sup>3</sup>Agrícola Super Ltda, Rancagua, Chile
- 4:30 PM 264 **Effect of altered lysine : energy ratio during gestation on wean pig growth performance.**  
*A. Ampaire\** and *C. L. Levesque*, South Dakota State University, Brookings
- 4:45 PM 266 **Development of precision gestation feeding program using electronic sow feeders and effects on gilt performance.**  
*R. Q. Buis<sup>\*1</sup>, D. Wey<sup>1</sup>, and C. F. M. de Lange<sup>2</sup>*, <sup>1</sup>Department of Animal Biosciences, University of Guelph, ON, Canada, <sup>2</sup>University of Guelph, ON, Canada

# SYMPOSIA AND ORAL SESSIONS

## WEDNESDAY, MARCH 16, 2016

### ANIMAL BEHAVIOR, HOUSING AND WELL-BEING

Chair: Jennifer A. Brown, Prairie Swine Centre

Sponsor:

312-313

- 8:30 AM 14 **The effect of temperament on pork quality.**  
*J. A. Calderon Diaz, A. M. Danielson\*, S. Azarpajouh, J. M. Mumm, S. Hirano, D. L. Beam, M. Walugembe, J. D. Stock, C. Dematawewa, and K. J. Stalder, Department of Animal Science, Iowa State University, Ames*
- 8:45 AM 15 **Development of equations to predict the influence of floor space on ADG, ADFI, and G:F of finishing pigs.**  
*J. R. Flohr\*, J. C. Woodworth, M. D. Tokach, S. S. Dritz, J. M. DeRouchey, and R. D. Goodband, Kansas State University, Manhattan*
- 9:00 AM 16 **Evaluating the effects of floor space allowance and pig removal from a group on the growth of finishing pigs.**  
*J. R. Flohr<sup>1</sup>, J. C. Woodworth<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, and G. Gourley<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Gourley Research Group LLC, Webster City*
- 9:15 AM 17 **Effect of lameness on hock angles of replacement gilts.**  
*J. M. Mumm\*, K. J. Stalder, J. D. Stock, and J. A. Calderon Diaz, Department of Animal Science, Iowa State University, Ames*
- 9:30 AM **Break.**
- 9:45 AM 18 **Understanding tail biters and victimized pigs during outbreaks of tail biting.**  
*Y. Li\*, J. Anderson<sup>2</sup>, A. Holten<sup>2</sup>, A. M. Hilbrands<sup>1</sup>, J. Holen<sup>1</sup>, and L. J. Johnston<sup>1</sup>, <sup>1</sup>West Central Research and Outreach Center, University of Minnesota-Morris, <sup>2</sup>University of Minnesota-Morris*
- 10:00 AM 19 **An assessment of swine marketed through buying stations and development of fitness for transport guidelines.**  
*M. McGee<sup>1</sup>, A. K. Johnson<sup>2</sup>, A. M. O'Connor<sup>1</sup>, K. R. Tapper<sup>1,3</sup>, and S. T. Millman<sup>1,3</sup>, <sup>1</sup>Department of Veterinary Diagnostic & Production Animal Medicine, Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Department of Biomedical Science, Iowa State University, Ames*

- 10:15 AM 20 **Aversion to CO<sub>2</sub> gas in pigs using approach-avoidance and condition place avoidance paradigms.**  
*L. KC<sup>\*</sup>, A. K. Johnson<sup>1</sup>, T. A. Shepherd<sup>1</sup>, J. P. Stinn<sup>1</sup>, H. Xin<sup>1</sup>, K. J. Stalder<sup>2</sup>, L. A. Karriker<sup>3</sup>, M. A. Sutherland<sup>4</sup>, D. C. Lay Jr.<sup>5</sup>, and S. T. Millman<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Department of Animal Science, Iowa State University, Ames, <sup>3</sup>Swine Medicine Education Center, Department of Vet Diagnostic & Production Animal Medicine, Ames, <sup>4</sup>AgResearch, Hamilton, New Zealand, <sup>5</sup>U.S. Dept of Agriculture, West Lafayette, IN*
- 10:30 AM 21 **(Young Scholar) Divergent selection for residual feed intake alters pig behavioral reactivity to novel stimuli tests.**  
*J. D. Colpoys<sup>\*1</sup>, N. K. Gabler<sup>2</sup>, S. T. Millman<sup>2</sup>, and A. K. Johnson<sup>2</sup>, <sup>1</sup>Truman State University, Kirksville, MO, <sup>2</sup>Iowa State University, Ames*
- 11:00 AM 22 **Effects of Transdermal Flunixin Meglumine on Pain Biomarkers at Dehorning.**  
*M. D. Kleinhenz<sup>\*1</sup>, N. Van Engen<sup>1</sup>, P. J. Gorden<sup>1</sup>, and J. F. Coetzee<sup>2</sup>, <sup>1</sup>Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, <sup>2</sup>Pharmacology Analytical Support Team, Iowa State University College of Veterinary Medicine, Ames*
- DRAFT**
- EQUINE WELFARE SYMPOSIUM**
- Chair: Peggy A. Miller, Iowa State University**
- Sponsor:**  
**304-305**
- 8:30 AM **Welcoming Remarks.**
- 8:45 AM 52 **Equine welfare in a competitive setting...what can 10+ years of research by the Equitation Science community tell us? (And what critical pieces are still missing?).**  
*C. R. Heleski<sup>\*</sup>, Michigan State University, East Lansing*
- 9:30 AM **Break.**
- 9:40 AM 53 **Equine welfare in a competitive setting: the human role.**  
*K. L. Waite, Ph. D.<sup>\*</sup>, Michigan State University, East Lansing*
- 10:25 AM 54 **Perceptions of Equine Well-being in South Dakota.**  
*H. K. Carroll<sup>\*</sup>, R. C. Bott, S. L. Mastellar, L. R. McNeill, and G. D. Djira, South Dakota State University, Brookings*
- 10:40 AM **Break.**
- 10:50 AM **Discussion.**
- 11:20 AM **Concluding Remarks.**

**EXTENSION - SWINE****Chair: R. D. Goodband, Kansas State University****Sponsor:  
314-315**

- 8:30 AM 74 **Birth weight threshold for identifying piglets at-risk for pre-weaning mortality.**  
*J. A. Feldpausch<sup>\*1</sup>, J. Jourquin<sup>2</sup>, J. R. Bergstrom<sup>3</sup>, C. D. Bokenkroger<sup>4</sup>, J. L. Nelssen<sup>1</sup>, M. J. Ritter<sup>4</sup>, D. L. Davis<sup>1</sup>, and J. M. Gonzalez<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Elanco, Antwerpen, Belgium, <sup>3</sup>DSM Nutritional Products, Parsippany, NJ, <sup>4</sup>Elanco Animal Health, Greenfield, IN*
- 8:45 AM 73 **Impact of piglet birth weight increase on survivability and days to market, a simulation model.**  
*J. Jourquin<sup>\*1</sup>, J. Morales<sup>2</sup>, and C. D. Bokenkroger<sup>3</sup>, <sup>1</sup>Elanco, Antwerpen, Belgium, <sup>2</sup>PigCHAMP Pro Europa, Segovia, Spain, <sup>3</sup>Elanco Animal Health, Greenfield, IN*
- 9:00 AM 75 **Early predictors of puberty in gilts.**  
*G. M. See<sup>\*</sup> and M. T. Knauer, North Carolina State University, Raleigh*
- 9:15 AM 76 **Using boar feeding patterns and classification trees to predict performance.**  
*C. E. Abell<sup>\*</sup>, A. Prochaska, M. Anderson, and T. Rathje, DNA Genetics, Columbus, NE*
- 9:30 AM 77 **Enterobacteriaceae counts from livestock truck wash stations offering different service levels located in Iowa.**  
*A. M. Danielson<sup>\*1</sup>, S. Azarpajouh<sup>1</sup>, R. B. Baker<sup>2</sup>, C. J. Rademacher<sup>3</sup>, J. S. Dickson<sup>1</sup>, A. K. Johnson<sup>4</sup>, L. A. Karriker<sup>3</sup>, T. T. Bigelow<sup>3</sup>, and K. J. Stalder<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Department of Vet Diagnostic and Production Animal Medicine, Iowa State University, Ames, <sup>3</sup>Swine Medicine Education Center, Department of Vet Diagnostic & Production Animal Medicine, Ames, IA, <sup>4</sup>Iowa State University, Ames, <sup>5</sup>USDA, APHIS, Des Moines, IA*
- 9:45 AM 78 **Probabilities of Producing Feed Under Nutrient Threshold.**  
*L. Fabà<sup>1</sup>, D. Solà-Oriol<sup>2</sup>, L. Blavi<sup>\*2</sup>, M. Farré<sup>3</sup>, and J. Gasa<sup>2</sup>, <sup>1</sup>Animal Nutrition and Welfare Service, Department of Animal and Food Science, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain, <sup>2</sup>Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain, <sup>3</sup>Department of Mathematics, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain., Bellaterra (08193), Spain*

- 10:00 AM 79 **Identification of the range of hock angles in replacement gilts.**  
*J. M. Mumm<sup>1</sup>, K. J. Stalder<sup>1</sup>, J. D. Stock<sup>1</sup>, J. C. M. Dekkers<sup>2</sup>,  
 and J. A. Calderon Diaz<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa  
 State University, Ames, <sup>2</sup>Iowa State University, Ames*

### EXTENSION – BEEF/SMALL RUMINANT

**Chair: J. E. Held, South Dakota State University**

**Sponsor:**

**318-319**

- 8:30 AM 164 **Evaluation of distillers grains components singly or in combination for finishing calf feds.**  
*R. A. Oglesbee<sup>1</sup>, C. J. Bittner<sup>1</sup>, F. H. Hilscher<sup>1</sup>, G. E. Erickson<sup>1</sup>,  
 J. C. MacDonald<sup>1</sup>, and M. K. Luebke<sup>2</sup>, <sup>1</sup>University of Nebraska-  
 Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*
- 8:45 AM 162 **Determination of climatologically suitable places in Midwest for feedlot cattle production by using the comprehensive climate index model.**  
*H. Koknaroglu<sup>1</sup>, J. A. Harrington Jr<sup>2</sup>, and T. L. Mader<sup>3</sup>,  
<sup>1</sup>Suleyman Demirel University, Isparta, Turkey, <sup>2</sup>Kansas State  
 University, Manhattan, <sup>3</sup>Mader Consulting, LLC, Gretna, NE*
- 9:00 AM 163 **Breed and gender interact to affect the sale price of beef calves sold through video auctions from 2010 through 2014.**  
*E. D. McCabe<sup>1</sup>, M. E. King<sup>1</sup>, K. E. Fike<sup>1</sup>, K. L. Hill<sup>2</sup>, G. M.  
 Rogers<sup>3</sup>, and K. G. Odde<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan,  
<sup>2</sup>Merck Animal Health, Kaysville, UT, <sup>3</sup>Grassy Ridge Consulting,  
 Aledo, TX*
- 9:15 AM 61 **Perceptions of crop consultants and producers in Nebraska on grazing corn residue.**  
*J. L. Cox<sup>1</sup>, K. M. Ulmer<sup>1</sup>, M. Rakkar<sup>2</sup>, L. Franzen-Castle<sup>3</sup>, H.  
 Blanco-Canqui<sup>2</sup>, M. E. Drewnoski<sup>1</sup>, J. C. MacDonald<sup>1</sup>, and R. J.  
 Rasby<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-  
 Lincoln, <sup>2</sup>Department of Agronomy and Horticulture, University  
 of Nebraska-Lincoln, <sup>3</sup>Department of Nutrition and Health  
 Sciences, University of Nebraska-Lincoln*

**NONRUMINANT NUTRITION: GROW/FINISH II**

**Chair: William T. Oliver; Ferdinando N Almeida, USDA, ARS, U.S. Meat Animal Research Center; Novus International, Inc.**

**Sponsor:  
306-307**

- 8:30 AM 231 **Superdosing phytase fed to mature boars improves semen concentration and reproductive efficiency.**  
*K. R. Stewart<sup>1</sup>, C. L. Bradley<sup>2</sup>, P. Wilcock<sup>2</sup>, F. Domingues<sup>3</sup>, M. Kleve-Feld<sup>4</sup>, and J. Hundley<sup>5</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>3</sup>PIC North America, Hendersonville, TN, <sup>4</sup>PIC Deutschland GmbH, Hannover, Germany, <sup>5</sup>Birchwood Genetics, West Manchester, OH*
- 8:45 AM 232 **Xylanase effects on apparent total tract digestibility of energy and dry matter with or without DDGS at 46, 54 and 70 kg bodyweight.**  
*S. Weiland\* and J. F. Patience, Iowa State University, Ames*
- 9:00 AM 229 **Amino Acid Digestibility in Six Sources of Meat and Bone Meal fed to Growing Pigs.**  
*D. M. D. L. Navarro\*, N. W. Jaworski, and H. H. Stein, University of Illinois at Urbana-Champaign*
- 9:15 AM 234 **Effects of exogenous xylanase on digestibility of dry matter, organic matter, neutral detergent fiber, and energy and the concentrations of digestible and metabolizable energy in rice co-products fed to weanling pigs.**  
*G. A. Casas\*<sup>1,2</sup> and H. H. Stein<sup>2</sup>, <sup>1</sup>Universidad Nacional de Colombia, Bogota, Colombia, <sup>2</sup>University of Illinois at Urbana-Champaign*
- 9:30 AM 235 **Xylanase solubilization of corn and wheat arabinoxylans in mixed growing pig diets subjected to upper gut in-vitro digestion and in ileal digesta.**  
*M. C. Walsh<sup>1</sup>, E. Kiarie<sup>2</sup>, L. Romero<sup>3</sup>, and S. Arent<sup>4</sup>, <sup>1</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom, <sup>2</sup>Department of animal biosciences, University of Guelph, Guelph, ON, Canada, <sup>3</sup>Dupont Industrial biosciences - Danisco animal nutrition, Marlborough, United Kingdom, <sup>4</sup>Dupont, Industrial Biosciences, Brabrand, Denmark*
- 9:45 AM 236 **Evaluating the efficacy of a novel phytase source.**  
*J. R. Flohr\*, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, J. C. Woodworth, and R. D. Goodband, Kansas State University, Manhattan*

- 10:00 AM 237 **Effect of combined xylanase and phytase supplementation on growth performance, carcass characteristics, and apparent total tract digestibility in pigs fed corn-based diets containing multiple by-products.**  
*Y. D. Jang<sup>\*1</sup>, P. Wilcock<sup>2</sup>, R. D. Boyd<sup>3</sup>, and M. D. Lindemann<sup>1</sup>,  
<sup>1</sup>University of Kentucky, Lexington, KY, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>3</sup>The Hanor Company, Inc., Franklin, KY*
- 10:15 AM 238 **Impact of super-dosing phytase in diets fed to 40 kg, 60 kg and 80 kg pigs on phytate catabolism.**  
*C. L. Holloway<sup>\*1</sup>, R. D. Boyd<sup>2</sup>, C. L. Walk<sup>3</sup>, and J. F. Patience<sup>1</sup>,  
<sup>1</sup>Iowa State University, Ames, <sup>2</sup>The Hanor Company, Franklin, KY, <sup>3</sup>AB Vista, Marlborough, United Kingdom*
- 10:30 AM 239 **Impact on growth performance and carcass characteristics of “super-dosing” phytase in growing pig diets.**  
*C. L. Holloway<sup>\*1</sup>, R. D. Boyd<sup>2</sup>, C. E. Zier-Rush<sup>2</sup>, C. L. Walk<sup>3</sup>,  
 and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>The Hanor Company, Inc., Franklin, KY, <sup>3</sup>AB Vista, Marlborough, United Kingdom*
- 10:45 AM 240 **The effect of microbial phytase on the apparent and standardized total tract digestibility of calcium in feed ingredients of animal origin.**  
*L. A. Merriman<sup>\*1</sup>, C. L. Walk<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>AB Vista, Marlborough, United Kingdom*
- 11:00 AM 241 **Stability of commercial phytase products stored under different environmental conditions.**  
*J. A. De Jong<sup>\*1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. C. Woodworth<sup>1</sup>, C. K. Jones<sup>1</sup>, C. R. Stark<sup>1</sup>, C. L. Bradley<sup>2</sup>, J. A. Loughmiller<sup>3</sup>, and J. R. Bergstrom<sup>4</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>3</sup>Maverick Nutrition, Fairmont, MN, <sup>4</sup>DSM Nutritional Products, Parsippany, NJ*
- 11:15 AM 242 **Effect of a dry acidulant coating on the palatability of dry extruded dog food.**  
*A. M. Jeffrey<sup>\*1</sup>, G. C. Aldrich<sup>1</sup>, A. R. Huss<sup>1</sup>, C. J. Knueven<sup>2</sup>, and C. K. Jones<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Jones-Hamilton Co., Walbridge, OH*
- 11:30 AM 243 **Effects of a novel phytase on growth performance and metacarpal bone ash in weanling pigs.**  
*Y. Liu<sup>\*1</sup>, J. C. González-Vega<sup>1</sup>, M. Vázquez-Añón<sup>2</sup>, J. Zhao<sup>2</sup>, J. Escobar<sup>2</sup>, F. N. Almeida<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Novus International, Inc., St. Charles, MO*



- 11:45 AM 244 **The feed enzyme xylanase improves finish pig viability and carcass feed efficiency.**  
*C. E. Zier-Rush<sup>1</sup>, C. Groom<sup>1</sup>, M. Tillman<sup>1</sup>, J. Remus<sup>2</sup>, and R. D. Boyd<sup>\*1</sup>, <sup>1</sup>The Hanor Company, Inc., Franklin, KY, <sup>2</sup>Danisco Animal Nutrition, Spicer, MN*
- 12:00 PM 245 **Xylanase Responses on Apparent Ileal Digestibility of Nutrients, Fibre and Energy in Growing Pigs Fed Corn, 30% Corn Co-Products and Soybean Meal Based Diets as Influenced by Microbial Phytase and Acclimatization Period.**  
*E. Kiarie<sup>1</sup>, Y. Liu<sup>2</sup>, M. C. Walsh<sup>1</sup>, H. H. Stein<sup>2</sup>, and L. Payling<sup>\*1</sup>, <sup>1</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom, <sup>2</sup>University of Illinois at Urbana-Champaign*

### NONRUMINANT NUTRITION: NURSERY PIGS

**Chair: Crystal L. Levesque; Ryan S. Samuel,  
 South Dakota State University; Alltech Inc.**

**Sponsor:  
 308-309**

- 8:30 AM 246 **Sources and routes of administration of copper and vitamins A and D on metabolic status of these micronutrients in suckling piglets.**  
*J. J. Matte<sup>\*1</sup>, I. Audet<sup>1</sup>, B. Ouattara<sup>1</sup>, N. Bissonnette<sup>1</sup>, G. Talbot<sup>1</sup>, J. Lapointe<sup>1</sup>, F. Guay<sup>2</sup>, L. Lo Verso<sup>1</sup>, and M. Lessard<sup>1</sup>, <sup>1</sup>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, <sup>2</sup>Universite Laval, Quebec City, QC, Canada*
- 8:45 AM 247 **Effect of Feeding Protease at Two Soybean Meal Inclusion Rates for Nursery Pigs.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>1</sup>, B. Knopf<sup>1</sup>, L. Ochoa<sup>\*1</sup>, R. J. Harrell<sup>2</sup>, and Y. Ma<sup>3</sup>, <sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Professional Swine Management, Carthage, IL, <sup>3</sup>Novus International Inc., St. Charles, MO*
- 9:00 AM 248 **Sodium buffered formic acid improves sow and piglet performance when fed during lactation and the nursery periods.**  
*J. A. Jendza<sup>\*1</sup>, X. Yang<sup>2</sup>, H. Y. Chen<sup>3</sup>, A. Tekeste<sup>2</sup>, and S. K. Baidoo<sup>2</sup>, <sup>1</sup>BASF Corp., Florham Park, NJ, <sup>2</sup>Southern Research and Outreach Center, University of Minnesota, Waseca, <sup>3</sup>BASF SE, Lampertheim, Germany*

- 9:15 AM 249 **High lactose pellets fed from 4 days of age convey lifetime benefits when compared to a standard pre-weaning diet.**  
*P. Toplis<sup>\*1</sup>, I. J. Wellock<sup>2</sup>, A. Stewart<sup>3</sup>, M. Bailey<sup>4</sup>, and L. Salmon<sup>5</sup>, <sup>1</sup>AB Neo, Peterborough, United Kingdom, <sup>2</sup>Primary Diets, Melmerby, United Kingdom, <sup>3</sup>Harper Adams University, Newport, United Kingdom, <sup>4</sup>Bristol Veterinary School, Bristol, United Kingdom, <sup>5</sup>Premier Nutrition, Rugeley, United Kingdom*
- 9:30 AM 250 **Evaluation of bovine plasma in early nursery pig diets.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>\*1</sup>, B. Knopf<sup>1</sup>, R. J. Harrell<sup>2</sup>, and J. Connor<sup>3</sup>, <sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Professional Swine Management, Carthage, IL, <sup>3</sup>Carthage Veterinary Service, Ltd, Carthage, IL*
- 9:45 AM 251 **Effect of a Lactobacillus acidophilus fermentation product and dietary antibiotics, alone or in combination, on nursery pig performance and frequency of medical treatment.**  
*J. Acosta<sup>\*1</sup>, J. W. Frank<sup>2</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Diamond V, Cedar Rapids, IA*
- 10:00 AM 252 **Oral Salmonella challenge alters feed preference in nursery pigs.**  
*N. C. Burdick Sanchez<sup>\*1</sup>, J. A. Carroll<sup>1</sup>, P. R. Broadway<sup>1</sup>, K. M. Yeater<sup>2</sup>, B. De Rodas<sup>3</sup>, D. Brown<sup>4</sup>, and S. D. Lawhon<sup>5</sup>, <sup>1</sup>USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, <sup>2</sup>USDA-ARS Plains Area, Fort Collins, CO, <sup>3</sup>Land O'Lakes, Gray Summit, MO, <sup>4</sup>Purina Animal Nutrition Center, Gray Summit, MO, <sup>5</sup>Department of Veterinary Pathobiology, Texas A&M University, College Station*
- 10:15 AM 253 **Digestibility of energy and lipids, and metabolic oxidation status in nursery pigs fed various lipids.**  
*S. C. Lindblom<sup>\*1</sup>, G. C. Shurson<sup>2</sup>, W. A. Dozier<sup>3</sup>, and B. J. Kerr<sup>4</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>3</sup>Auburn University, Auburn, AL, <sup>4</sup>USDA - ARS, Ames, IA*
- 10:30 AM 254 **Pigs inoculated with Porcine Epidemic Diarrhea Virus have decreased growth performance and tissue accretion compared with Controls after 42 days.**  
*S. M. Curry<sup>\*1</sup>, K. A. Gibson, E. R. Burrough, K. Schwartz, K. J. Yoon, and N. K. Gabler, Iowa State University, Ames*
- 10:45 AM 256 **Determination of Additivity of Acid-binding Capacity in Diets.**  
*N. Lu<sup>\*</sup>, P. Arnaut, and M. D. Lindemann, University of Kentucky, Lexington*

- 11:00 AM 257 **Effects of Porcine Reproductive Respiratory Syndrome (PRRS) status (stable vs active) on the performance of weaned pigs when fed either a complex diet, a simple diet or a simple diet with lactose.**  
*M. R. Bible\**, *S. J. England*, and *F. B. Sandberg*, *Furst McNess Company, Freeport, IL*
- 11:15 AM 258 **Effects of supplementation with *Aspergillus oryzae* derived phytase (Ronozyme® HiPhos) and fiber degrading enzymes (Victus™ Swine Starter) on growth performance, intestinal morphology, leukocyte differential, and nutrient digestibility in nursery pigs.**  
*J. R. Bergstrom*<sup>1</sup>, *T. C. Tsai*<sup>2</sup>, *H. J. Kim*<sup>2</sup>, and *C. V. Maxwell*<sup>2</sup>,  
<sup>1</sup>*DSM Nutritional Products, Parsippany, NJ*, <sup>2</sup>*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*
- 11:30 AM 259 **Effect of rearing strategies during lactation on growth performance and the population of innate and adaptive immune cells in pigs from pre-weaning to market.**  
*T. C. Tsai*<sup>1</sup>, *H. J. Kim*<sup>1</sup>, *M. A. Sales*<sup>1</sup>, *X. Wang*<sup>1</sup>, *G. F. Erf*<sup>1</sup>, *E. B. Kegley*<sup>1</sup>, *F. G. Carbonero*<sup>2</sup>, *M. van der Merwe*<sup>4</sup>, *R. K. Buddington*<sup>4</sup>, and *C. V. Maxwell*<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*, <sup>2</sup>*Department of Poultry Science, Division of Agriculture, University of Arkansas, Fayetteville*, <sup>3</sup>*Department of Food Science, Division of Agriculture, University of Arkansas, Fayetteville*, <sup>4</sup>*University of Memphis, TN*

## PHYSIOLOGY SYMPOSIUM

**Chair: Patrick J. Gunn, Department of Animal Science,  
Iowa State University**

**Sponsor:  
316-317**

- 8:30 AM **Welcoming Remarks.**
- 8:35 AM 322 **Fetal and Postnatal Nutritional Programming of Reproductive Performance in Ruminants.**  
*R. A. Cushman*<sup>1</sup>, *M. Soares*<sup>2</sup>, *M. Abedal-Majed*<sup>3</sup>, *A. S. Cupp*<sup>3</sup>, *G. A. Perry*<sup>4</sup>, and *H. C. Freetly*<sup>1</sup>, <sup>1</sup>*USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*, <sup>2</sup>*Federal University of Santa Maria, Santa Maria, Brazil*, <sup>3</sup>*University of Nebraska-Lincoln*, <sup>4</sup>*Department of Animal Science, South Dakota State University, Brookings*

- 9:20 AM 323 **Postnatal Programming and Reproductive Development.**  
*F. F. Bartol<sup>1</sup> and C. A. Bagnell<sup>2</sup>, <sup>1</sup>Auburn University, Auburn,  
<sup>2</sup>Rutgers University, New Brunswick, NJ*
- 10:05 AM 324 **Recent advances in boar management.**  
*W. L. Flowers\*, North Carolina State University, Raleigh*

**RUMINANT NUTRITION: FEED ADDITIVES**

**Chair: Tara L. Felix, Pennsylvania State University**

**Sponsor:  
 302-303**

- 8:30 AM 380 **Effect of backgrounding system on feedlot performance and carcass characteristics of beef steers.**  
*J. L. Cox<sup>1</sup>, K. E. Hales<sup>2</sup>, K. M. Ulmer<sup>1</sup>, R. J. Rasby<sup>1</sup>, S. D. Shackelford<sup>2</sup>, H. C. Freety<sup>2</sup>, and M. E. Drewnoski<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 8:45 AM 381 **Effects of feeding rumen protected amino acids in finishing cattle diets on performance and carcass characteristics.**  
*C. R. Oney<sup>1</sup>, A. K. Watson<sup>2</sup>, C. J. Bittner<sup>1</sup>, P. W. Rounds<sup>3</sup>, F. H. Hilscher<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, and G. E. Erickson<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Department of Animal Science, University of Nebraska-Lincoln, <sup>3</sup>Kemin Industries, Inc., Des Moines, IA*
- 9:00 AM 382 **Effect of energy source, level, and sex on growth and performance of lambs.**  
*J. R. Jaborek<sup>1</sup>, H. N. Zerby<sup>1</sup>, and F. L. Fluharty<sup>2</sup>, <sup>1</sup>The Ohio State University, Columbus, <sup>2</sup>The Ohio State University, Wooster*
- 9:15 AM 383 **Metabolic and body temperature responses to environmental conditions across seasons in finishing steers.**  
*B. M. Boyd<sup>1</sup>, T. L. Mader<sup>2</sup>, C. J. Bittner<sup>3</sup>, D. B. Burken<sup>3</sup>, F. H. Hilscher<sup>3</sup>, G. Wiffels<sup>4</sup>, J. B. Gaughan<sup>4</sup>, M. L. Sullivan<sup>4</sup>, A. J. Cawdell-Smith<sup>4</sup>, and G. E. Erickson<sup>3</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Mader Consulting, LLC, Gretna, NE, <sup>3</sup>University of NebraskaLincoln, <sup>4</sup>The University of Queensland, Gatton, Australia*
- 9:30 AM 384 **The effect of feeding a yeast supplement or finely ground fiber during the summer on body temperature, performance, and blood metabolites of finishing steers.**  
*B. M. Boyd<sup>1</sup>, T. L. Mader<sup>2</sup>, C. J. Bittner<sup>1</sup>, F. H. Hilscher<sup>1</sup>, G. Wiffels<sup>3</sup>, J. B. Gaughan<sup>3</sup>, M. L. Sullivan<sup>3</sup>, A. J. Cawdell-Smith<sup>3</sup>, and G. E. Erickson<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Mader Consulting, LLC, Gretna, NE, <sup>3</sup>The University of Queensland, Gatton, Australia*

- 9:45 AM 385 **Effect of Feeding a Corn Hybrid Containing Alpha Amylase As Dry Rolled or High Moisture Corn on Finishing Performance and Carcass Characteristics.**  
*M. L. Jolly-Breithaupt<sup>1</sup>, C. J. Bittner<sup>1</sup>, D. B. Burken<sup>1</sup>, G. E. Erickson<sup>1</sup>, J. C. MacDonald<sup>1</sup>, and M. K. Luebbe<sup>2</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*
- 10:00 AM 386 **Effect of a zinc injection on finishing performance and carcass characteristics of Limousin steers.**  
*E. K. Niedermayer\*, O. N. Genther-Schroeder, and S. L. Hansen, Iowa State University, Ames*
- 10:15 AM 387 **Impact on Site and Extent of Digestion of Feeding a Corn Hybrid Containing Alpha Amylase in Finishing Cattle Diets.**  
*M. L. Jolly-Breithaupt<sup>1</sup>, J. L. Gramkow<sup>1</sup>, G. E. Erickson<sup>1</sup>, J. C. MacDonald<sup>1</sup>, and M. K. Luebbe<sup>2</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*
- 10:30 AM 388 **An initial look at the nutrient requirements of heavy finishing steers.**  
*N. Kenney-Rambo<sup>1</sup> and A. DiCostanzo<sup>2</sup>, <sup>1</sup>University of Minnesota, St. Paul, MN, <sup>2</sup>University of Minnesota, Saint Paul*
- 10:45 AM 389 **Antimicrobial Resistance in Direct-Fed Microbials used in Cattle.**  
*F. Giok<sup>1</sup>, D. Pillai<sup>1</sup>, G. Peterson<sup>2</sup>, and S. Narayanan<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>University of Kansas, Lawrence*
- 11:00 AM 390 **Impact of metabolizable protein source on performance and carcass quality in finishing cattle fed dry-rolled corn-based diets.**  
*M. R. Fiene\*, D. W. Brake, and M. R. McDaniel, South Dakota State University, Brookings*
- 11:15 AM 338 **Enhancing the feeding value of corn residues to improve beef cattle production.**  
*P. H. V. Carvalho\*, W. T. Meteer<sup>1</sup>, A. R. Schroeder<sup>1</sup>, A. DiCostanzo<sup>2</sup>, T. L. Felix<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>University of Minnesota, Saint Paul*
- 11:30 AM 339 **Effects of supplement type and forage quality on ruminal metabolism and diet digestibility of cattle.**  
*M. R. Stierwalt<sup>1</sup>, H. M. Blalock<sup>2</sup>, T. L. Felix<sup>1</sup> <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Quality Liquid Feeds, Dodgeville, WI*

**TEACHING SYMPOSIUM:  
EVOLVING THE ANIMAL SCIENCE CURRICULUM**

**Chair: Bryon R. Wiegand, University of Missouri**

**Sponsor:**

**401**

- 8:30 AM            **Welcoming Remarks.**
- 8:35 AM    394    **Evaluation and Subsequent Modification of a Traditional, Land Grant Animal Sciences Curriculum.**  
*T. A. Strauch\*, M. J. Crosby, A. M. Meyer, M. F. Smith, and B. R. Wiegand, University of Missouri, Columbia*
- 9:05 AM    395    **Changing Animal Science Curriculum at a Non-Land Grant University.**  
*J. W. Rickard\*, Illinois State University, Normal*
- 9:35 AM            **Break.**
- 9:50 AM    396    **The Next Generation of Animal Science Students: Changing Demographics Dictate Curriculum Changes.**  
*J. A. Sterle\* and H. D. Tyler, Iowa State University, Ames*
- 10:20 AM   397    **An administrator's perspective on meeting changing curriculum needs with limited resources.**  
*G. P. Lardy\*, North Dakota State University, Fargo*
- 10:50 AM            **Panel Discussion.**
- 11:05 AM   398    **Evaluation of case-based reasoning to promote learning and swine industry interest in an undergraduate reproductive physiology course.**  
*A. T. Desaulniers\*, R. M. McFee, and B. R. White, University of Nebraska-Lincoln*
- 11:20 AM   399    **Integrating Experiential Learning Into Animal Science Curriculum Through a Hands-On Beef Cattle Management and Marketing Contest.**  
*C. J. Malone\*, J. W. Rickard, and K. W. Tudor, Illinois State University, Normal*

# POSTER PRESENTATIONS

Monday, March 14, 2016

## POSTER SESSION I

Grand Ballroom – Foyer

Presentation Time: 12:45 pm – 1:30 pm

### GRADUATE STUDENT POSTER COMPETITION-M.S

- 114 S01 **Alterations of the rumen bacterial and archaeal communities in growing and finishing beef cattle and its effects on methane emissions.**  
*A. L. Knoell<sup>\*</sup>, C. L. Anderson, A. C. Pesta, G. E. Erickson, T. J. Klopfenstein, and S. C. Fernando, University of Nebraska-Lincoln*
- 115 S02 **Effects of stocking density on finishing pig growth performance.**  
*L. L. Thomas<sup>\*</sup>, R. D. Goodband, M. D. Tokach, J. M. DeRouche, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan*
- 116 S03 **Improving the feeding value of corn stover to enhance cattle performance in a backgrounding phase.**  
*K. Nenn<sup>\*</sup>, P. H. V. Carvalho<sup>2</sup>, E. Mouse<sup>3</sup>, G. A. Bridges<sup>3</sup>, S. L. Bird<sup>3</sup>, T. L. Felix<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>University of Minnesota, Saint Paul, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>University of Minnesota, Grand Rapids*
- 117 S04 **Effect of milk yield genotype on lipidomic profiles of multiparous Holstein cows during the first 9-weeks of lactation.**  
*F. Ding<sup>1</sup>, G. T. Cousillas<sup>2</sup>, W. J. Weber<sup>2</sup>, B. A. Crooker<sup>2</sup>, and C. Chen<sup>1</sup>, <sup>1</sup>Department of Food Science and Nutrition, University of Minnesota, St. Paul, <sup>2</sup>Department of Animal Science, University of Minnesota, St. Paul*
- 118 S05 **Mob grazing effects on cattle performance in Southeast Arkansas.**  
*H. L. Bartimus<sup>\*1,2</sup>, T. G. Montgomery<sup>3</sup>, D. Philipp<sup>1</sup>, J. Cater<sup>3</sup>, K. P. Coffey<sup>1</sup>, and B. C. Shanks<sup>2</sup>, <sup>1</sup>University of Arkansas, Division of Agriculture, Fayetteville, AR, <sup>2</sup>Lincoln University, Jefferson City, <sup>3</sup>University of Arkansas-Monticello*
- 119 S06 **Cortisol agonist improves growth performance and subsides systemic inflammation in newly weaned pigs.**  
*H. Wooten<sup>\*1</sup>, J. J. McGlone<sup>1</sup>, M. Wachtel<sup>2</sup>, and A. Rakhshandeh<sup>1</sup>, <sup>1</sup>Texas Tech University, Lubbock, <sup>2</sup>Texas Tech University Health Sciences Center, Lubbock*

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

- 140 S07 **Effects of *M. hyopneumoniae* vaccination program and water-delivered antibiotic programs on growth performance and morbidity and mortality in wean-to-finish pigs.**  
*N. M. Stas<sup>\*1</sup>, M. Ellis<sup>1</sup>, J. E. Estrada<sup>1</sup>, B. A. Peterson<sup>2</sup>, C. M. Shull<sup>2</sup>, E. Parr<sup>3</sup>, and C. Johnson<sup>3</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 141 S08 **Effects of Reduced-Fat Modified Distillers Grains with Solubles in Finishing Diets of Feedlot Steers on Carcass Characteristics, Fresh and Processed Beef Quality.**  
*M. A. Nelson<sup>\*</sup>, C. Fehrman, A. A. Hohertz, A. DiCostanzo, and R. B. Cox, University of Minnesota, Saint Paul*
- 142 S09 **Diets with organic trace minerals Bioplex®) and yeast Protein (NuPro®) improved the water-holding capacity of pork loin meat.**  
*R. M. Delles<sup>\*1</sup>, A. Naylor<sup>2</sup>, A. Kocher<sup>2</sup>, K. A. Dawson<sup>1</sup>, and R. S. Samuel<sup>1</sup>, <sup>1</sup>Center for Animal Nutrigenomics and Applied Animal Nutrition, Alltech Inc., Nicholasville, KY, <sup>2</sup>Alltech Australia, Roseworthy, Australia*
- 143 S10 **Predicting pork color scores using machine vision and support vector machine technologies.**  
*X. Sun<sup>\*</sup>, J. M. Young, J. H. Liu, L. A. Bachmeier, R. Somers, S. B. Schauunaman, and D. J. Newman, North Dakota State University, Fargo*
- 144 S11 **Using machine vision technology to determine pork intramuscular fat percentage.**  
*J. H. Liu<sup>\*</sup>, X. Sun, J. M. Young, L. A. Bachmeier, R. Somers, S. B. Schauunaman, and D. J. Newman, North Dakota State University, Fargo*
- 145 S12 **Cutability, nutrient content, and comparison of harvested big game species at progressive stages of processing.**  
*D. D. Reed<sup>\*</sup>, E. P. Berg, M. J. Marchello, W. D. Slanger, and P. T. Berg, North Dakota State University, Fargo*
- 146 S13 **Use of Plasma Orosomuroid in Newborn Piglets to Predict Pre-weaning Growth Performance and its Potential Mechanism of Action.**  
*T. G. Ramsay<sup>\*1</sup>, L. A. Blomberg<sup>1</sup>, J. L. Vallet<sup>2</sup>, and T. J. Caperna<sup>1</sup>, <sup>1</sup>USDA, ARS, BARC, Beltsville, MD, <sup>2</sup>USDA, ARS, US MARC, Clay Center, NE*



- 147 S14 **Effects of feeding calcium hydroxide treated corn stover during backgrounding on carcass characteristics and beef quality.**  
*C. Fehrman<sup>\*1</sup>, E. Mouse<sup>2</sup>, A. DiCostanzo<sup>1</sup>, and R. B. Cox<sup>1</sup>, <sup>1</sup>University of Minnesota, Saint Paul, <sup>2</sup>University of Minnesota, Grand Rapids*
- 148 S15 **Effects of Late Gestational Cow Tall Fescue Forage System on Steer Offspring Carcass Characteristics.**  
*Z. D. Callahan<sup>\*1</sup>, K. N. Niederecker<sup>1</sup>, J. M. Larson<sup>1</sup>, B. R. Wiegand<sup>2</sup>, and A. M. Meyer<sup>2</sup>, <sup>1</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>2</sup>University of Missouri, Columbia*
- 149 S16 **Evaluation of glycated albumin as a metabolic marker for marbling in commercial feeder cattle.**  
*M. Alkhuriji<sup>\*</sup>, S. Vetter, K. C. Swanson, and E. P. Berg, North Dakota State University, Fargo*

PHYSIOLOGY

- 314 S17 **A technique to ovariohysterectomize cattle for use in gestational research.**  
*K. J. McLean<sup>\*1</sup>, C. R. Dahlen<sup>1,2</sup>, P. P. Borowicz<sup>1,2</sup>, L. P. Reynolds<sup>1,2</sup>, B. W. Neville<sup>3</sup>, and J. S. Caton<sup>1,2</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Center for Nutrition and Pregnancy, Fargo, ND, <sup>3</sup>Central Grasslands REC, North Dakota State University, Streeter*
- 315 S18 **Relationship Between Ovarian Reserve and Preovulatory Estradiol During a Fixed-Time AI Protocol in Beef Heifers.**  
*M. Soares<sup>\*1</sup>, R. A. Cushman<sup>2</sup>, E. J. Northrop<sup>3</sup>, E. L. Larimore<sup>4</sup>, and G. A. Perry<sup>5</sup>, <sup>1</sup>Federal University of Santa Maria, Santa Maria, Brazil, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>Department of Animal Science, South Dakota State University, Brookings, <sup>4</sup>South Dakota State University, Brookings, <sup>5</sup>Department of Animal Science, South Dakota State University, Brookings*
- 316 S20 **Does Sampling Time Matter? Relationships of Circulating Metabolites at Various Neonatal Sampling Times in Beef Calves.**  
*J. M. Larson<sup>\*1</sup>, B. L. Vander Ley<sup>2</sup>, S. M. Bolen<sup>1</sup>, N. B. Duncan<sup>1</sup>, and A. M. Meyer<sup>3</sup>, <sup>1</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>2</sup>Department of Veterinary Medicine and Surgery, University of Missouri, Columbia, <sup>3</sup>University of Missouri, Columbia*
- 317 S21 **Relationships between pig birth weight and expression of the immediate early gene EGR-1 in umbilical cord Wharton's jelly.**  
*J. M. Morton<sup>\*</sup>, T. Rathbun, and D. L. Davis, Kansas State University, Manhattan*

- 318 S22 **Impact of cyclical heat stress during follicular development on ovarian TLR4, PI3K and steroidogenic proteins in synchronized post-pubertal gilts.**  
*A. A. Al-Shaibi<sup>\*</sup>, B. J. Hale, C. L. Hager, J. W. Ross, L. H. Baumgard, and A. F. Keating, Iowa State University, Ames*
- 319 S23 **The protective effects of Butipearl™ Z during heat stress as measured through in vitro studies with swine intestinal epithelial cells and an in vivo swine trial.**  
*V. Mani<sup>1</sup>, J. K. Rubach<sup>1</sup>, D. A. Koltcs<sup>2</sup>, N. K. Gabler<sup>3</sup>, and M. J. Poss<sup>1</sup>, <sup>1</sup>Kemin Industries, Des Moines, IA, <sup>2</sup>University of Arkansas, Fayetteville, <sup>3</sup>Iowa State University, Ames*
- 320 S24 **Effect of Hot Temperature and Drinker Type on Growth Performance of and Water Disappearance by Growing-Finishing Pigs.**  
*K. Vande Pol<sup>1</sup>, N. S. Grohmann<sup>1</sup>, T. E. Weber<sup>2</sup>, M. J. Ritter<sup>2</sup>, and M. Ellis<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Elanco Animal Health, Greenfield, IN*
- 321 S25 **Effects of Room Temperature on Ear Surface Temperature of Late-Finishing Pigs.**  
*M. Hayes<sup>1</sup>, K. Vande Pol<sup>1</sup>, T. E. Weber<sup>2</sup>, M. J. Ritter<sup>2</sup>, and M. Ellis<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Elanco Animal Health, Greenfield, IN*

## UNDERGRADUATE STUDENT POSTER COMPETITION I

- 415 S26 **Characterizing body temperature and movement differences at the onset of estrus in replacement gilts.**  
*K. A. Shade<sup>1</sup>, K. R. Stewart<sup>2</sup>, and J. S. Johnson<sup>1</sup>, <sup>1</sup>USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, <sup>2</sup>Purdue University, West Lafayette, IN*
- 416 S27 **The Effects of Nursery Environmental Enrichments on Subsequent Finishing Hogs.**  
*D. J. Shawk<sup>\*</sup>, P. L. Deeter, and B. D. Whitaker, The University of Findlay, OH*
- 417 S28 **Effects of PMSG Dosage on Reproductive Performance of Farm-Raised Whitetail Deer.**  
*W. M. Haslag<sup>1</sup>, B. C. Shanks<sup>1</sup>, J. D. Caldwell<sup>2</sup>, D. R. Hill<sup>3</sup>, and N. L. Forsythe<sup>3</sup>, <sup>1</sup>Department of Agriculture and Environmental Science, Lincoln University, Jefferson City, MO, <sup>2</sup>Purina Animal Nutrition Center LLC, Gray Summit, MO, <sup>3</sup>Oak Creek Whitetail Ranch, Bland, MO*

- 418 S29 **Corpus luteum blood flow correlation with circulating progesterone during the bovine estrous cycle.**  
*A. Egloff<sup>\*</sup>, Purdue University, West Lafayette, IN*
- 419 S30 **Effects of Diets Containing Psyllium Seed Husks on Carcass Composition, Fatty Acid Profile, and Cholesterol of Rabbits.**  
*K. M. Jones<sup>\*1</sup>, B. C. Shanks<sup>1</sup>, J. D. Caldwell<sup>2</sup>, J. A. Apple<sup>3</sup>, B. R. Wiegand<sup>4</sup>, L. S. Wilbers<sup>1</sup>, T. M. Johnson<sup>3</sup>, A. L. Bax<sup>1</sup>, C. L. Thomas<sup>1</sup>, K. L. Basinger<sup>1,3</sup>, and J. W. S. Yancey<sup>3</sup>, <sup>1</sup>Department of Agriculture and Environmental Science, Lincoln University, Jefferson City, MO, <sup>2</sup>Purina Animal Nutrition Center LLC, Gray Summit, MO, <sup>3</sup>Department of Animal Science, University of Arkansas, Fayetteville, <sup>4</sup>University of Missouri, Columbia*

## POSTER SESSION II

Grand Ballroom – Foyer

Presentation Time: 5:00pm – 5:45pm

### GRADUATE STUDENT POSTER COMPETITION-PH.D

- 120 S01 **Characterization of nutrient content, yield, and gross return to cattle feeding at three corn crop endpoints.**  
*H. E. Larson<sup>\*1</sup>, A. A. Hohertz, M. Lostetter<sup>2</sup>, and A. DiCostanzo, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>University of Minnesota Rosemount Research and Outreach Center, Rosemount*
- 121 S02 **Carcass gain, efficiency, quality, and profitability in steers at extended days on feed.**  
*R. G. Bondurant<sup>\*1</sup>, J. C. MacDonald<sup>1</sup>, G. E. Erickson<sup>1</sup>, K. Brooks<sup>1</sup>, K. W. Bruns<sup>2</sup>, and R. N. Funston<sup>3</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska-Lincoln, West Central Research & Extension Center, North Platte, <sup>3</sup>University of Nebraska, North Platte*
- 122 S04 **Weaned pig responses to Escherichia coli lipopolysaccharide challenge when receiving dietary yeast-based nucleotides.**  
*S. M. Waititu<sup>\*1</sup>, M. C. Nyachoti<sup>1</sup>, F. Yin<sup>1</sup>, R. Patterson<sup>2</sup>, and J. C. Rodriguez-Lecompte<sup>3</sup>, <sup>1</sup>University of Manitoba, Winnipeg, MB, Canada, <sup>2</sup>Canadian Biosystems, Calgary, AB, Canada, <sup>3</sup>University of Prince Edward Island, Charlottetown, PE, Canada*

- 123 S05 **Dietary lysine affected the expression of genes related to ubiquitin-proteasome protein degradation pathway in skeletal muscle of finishing pigs.**  
*T. Wang<sup>\*</sup>, N. Regmi, J. M. Feugang, M. A. Crenshaw, J. R. Blanton, and S. F. Liao, Mississippi State University, Mississippi State*
- 124 S06 **Impacts of early weaning and winter feeding strategy on cow-calf performance.**  
*J. J. Kincheloe<sup>\*1</sup>, K. C. Olson<sup>1</sup>, P. S. Johnson<sup>1</sup>, R. N. Gates<sup>1</sup>, D. Landblom<sup>2</sup>, H. A. Richter<sup>3</sup>, and A. V. Grove<sup>4</sup>, <sup>1</sup>South Dakota State University, Rapid City, <sup>2</sup>North Dakota State University, Dickinson, <sup>3</sup>Natural Resources Conservation Service, Pierre, SD, <sup>4</sup>AG Research, LLC, White Sulphur Springs, MT*
- 125 S07 **Influence of growing phase feed efficiency classification on finishing phase growth performance and carcass characteristics of beef steers fed different diet types.**  
*J. R. Russell<sup>1</sup>, E. L. Lundy<sup>1</sup>, N. O. Minton<sup>2</sup>, W. J. Sexten<sup>2</sup>, M. Kerley<sup>2</sup>, and S. L. Hansen<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>University of Missouri, Columbia*
- 126 S08 **Effects of grinding corn through a 2-, 3-, or 4-high roller mill on milling characteristics, and finishing pig growth performance and carcass characteristics.**  
*J. T. Gebhardt<sup>\*1</sup>, M. D. Tokach<sup>1</sup>, J. C. Woodworth<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, K. F. Coble<sup>2</sup>, C. R. Stark<sup>1</sup>, C. K. Jones<sup>1</sup>, and S. S. Dritz<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>New Fashion Pork, Jackson, MN*

## NONRUMINANT NUTRITION I

- 169 S09 **Effects of lactic acid bacteria complex and *Enterococcus faecium* DSM 7134 in weanling pigs.**  
*P. Y. Zhao<sup>\*</sup>, H. N. Tran, H. Y. Shin, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 170 S10 **Effects of complex direct-fed microbial supplementation in different basal diets on growth performance, nutrient digestibility, blood profiles, fecal microbial shedding and noxious gas emission in growing pigs.**  
*W. C. Liu<sup>1</sup>, Y. H. Kim<sup>1</sup>, M. G. Jung<sup>1</sup>, J. H. Cho<sup>2</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*

- 171 S11 **Impact of hydrolyzed yeast product in nursery pig diets on growth performance and immune response.**  
*C. L. Levesque<sup>1</sup>, S. Jalukar<sup>2</sup>, S. Gould<sup>3</sup>, and J. F. Patience<sup>3</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Arm and Hammer Animal Nutrition, Mason City, IA, <sup>3</sup>Iowa State University, Ames*
- 172 S12 **Tri-strain probiotics improves performance, excreta microbial shedding and reduces noxious gas emission in broilers.**  
*M. M. Hossain<sup>1</sup>, M. Begum<sup>1</sup>, J. H. Cho<sup>2</sup>, Y. H. Kim<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 173 S13 **Potentials of probiotics B. subtilis RX7 and B. methylotrophicus C14 strains as an alternative to antibiotics in Salmonella challenged weaning pigs.**  
*S. D. Upadhaya<sup>\*</sup>, S. Mohana Devi, S. I. Lee, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 174 S14 **Efficacy of probiotics B. subtilis RX7 and B. methylotrophicus C14 strains as an alternative to antibiotics in weaned pigs.**  
*S. D. Upadhaya<sup>\*</sup>, W. C. Liu, Y. H. Liu, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 175 S15 **Effects of Lactobacillus acidophilus fermentation product on growth performance, nutrient digestibility, and fecal microbiota in weanling pigs.**  
*R. X. Lan<sup>1</sup>, J. M. Koo<sup>2</sup>, S. I. Lee<sup>1</sup>, J. H. Cho<sup>3</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Shinhan BioChem Co., Hwaseong, South Korea, <sup>3</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 176 S16 **The effects of feeding 15 or 30 ppm of narasin on the growth performance of pigs during the grower period.**  
*R. A. Arentson<sup>1</sup>, S. Fry<sup>1</sup>, T. A. Marsteller<sup>1</sup>, and E. L. Christianson<sup>2</sup>, <sup>1</sup>Elanco, Greenfield, IN, <sup>2</sup>Elanco Animal Health, Greenfield, IN*
- 177 S17 **Determining the impact of By-O-Reg<sup>+</sup> in diets with or without feed grade antibiotic on growth performance of nursery pigs.**  
*L. L. Thomas<sup>\*</sup>, J. C. Woodworth, R. D. Goodband, J. M. DeRouchey, M. D. Tokach, and S. S. Dritz, Kansas State University, Manhattan*

- 178 S18 **Evaluation of Porcine IPEC-J2 Cell Line Immune Response to *Escherichia coli* (0111:B4) Lipopolysaccharide.**  
*X. Wang<sup>\*1</sup>, T. C. Tsai<sup>1</sup>, M. A. Sales<sup>1</sup>, C. V. Maxwell<sup>1</sup>, K. Novak<sup>2</sup>, and E. Davis<sup>3</sup>, <sup>1</sup>Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, <sup>2</sup>DuPont Nutrition and Health, Waukesha, WI, <sup>3</sup>Danisco A/S, Waukesha, WI*
- 179 S19 **Effect of Topsoil Exposure during Lactation on Subsequent Performance and Abundance of Innate and Adaptive Immune Cells in Pigs.**  
*T. C. Tsai<sup>1</sup>, H. J. Kim<sup>1</sup>, M. A. Sales<sup>\*1</sup>, X. Wang<sup>1</sup>, G. F. Erf<sup>2</sup>, E. B. Kegley<sup>1</sup>, F. G. Carbonero<sup>3</sup>, M. van der Merwe<sup>4</sup>, R. K. Buddington<sup>4</sup>, and C. V. Maxwell<sup>1</sup>, <sup>1</sup>Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, AR, <sup>2</sup>Department of Poultry Science, Division of Agriculture, University of Arkansas, Fayetteville, <sup>3</sup>Department of Food Science, Division of Agriculture, University of Arkansas, Fayetteville, <sup>4</sup>University of Memphis, TN*
- 180 S20 **Effect of a 3-Strain Bacillus-Based Direct-Fed Microbial on Relative Tissue Gene Expression in Nursery and Finishing Pigs Fed Low- or High-Fiber Diets.**  
*N. W. Jaworski<sup>\*1</sup>, M. C. Walsh<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom*
- UNDERGRADUATE STUDENT POSTER COMPETITION II**
- 420 S21 **Electrical impedance correlations to pork quality.**  
*S. B. Schauunaman<sup>\*</sup>, J. M. Young, X. Sun, J. H. Liu, L. A. Bachmeier, R. Somers, and D. J. Newman, North Dakota State University, Fargo*
- 421 S22 **Development of an imaging technique using clinical CT-scans to detect osteochondritic-like lesions in femoral growth plates of growing pigs.**  
*N. Gross<sup>\*</sup>, S. Oldenburg, J. Lawinger, M. Grez, and T. D. Crenshaw, University of Wisconsin-Madison*
- 422 S23 **Evaluation of perennial switchgrass as a replacement for corn-stalks in high sulfur beef cattle diets.**  
*A. K. Reis<sup>\*1</sup>, R. Ostrem<sup>1</sup>, K. J. Heiderscheit<sup>1</sup>, O. N. Genter-Schroeder<sup>1</sup>, C. A. Clark<sup>2</sup>, D. D. Loy<sup>1</sup>, and S. L. Hansen<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Armstrong Memorial Research and Demonstration Farm, Iowa State University, Lewis*

- 423 S24 **College Student Perceptions of Animal Welfare and Production Agriculture Practices at a Small Historical Black University.**  
*J. D. Rippetto<sup>\*1</sup>, K. A. Cash<sup>1</sup>, B. C. Shanks<sup>1</sup>, J. D. Caldwell<sup>2</sup>, and M. S. Aruguete<sup>1</sup>, <sup>1</sup>Lincoln University, Jefferson City, MO, <sup>2</sup>Purina Animal Nutrition Center, Grays Summit, MO*
- 424 S25 **Effects of level of soybean meal and *Yucca schidigera* addition to diets on growth performance of nursery pigs.**  
*C. V. Cooper<sup>\*</sup>, S. D. Carter, S. Schaaf, and S. L. Becker, Oklahoma State University, Stillwater*
- 427 S25 **Relationship of frame size and body measurements with feed efficiency traits in heifers.**  
*C. R. Kuehl<sup>\*</sup>, A. B. P. Fontoura, F. E. Keomanivong, C. R. Dahlen, K. Ringwall, K. A. Vonnahme, L. L. L. H. Hanna, and K. C. Swanson, North Dakota State University, Fargo*
- 425 S27 **Effects of foliar fungicide application on the growing corn plant.**  
*K. Robinson<sup>\*1</sup>, C. Kalebich<sup>1</sup>, G. M. Fellows<sup>2</sup>, and F. C. Cardoso<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>BASF Corporation, Research Triangle Park, NC*
- 426 S28 **Determine nutritional and anti-parasitic benefits of *Cleome gynandra* for goats.**  
*J. Kirk<sup>\*1</sup>, R. Lawrence<sup>2</sup>, O. Gekara<sup>2</sup>, J. Onyilagha<sup>2</sup>, and U. Adamu<sup>2</sup>, <sup>1</sup>University of Arkansas At Pine Bluff, Pine Bluff, <sup>2</sup>University of Arkansas at Pine Bluff*

# POSTER PRESENTATIONS

Tuesday, March 15, 2016

## POSTER SESSION III

Grand Ballroom – Foyer

Presentation Time: 7:30 am – 8:15 am

### NONRUMINANT NUTRITION II

- 181 S01 **Effects of standardized ileal digestible isoleucine and valine:lysine ratio on growth performance of 12 to 25 kg nursery pigs.**  
*A. J. Gerhart<sup>1</sup>, E. D. Fruge<sup>2</sup>, E. Hansen<sup>3</sup>, S. Hansen<sup>4</sup>, J. Less<sup>5</sup>, and C. W. Hastad<sup>6</sup>, <sup>1</sup>Hubbard Feeds, Mankato, MN, <sup>2</sup>Hubbard Feeds, Inc., Mankato, MN, <sup>3</sup>Hubbard Feeds Inc., Mankato, MN, <sup>4</sup>Hubbard Feeds Inc, Mankato, MN, <sup>5</sup>ADM Animal Nutrition, Decatur, IL, <sup>6</sup>New Fashion Pork, Jackson, MN*
- 182 S02 **Use of Wheat Gluten as an Alternative Protein Source in Nursery Diets.**  
*C. M. De Mille<sup>1</sup>, D. J. Bloxham<sup>1</sup>, C. R. Dove<sup>1</sup>, S. Bassi<sup>2</sup>, and M. J. Azain<sup>1</sup>, <sup>1</sup>University of Georgia, Athens, GA, <sup>2</sup>Manildra Group USA, Shawnee Mission, KS*
- 183 S03 **Interactive effect of dietary fermented corn and nutrient density of diets on growth performance, nutrient digestibility, ileal microorganisms and fecal noxious gas emission in growing pigs.**  
*H. L. Li<sup>\*</sup>, P. Y. Zhao, J. H. Park, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 184 S04 **Interactive effect of dietary fermented oat and density of diets on growth performance, nutrient digestibility, and ileal microorganisms in weaning pigs.**  
*H. L. Li<sup>1</sup>, T. S. Li<sup>1</sup>, J. H. Cho<sup>2</sup>, S. Kathannan<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 185 S05 **Evaluation of SID lysine to energy ratio based on NRC or National Swine Nutrition Guide on pig performance.**  
*X. Yang<sup>\*</sup>, A. Tekeste, D. P. Pangeni, H. Manu, P. Ren, and S. K. Baidoo, Southern Research and Outreach Center, University of Minnesota, Waseca*



- 186 S06 **Effects of dietary tryptophan:lysine ratio on the reproductive performance of primiparous and multiparous lactating sows.**  
*Z. Fan<sup>\*1,2,3</sup>, X. Yang<sup>1</sup>, J. Kim<sup>1</sup>, D. Menon<sup>1</sup>, and S. K. Baidoo<sup>1</sup>, <sup>1</sup>Southern Research and Outreach Center, University of Minnesota, Waseca, <sup>2</sup>Institute of Animal Nutrition, Hunan Agricultural University, Changsha, China, <sup>3</sup>State Key Laboratory of Animal Nutrition, Beijing, China*
- 187 S07 **Effects of dietary inclusion level of distillers dried grains with solubles (DDGS) and high-protein distillers dried grains (HP-DDG) on the growth performance and carcass characteristics of wean-to-finish pigs.**  
*A. Rojo<sup>1</sup>, M. Ellis<sup>1</sup>, E. B. Gaspar<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. A. Peterson<sup>2</sup>, F. K. McKeith<sup>1</sup>, and J. Killefer<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 188 S08 **Effects of low dietary inclusion levels of soybean meal and non-essential amino acid supplementation on the growth performance of late-finishing pigs.**  
*A. Rojo<sup>1</sup>, M. Ellis<sup>1</sup>, E. B. Gaspar<sup>1</sup>, A. M. Gaines<sup>2</sup>, F. K. McKeith<sup>1</sup>, and J. Killefer<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 189 S09 **Effect of dietary inclusion level of high-protein distillers grains (HP-DDG) and of dietary excesses of branched chain amino acids (BCAA) on the growth performance of pigs.**  
*A. Rojo<sup>1</sup>, M. Ellis<sup>1</sup>, E. B. Gaspar<sup>1</sup>, A. M. Gaines<sup>2</sup>, F. K. McKeith<sup>1</sup>, and J. Killefer<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 190 S10 **Efficacy of soybean meal in reducing the effects of a PRRSV challenge in weaned pigs.**  
*M. R. Fiene<sup>\*</sup> and R. C. Thaler, South Dakota State University, Brookings*
- 191 S11 **Impact of dietary protein and dried citrus pulp contents on gut morphology of weanling pigs.**  
*V. V. Almeida<sup>\*1</sup>, A. J. C. Nuñez<sup>1</sup>, P. V. A. Alvarenga<sup>2</sup>, F. R. Castellini<sup>2</sup>, Y. V. Silva-Guillen<sup>2</sup>, and M. C. Thomaz<sup>2</sup>, <sup>1</sup>Department of Animal Sciences, Purdue University, West Lafayette, IN, <sup>2</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil*
- 192 S12 **High Inclusion of Distillers Dried Grains with Solubles as a Dietary Fiber Source Reduces Cytokine Levels in Growing-finishing Pigs.**  
*M. Ferrandis Vila<sup>\*</sup>, Z. Huang, P. E. Urriola, G. C. Shurson, and M. Saqui-Salces, Department of Animal Science, University of Minnesota, St. Paul*

- 193 S13 **Total body amino acid composition of two genetic lines of barrows and gilts from twenty to one hundred twenty-five kilograms of body weight.**  
*P. Xue<sup>\*1</sup>, A. P. Schinckel<sup>1</sup>, O. Adeola<sup>2</sup>, T. Wiseman<sup>3</sup>, and D. C. Mahan<sup>4</sup>,  
<sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Department of Animal Sciences, Purdue University, West Lafayette, IN, <sup>3</sup>Ohio State University Extension Perry County, Somerset, <sup>4</sup>The Ohio State University, Delaware*
- 194 S14 **Supplementation of feed grade essential and non-essential amino acids to control levels in pigs fed reduced crude protein (RCP) diets meeting the SID His:Lys ratio requirement maintained growth performance and carcass composition in growing/finishing swine.**  
*C. V. Maxwell<sup>\*1</sup>, T. C. Tsai<sup>1</sup>, H. J. Kim<sup>1</sup>, J. K. Apple<sup>2</sup>, K. J. Touchette<sup>3</sup>, and J. J. Chewning<sup>4</sup>,  
<sup>1</sup>Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, <sup>2</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>3</sup>Ajinomoto Heartland, Inc., Chicago, IL, <sup>4</sup>Swine Research Services, Inc., Springdale, AR*
- 195 S15 **Effect of energy restriction on feed efficiency, nutrient digestibility, and immune biomarkers of growing/finishing pigs.**  
*S. M. Barnett<sup>\*</sup>, K. C. Moore, M. D. Trenhaile, A. T. Desaulniers, Y. S. Li, D. M. van Sambeek, H. Tran, B. R. White, and T. E. Burkey,  
 University of Nebraska-Lincoln*
- 196 S16 **Effects of feed grade L-methionine on intestinal redox status, intestinal development, and growth performance of turkey poults compared with conventional DL-methionine.**  
*I. Park<sup>\*</sup>, T. J. Pasquetti, R. D. Malheiros, L. Zheng, P. Ferket, and S. W. Kim, North Carolina State University, Raleigh*
- 197 S17 **Diet nutrient digestibility and growth performance of weaned pigs fed chickpea.**  
*Y. Han<sup>\*1</sup>, L. F. Wang<sup>1</sup>, E. Beltranena<sup>2</sup>, and R. T. Zijlstra<sup>1</sup>,  
<sup>1</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, <sup>2</sup>Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 198 S18 **Effects of aggressive feed-grade amino acid supplementation in reduced CP diets formulated on ME or NE basis on growth performance of nursery pigs.**  
*H. J. Kim<sup>\*1</sup>, T. C. Tsai<sup>1</sup>, J. J. Chewning<sup>2</sup>, J. K. Apple<sup>3</sup>, K. J. Touchette<sup>4</sup>, J. E. Thomson<sup>5</sup>, J. Less<sup>6</sup>, and C. V. Maxwell<sup>1</sup>,  
<sup>1</sup>Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, <sup>2</sup>Swine Research Services, Inc., Springdale, AR, <sup>3</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>4</sup>Ajinomoto Heartland, Inc., Chicago, IL, <sup>5</sup>Evonik Degussa Corp, Kennesaw, GA, <sup>6</sup>ADM Animal Nutrition, Decatur, IL*

- 199 S19 **Effect of Fish Meal Source on Nursery Pig Performance.**  
*A. M. Jones\**, *J. C. Woodworth*, *R. D. Goodband*, *M. D. Tokach*, *S. S. Dritz*, and *J. M. DeRouche*, *Kansas State University, Manhattan*
- 200 S20 **Effect of corn germ meal inclusion level on the growth performance and carcass characteristics of wean-to-finish pigs.**  
*J. E. Estrada\**<sup>1</sup>, *M. Ellis*<sup>1</sup>, *A. M. Gaines*<sup>2</sup>, *B. A. Peterson*<sup>2</sup>, and *O. F. Mendoza*<sup>3</sup>, <sup>1</sup>*University of Illinois at Urbana-Champaign*, <sup>2</sup>*The Maschhoffs, LLC, Carlyle, IL*
- 201 S21 **Lysine requirement titration for barrows and gilts from 25- to 75-kg.**  
*J. L. Landero*<sup>1</sup>, *M. G. Young*<sup>1</sup>, *K. J. Touchette*<sup>2</sup>, *M. J. Stevenson*<sup>3</sup>, *A. B. Clark*<sup>4</sup>, *M. A. D. Gonçalves*<sup>4</sup>, and *S. S. Dritz*<sup>4</sup>, <sup>1</sup>*Gowans Feed Consulting, Wainwright, AB, Canada*, <sup>2</sup>*Ajinomoto Heartland, Inc., Chicago, IL*, <sup>3</sup>*Halchemix Canada Inc, Port Perry, ON, Canada*, <sup>4</sup>*Kansas State University, Manhattan*
- 202 S22 **High levels of soybean meal reduces medical treatment in nursery pigs affected by PRRS.**  
*K. Moran\**<sup>1</sup>, *E. van Heugten*<sup>1</sup>, *C. E. Zier-Rush*<sup>2</sup>, and *R. D. Boyd*<sup>2</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*The Hanor Company, Inc., Franklin, KY*
- 203 S23 **Performance responses of weaned pigs when fermented soybean meal (NF8) was replaced with a modified grain by-product (Gold Pro).**  
*F. B. Sandberg\**<sup>1</sup>, *S. J. England*, and *M. R. Bible*, *Furst McNess Company, Freeport, IL*
- 204 S24 **Responses to feeding higher levels of Dried Distiller Grains and Solubles (DDGS) of gilts and barrows, when supplemented with plant extracts (Lean Fuel).**  
*F. B. Sandberg\**<sup>1</sup>, *S. J. England*, and *M. R. Bible*, *Furst McNess Company, Freeport, IL*
- 205 S25 **Effect of increasing sow feeding level in late gestation on piglet quality and sow body condition.**  
*M. T. Knauer\**<sup>1</sup>, *North Carolina State University, Raleigh*

## RUMINANT NUTRITION I

- 340 S26 **Rumen Microbial Protein Synthesis in Multigrain and Barley Fed lactating Dairy Cows.**  
*A. Nikkhah\**<sup>1</sup>, *University of Zanjan, Zanjan, Iran*

- 341 S27 **Influence of dry-rolled corn processing and distillers grain inclusion rate on ruminal digestive enzyme activity.**  
*F. E. Keomanivong\**, *M. C. Ruch*, *J. D. Kirsch*, *C. R. Dahlen*, *M. L. Bauer*, and *K. C. Swanson*, *North Dakota State University, Fargo*
- 342 S28 **Nutrient Variability of Distillers Grains with Solubles.**  
*K. J. Herrick* and *B. J. Breiting\**, *POET Research, Inc., Sioux Falls, SD*
- 343 S29 **Effects of whole or rolled corn and 20 or 40 percent grass hay levels on finishing performance of yearling steers.**  
*C. L. Engel<sup>1</sup>*, *A. Taylor<sup>2</sup>*, *C. S. Schauer<sup>3</sup>*, *R. J. Maddock<sup>1</sup>*, and *K. C. Olson<sup>3</sup>*, *<sup>1</sup>North Dakota State University, Carrington Research Extension Center, Carrington*, *<sup>2</sup>Cargill Nutrition Animal Innovation Campus, Elk River, MN*, *<sup>3</sup>North Dakota State University, Hettinger Research Extension Center, Hettinger*, *<sup>4</sup>North Dakota State University, Fargo*, *<sup>5</sup>South Dakota State University, Rapid City*
- 344 S30 **Effects of different strategies for feeding alfalfa hay on productive performance, rumen fermentation and carcass characteristics of growing lambs.**  
*M. M. Abdelrahman<sup>\*1</sup>*, *I. A. Alhidary<sup>1</sup>*, and *A. H. Alyemni<sup>2</sup>*, *<sup>1</sup>King Saud University, Riyadh, Saudi Arabia*, *<sup>2</sup>ARASCO company, Riyadh, Saudi Arabia*

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**POSTER SESSION IV**

**Grand Ballroom – Foyer**

**Presentation Time: 12:45 pm – 1:30 pm**

**ANIMAL BEHAVIOR, HOUSING AND WELL-BEING**

- 1 S01 **Evaluation of the behavioral differences between physically and immunologically castrated male pigs.**  
*A. Keller<sup>1</sup>*, *B. Lemmer<sup>2</sup>*, *S. Getty<sup>1</sup>*, *B. Post<sup>1</sup>*, *M. Nickel<sup>3</sup>*, *F. Baier<sup>1</sup>*, *D. Wagner<sup>4</sup>*, and *K. Vogel<sup>1</sup>*, *<sup>1</sup>University of Wisconsin - River Falls*, *<sup>2</sup>North Carolina State University, Raleigh*, *<sup>3</sup>Iowa State University, Ames*, *<sup>4</sup>Colorado State University, Fort Collins*
- 2 S02 **Differential Postprandial Eating Behavior of Morning and Evening Fed Dairy Cows.**  
*A. Nikkhah\**, *University of Zanjan, Zanjan, Iran*
- 3 S03 **Eating Behavior Patterns of Multigrain and Barley Fed Lactating Dairy Cows.**  
*A. Nikkhah\**, *University of Zanjan, Zanjan, Iran*

- 4 S04 **The effect of corrective claw trimming on gait analysis of the sow.**  
*A. Tinkle<sup>1</sup>, K. J. Duberstein<sup>1</sup>, M. E. Wilson<sup>2</sup>, M. A. Parsley<sup>3</sup>, M. K. Beckman<sup>2</sup>, M. J. Azain<sup>1</sup>, and C. R. Dove<sup>1</sup>, <sup>1</sup>University of Georgia, Athens, GA, <sup>2</sup>Zinpro Corporation, Eden Prairie, MN, <sup>3</sup>Zinpro Corporation, Sheridan, IN*
- 5 S05 **The impact of gestation housing system (Individual vs. Group) on the reproductive performance of sows.**  
*A. L. Ludwig<sup>1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, and B. A. Peterson<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 6 S06 **The effect of farrowing pen size on pre-weaning mortality.**  
*A. L. Ludwig<sup>1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, and B. A. Peterson<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL*
- 7 S07 **Effect of water treatment on drinking preferences of dairy heifers.**  
*N. D. Senevirathne\*, J. L. Anderson, and M. Rovai, South Dakota State University, Brookings*
- 8 S08 **Development of Acclimation to Reduce Flooring Novelty in Nursery Pigs.**  
*F. Baier\*, A. Keller, A. Munger, and K. Vogel, University of Wisconsin - River Falls*
- 9 S09 **Effects of feeder space allowance on behavior of slow growing pigs during the nursery period.**  
*Y. He<sup>1</sup>, S. Cui<sup>\*2</sup>, J. Deen<sup>3</sup>, G. C. Shurson<sup>4</sup>, and Y. Li<sup>2</sup>, <sup>1</sup>Dept. of Animal Science, University of Minnesota, St. Paul, MN, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota, Morris, <sup>3</sup>Dept. of Veterinary Population Medicine, University of Minnesota, St. Paul, <sup>4</sup>Department of Animal Science, University of Minnesota, St. Paul*

## EXTENSION - SWINE

- 80 S10 **Evaluation of the inter-scorer reliability of body and leg conformation traits in replacement gilts.**  
*S. Azarpajouh<sup>\*1</sup>, J. M. Mumm<sup>1</sup>, and J. A. Calderon-Diaz<sup>2</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames*
- 81 S11 **Comparison of digestible amino acids databases: relationship between amino acid digestibility and concentration in swine.**  
*D. J. Bloxham\*, M. J. Azain, and G. M. Pesti, University of Georgia, Athens*

- 82 S12 **Blood parameters as piglet health biomarkers in an experimental infection with *Salmonella* spp.**  
*E. Barba-Vidal<sup>1</sup>, V. F. Buttow<sup>2</sup>, E. G. Manzanilla<sup>1</sup>, L. Blavi<sup>\*1</sup>, C. Torrente<sup>3</sup>, J. F. Pérez<sup>1</sup>, and S. M. Martín-Orúe<sup>1</sup>, <sup>1</sup>Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain, <sup>2</sup>Department of Animal Science, Faculty of Agronomy Eliseu Maciel, Federal University of Pelotas, Pelotas (96010-900), Brazil, <sup>3</sup>Servei d'Emergències i Cures Intensives de la Fundació Hospital Clínic Veterinari-UAB, Departament de Medicina i Cirurgia Animal, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain*
- 83 S13 **Initial use of statistics to be used to quantify the magnitude errors in the sorting on three finishing barns.**  
*Y. Que<sup>\*</sup>, F. A. Cabazon, and A. P. Schinckel, Purdue University, West Lafayette, IN*
- 84 S14 **Evaluation of statistics to be used to quantify the magnitude errors in the sorting of pigs for market via simulation.**  
*F. A. Cabazon, A. P. Schinckel<sup>\*</sup>, and Y. Que, Purdue University, West Lafayette, IN*
- 85 S15 **Analysis of lactation feed intakes for sows including data on environmental temperatures and humidity.**  
*F. A. Cabazon<sup>\*1</sup>, A. P. Schinckel<sup>1</sup>, B. T. Richert<sup>1</sup>, K. R. Stewart<sup>1</sup>, M. Gandarillas<sup>2</sup>, and W. A. Peralta<sup>3</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Universidad Austral de Chile, Valdivia, Chile, <sup>3</sup>Agrícola Super Ltda, Rancagua, Chile*
- 86 S16 **Alternative method to accurately predict the sows' body weight in early gestation.**  
*S. López-Vergé, L. Blavi<sup>\*</sup>, D. Solà-Oriol, and J. Gasa, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain*
- 87 S17 **Influence of Amaferm® Digest More® on Swine Lactation Performance.**  
*S. J. Moeller<sup>\*</sup> and M. B. Hess, The Ohio State University, Columbus*
- 88 S18 **Evaluation of medium-chain fatty acid salts or *Enterococcus faecium* in front of a *Salmonella* Typhimurium challenge in piglets.**  
*J. J. Mallo<sup>\*</sup>, Norel SA, Madrid, Spain*

## NONRUMINANT NUTRITION III

- 295 S19 **Effects of tribasic copper chloride (TBCC), *Saccharomyces cerevisiae* fermentation product (YFP), and narasin (NAR) supplementation on growth performance of 12 to 25 kg pigs.**  
*E. D. Fruge*<sup>\*1</sup>, *E. Hansen*<sup>2</sup>, *S. Hansen*<sup>3</sup>, *A. J. Gerhart*<sup>4</sup>, *J. L. Usry*<sup>5</sup>, and *C. W. Hastad*<sup>6</sup>, <sup>1</sup>Hubbard Feeds, Inc., Mankato, MN, <sup>2</sup>Hubbard Feeds Inc., Mankato, MN, <sup>3</sup>Hubbard Feeds Inc, Mankato, MN, <sup>4</sup>Hubbard Feeds, Mankato, MN, <sup>5</sup>Micronutrients, Indianapolis, IN, <sup>6</sup>New Fashion Pork, Jackson, MN
- 296 S20 **Evaluation of interactive effects of vitamin E and linseed oil as a source of omega-3 fatty acids on growth performance, blood characteristics and meat quality of finishing pigs.**  
*S. D. Upadhaya*<sup>\*</sup>, *T. S. Li*, *Y. M. Kim*, and *I. H. Kim*, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea
- 297 S21 **Effects of dietary zinc source and level on nursery pig performance.**  
*K. E. Jordan*<sup>1</sup>, *K. M. Gourley*<sup>\*1</sup>, *M. D. Tokach*<sup>1</sup>, *R. D. Goodband*<sup>1</sup>, *S. S. Dritz*<sup>1</sup>, *J. M. DeRouche*<sup>1</sup>, *J. C. Woodworth*<sup>1</sup>, and *J. L. Usry*<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Micronutrients, Indianapolis, IN
- 298 S22 **Could Zinc Citrate supplementation during lactation increase the serum Zn levels at weaning?.**  
*L. Blavi*<sup>\*</sup>, *D. Solà-Oriol*, and *J. F. Pérez*, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain
- 299 S23 **Effect of diet type and added copper on growth performance, carcass characteristics, total tract digestibility, gut morphology, and mucosal mRNA expression of finishing pigs.**  
*K. Coble*<sup>\*1</sup>, *D. Burnett*<sup>1</sup>, *R. D. Goodband*<sup>1</sup>, *J. M. Gonzalez*<sup>1</sup>, *J. L. Usry*<sup>2</sup>, *M. D. Tokach*<sup>1</sup>, *J. Pluske*<sup>3</sup>, *J. M. DeRouche*<sup>1</sup>, *J. C. Woodworth*<sup>1</sup>, *S. S. Dritz*<sup>1</sup>, *J. R. Flohr*<sup>1</sup>, and *M. A. Vaughn*<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Micronutrients, Indianapolis, IN, <sup>3</sup>Murdoch University, Western Australia, Australia
- 300 S24 **Low calcium levels improve growth in piglets after weaning.**  
*L. Blavi*<sup>\*</sup>, *D. Solà-Oriol*, and *J. F. Pérez*, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain

- 301 S25 **Effects of increasing zinc from zinc sulfate or zinc hydroxychloride on finishing pig growth performance and carcass characteristics.**  
*C. B. Carpenter<sup>\*1</sup>, K. Coble<sup>1</sup>, J. C. Woodworth<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, and J. L. Usry<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Micronutrients, Indianapolis, IN*
- 206 S26 **Effects of dietary calcium concentrations on the apparent total tract digestibility and the balance of calcium, phosphorus, and nitrogen in growing pigs.**  
*Y. She<sup>\*</sup>, University of Illinois at Urbana-Champaign*
- 207 S27 **Effects of proteinate complex zinc on trace elements concentrations, oxidative stress and immune functions in weaned piglets.**  
*Y. She<sup>\*</sup>, University of Illinois at Urbana-Champaign*
- 208 S28 **Efficiency of Ca and P retention in growing pigs fed diets with different Ca:P ratios provided by monocalcium phosphate or phytase supplementation.**  
*M. Grez<sup>\*</sup> and T. D. Crenshaw, University of Wisconsin-Madison,*

**POSTER SESSION V**  
**Grand Ballroom – Foyer**  
**Presentation Time: 5:00 pm – 5:45 pm**

**EXTENSION - DAIRY**

- 65 S01 **A study to examine the relationship between uterine pathology and depletion of oxytetracycline in plasma and milk after intra-uterine infusion.**  
*P. J. Gorden<sup>\*1</sup>, J. Ydstie<sup>1</sup>, M. D. Kleinhenz<sup>2</sup>, L. W. Wulff<sup>3</sup>, R. Gehring<sup>4</sup>, C. Wang<sup>1</sup>, and J. F. Coetzee<sup>3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, <sup>3</sup>Pharmacology Analytical Support Team, Iowa State University College of Veterinary Medicine, Ames, <sup>4</sup>Kansas State University, Manhattan*

**EXTENSION – BEEF/SMALL RUMINANT**

- 55 S02 **Using corn co-products in post-partum diets of beef cows to optimize reproductive performance.**  
*E. G. Taylor<sup>\*</sup>, R. P. Lemenager, and K. R. Stewart, Purdue University, West Lafayette, IN*



- 56 S03 **Cultural energy analysis of cool- and warm-season grass pasturing systems into cattle finishing Programs.**  
*H. Koknaroglu<sup>\*1</sup>, O. Koskan<sup>1</sup>, R. A. Edler<sup>2</sup>, and M. P. Hoffman<sup>2</sup>, <sup>1</sup>Suleyman Demirel University, Isparta, Turkey, <sup>2</sup>Iowa State University, Ames*
- 57 S04 **Cultural energy analyses of climatologically suitable places in Turkey for feedlot cattle production determined by using the comprehensive climate index model.**  
*H. Koknaroglu<sup>\*1</sup>, J. A. Harrington Jr<sup>2</sup>, and T. L. Mader<sup>3</sup>, <sup>1</sup>Suleyman Demirel University, Isparta, Turkey, <sup>2</sup>Kansas State University, Manhattan, <sup>3</sup>Mader Consulting, LLC, Gretna, NE*
- 58 S05 **Determination of suitable sample size and number of simulation for predicting dry matter intake of feedlot cattle.**  
*O. Koskan<sup>\*1</sup>, H. Koknaroglu<sup>1</sup>, D. D. Loy<sup>2</sup>, and M. P. Hoffman<sup>2</sup>, <sup>1</sup>Suleyman Demirel University, Isparta, Turkey, <sup>2</sup>Iowa State University, Ames*
- 59 S06 **The Effect of Age, Plane of Nutrition and Progesterone Pre-treatment on Lambing Rate in Nulliparous Females Bred During the Breeding Season.**  
*A. K. Redhead<sup>\*</sup>, A. K. Adebisi, C. D. Paul, E. N. Keller, K. J. Powell, and M. Knights, West Virginia University, Morgantown, WV*
- 60 S07 **Evaluating results of pre-breeding reproductive examinations in yearling and mature beef bulls via the BullTest data reporting system.**  
*S. R. Underdahl<sup>\*1</sup>, C. L. Stoltenow<sup>1</sup>, and C. R. Dahlen<sup>1,2</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Center for Nutrition and Pregnancy, Fargo*

## NONRUMINANT NUTRITION IV

- 209 S08 **Effects of extracted of rice bran supplementation on production performance, feed intake, egg quality and fecal microflora in laying hens.**  
*D. H. Nguyen<sup>\*1</sup>, J. H. Cho<sup>2</sup>, H. S. Kim<sup>1</sup>, H. N. Tran<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 210 S09 **Evaluating the effects of microencapsulated blends of phytobiotics in the diet of broiler chickens.**  
*M. Mohammadi Gheisar<sup>\*</sup>, J. W. Park, S. Mohana Devi, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*

- 211 S10 **Effect of Soybean Cultivar on Growth Performance of Broilers.**  
*G. Hosotani\**, *M. S. Kerley*, and *M. C. Shannon*, *Division of Animal Sciences, University of Missouri, Columbia*
- 212 S11 **Effect of crumbled diet on growth performance, market day age and meat quality of growing-finishing pigs.**  
*D. H. Nguyen\**, *S. Kathannan*, *Y. H. Liu*, and *I. H. Kim*, *Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 213 S12 **Effects of creep feed pellet diameter on suckling and nursery pig performance.**  
*A. B. Clark\**, *J. A. De Jong*, *J. M. DeRouchey*, *M. D. Tokach*, *S. S. Dritz*, *R. D. Goodband*, and *J. C. Woodworth*, *Kansas State University, Manhattan*
- 214 S13 **Stability of commercial phytase products under increasing thermal conditioning temperatures.**  
*J. A. De Jong\**<sup>1</sup>, *J. M. DeRouchey*<sup>1</sup>, *M. D. Tokach*<sup>1</sup>, *R. D. Goodband*<sup>1</sup>, *J. C. Woodworth*<sup>1</sup>, *C. K. Jones*<sup>1</sup>, *C. R. Stark*<sup>1</sup>, *C. L. Bradley*<sup>2</sup>, *J. A. Loughmiller*<sup>3</sup>, and *J. R. Bergstrom*<sup>4</sup>, <sup>1</sup>*Kansas State University, Manhattan, KS*, <sup>2</sup>*AB Vista Feed Ingredients, Marlborough, United Kingdom*, <sup>3</sup>*Maverick Nutrition, Fairmont, MN*, <sup>4</sup>*DSM Nutritional Products, Parsippany, NJ*
- 215 S14 **Effects of grinding corn through a 2-, 3-, or 4-high roller mill on pig performance and feed preference of nursery pigs.**  
*J. T. Gebhardt*<sup>1</sup>, *J. A. De Jong*<sup>1</sup>, *M. D. Tokach*<sup>1</sup>, *J. C. Woodworth*<sup>1</sup>, *J. M. DeRouchey*<sup>1</sup>, *R. D. Goodband*<sup>1</sup>, *K. F. Coble*<sup>2</sup>, *C. R. Stark*<sup>1</sup>, *C. K. Jones*<sup>1</sup>, and *S. S. Dritz*<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*New Fashion Pork, Jackson, MN*
- 216 S15 **Coating dog kibble with a commercial liquid acidifier reduces the risk of *Salmonella* cross-contamination.**  
*A. R. Huss\**<sup>1</sup>, *A. Deliephan*<sup>1</sup>, *J. C. Fuller, Jr.*<sup>2</sup>, and *C. K. Jones*<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Metabolic Technologies Inc, Ames*
- 217 S16 **Proof-of-Concept Method to Sanitize a Feed Mill Contaminated with Porcine Epidemic Diarrhea Virus.**  
*A. R. Huss\**, *L. L. Schumacher*, *R. A. Cochrane*, *E. Poulsen*, *J. F. Bai*, *J. C. Woodworth*, *S. S. Dritz*, *C. R. Stark*, and *C. K. Jones*, *Kansas State University, Manhattan*

RUMINANT NUTRITION II

- 345 S17 **A comparison of bale feeder types on forage waste by beef cows.** *K. Nenn<sup>\*1</sup>, N. Kenney-Rambo<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>University of Minnesota, Saint Paul, <sup>2</sup>University of Minnesota, St. Paul*
- 346 S18 **Effects of a fenugreek extract (Nutrifen) in combination with organic trace minerals on feedlot performance in Angus heifers.** *J. W. Lemaster<sup>\*</sup>, M. R. Bible, S. J. England, and F. B. Sandberg, Furst McNess Company, Freeport, IL*
- 347 S19 **Evaluation of a Commercial Genetic Test to Determine Tolerance to Fescue Toxicity in Beef Cattle.** *M. M. Masiero<sup>\*1</sup>, C. A. Roberts<sup>2</sup>, M. S. Kerley<sup>2</sup>, and R. L. Kallenbach<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>AgBotanica, LLC, Columbia*
- 348 S20 **Stocking management effects on forage composition, cow methane emissions, and soil properties of cool season pastures.** *J. R. Russell<sup>1</sup>, J. Bisinger<sup>1</sup>, and W. J. Powers<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Michigan State University, East Lansing*
- 349 S21 **Dimorphic chronological development of ruminant digestive system supports development of equivalent muscle fatty acid profiles in continuously suckled and weaned Katahdin lambs.** *Q. S. Baptiste<sup>1</sup>, M. Knights<sup>2</sup>, A. K. Redhead<sup>2</sup>, and E. Felton<sup>3</sup>, <sup>1</sup>Berea College, Berea, KY, <sup>2</sup>West Virginia University, Morgantown, <sup>3</sup>Division of Animal and Nutritional Sciences, West Virginia University, Morgantown*
- 350 S22 **Estimates of Duodenal Microbial Protein in Free Housed Dairy Cows fed Total Mixed Ration vs. Component Diet.** *A. Nikkhah<sup>\*</sup>, University of Zanjan, Zanjan, Iran*
- 351 S23 **Energy Metabolism Peripheral Indicators in Total Mixed Ration vs. Component Fed Dairy Cows in a Competitive Environment.** *A. Nikkhah<sup>\*</sup>, University of Zanjan, Zanjan, Iran*
- 352 S24 **Improving Milk Production through Evening Feeding of Dairy Cows.** *A. Nikkhah<sup>\*</sup>, University of Zanjan, Zanjan, Iran*
- 353 S25 **Optimizing Dairy Cow Production through Multisource Starch Feeding.** *A. Nikkhah<sup>\*</sup>, University of Zanjan, Zanjan, Iran*

# POSTER PRESENTATION

Wednesday, March 16, 2016

## POSTER SESSION VI

Grand Ballroom – Foyer

Presentation Time: 5:00 pm – 5:45 pm

### NONRUMINANT NUTRITION V

- 273 S01 **Dietary kapok seed meal supplementation improved meat quality without adverse effects on growth performance in finishing pigs.**  
*H. L. Li<sup>\*</sup>, H. M. Yun, J. K. Kim, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 274 S02 **Dietary Levam-type fructan improved growth performance of lactating sows and their offspring and reduced fecal noxious gas emission.**  
*H. L. Li<sup>1</sup>, H. S. Kim<sup>1</sup>, J. H. Cho<sup>2</sup>, D. H. Nguyen<sup>1</sup>, and I. H. Kim<sup>1</sup>,  
<sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 275 S03 **Effect of dietary enzyme complex on growth performance, nutrient digestibility, and fecal noxious gas emission in growing pigs.**  
*P. Y. Zhao<sup>\*1</sup>, H. L. Li<sup>1</sup>, J. S. Jeong<sup>1</sup>, J. H. Cho<sup>2</sup>, and I. H. Kim<sup>1</sup>,  
<sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 276 S04 **Essential oil and emulsifier in low energy density diets increase growth performance and meat quality of finishing pigs.**  
*P. Y. Zhao<sup>\*1</sup>, J. H. Cho<sup>2</sup>, B. Balasubramanian<sup>1</sup>, S. Kathannan<sup>1</sup>, and I. H. Kim<sup>1</sup>,  
<sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea*
- 277 S05 **Effect of protease and anti-inflammatory supplementation with low nutrient diets on growth performance, nutrient digestibility, blood profile and fecal noxious gas in growing-finishing pigs.**  
*D. H. Nguyen<sup>\*</sup>, J. K. Kim, S. Shanmugam, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*

- 278 S06 **Bacillus subtilis, essential oil, chromium and glucose as sow pack are related to performance, immune and (or) stress of sows and piglets.**  
*D. H. Nguyen\**, R. X. Lan, W. C. Liu, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea
- 279 S07 **Effects of xylanase on growth performance and digestibility of fiber and energy in growing pigs fed corn, corn DDGS and soybean meal based diet supplemented with phytase.**  
*X. Yang\**<sup>1</sup>, M. C. Walsh<sup>2</sup>, E. Kiarie<sup>3,4,5</sup>, A. Tekeste<sup>1</sup>, and S. K. Baidoo<sup>1</sup>, <sup>1</sup>Southern Research and Outreach Center, University of Minnesota, Waseca, MN, <sup>2</sup>Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom, <sup>3</sup>DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, United Kingdom, <sup>4</sup>University of Guelph, ON, Canada, <sup>5</sup>University of Manitoba, Winnipeg, MB, Canada
- 280 S08 **Dietary effect of lactose on growth performance of nursery pigs on a liquid feeding system.**  
*X. Yang\**, J. Kim, and S. K. Baidoo, Southern Research and Outreach Center, University of Minnesota, Waseca
- 281 S09 **The interactive effects of fenugreek seed extract supplementation and dietary metabolizable energy levels in growing pigs.**  
*M. Begum\**<sup>1</sup>, J. H. Cho<sup>2</sup>, R. X. Lan<sup>1</sup>, M. M. Hossain<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource & Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea
- 282 S10 **Effects of  $\delta$ -aminolevulinic acid, and lactulose supplements in weaning piglets.**  
*M. M. Hossain\**, M. Begum, P. Y. Zhao, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea
- 283 S11 **Role of emulsifier as fat replacer in low density diet for growing and finishing pigs.**  
*S. D. Upadhaya\**, J. H. Park, H. M. Yun, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea
- 284 S12 **Effects of a xylanase and an emulsifier in diets with dried yeast on nursery pig performance.**  
*A. Hesse\**, J. Less, T. R. Radke, and V. G. Perez, ADM Animal Nutrition, Decatur, IL

- 285 S13 **Spray dried plasma compared to alternative specialty proteins in weanling pig diets.**  
*J. M. Campbell\**, *J. D. Crenshaw*, and *J. Polo*, *APC, Inc., Ankeny, IA*
- 286 S14 **Effect of *Saccharomyces cerevisiae* fermentation product supplementation in late gestation and lactation on sow and litter performance, milk components, and fecal *Clostridium perfringens*.**  
*T. C. Tsai\**<sup>1</sup>, *H. J. Kim*<sup>1</sup>, *X. Wang*<sup>1</sup>, *B. E. Bass*<sup>2</sup>, *J. W. Frank*<sup>2</sup>, and *C. V. Maxwell*<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*, <sup>2</sup>*Diamond V, Cedar Rapids, IA*
- 287 S15 **Effects of Herbiotic FS Supplementation in weanling pigs.**  
*S. Mohana Devi\**, *B. Balasubramanian*, *Y. M. Kim*, and *I. H. Kim*, *Department of Animal Resource & Science, Dankook University, Cheonan, South Korea*
- 288 S16 **Evaluation of the Effects of a Formaldehyde-based Feed Additive on Free Lysine.**  
*C. Rude\**, *D. Mellick*, *A. Lamptey*, and *M. Bienhoff*, *Kemin Industries, Des Moines*
- 289 S17 **The effects of egg yolk on nursery pig growth performance.**  
*K. C. Moore\**<sup>1</sup>, *S. M. Barnett*, *Y. Li*, *M. D. Trenhaile*, *T. E. Burkey*, *P. S. Miller*, and *S. C. Fernando*, *University of Nebraska-Lincoln*
- 290 S18 **Effect of feeding grower-finisher pig diets containing 20% soybean hulls with or without enzyme supplementation.**  
*L. J. Schertz*<sup>1</sup>, *G. A. Apgar*<sup>2</sup>, *L. A. Lekatz*<sup>1</sup>, and *P. J. Lammers*<sup>\*3</sup>, <sup>1</sup>*Illinois State University, Normal*, <sup>2</sup>*Southern Illinois University, Carbondale*, <sup>3</sup>*Univeristy of Wisconsin-Platteville*
- 291 S19 **Sow performance in response to natural betaine fed during lactation and weaning-to-35 d post-insemination during non-summer months.**  
*S. M. Mendoza\**<sup>1</sup>, *G. Martinez*<sup>1</sup>, *M. Knauer*<sup>1</sup>, *E. van Heugten*<sup>1</sup>, *P. Wilcock*<sup>2</sup>, *D. S. Rosero*<sup>3</sup>, and *R. D. Boyd*<sup>1,3</sup>, <sup>1</sup>*Department of Animal Science, North Carolina State University, Raleigh*, <sup>2</sup>*AB Vista Feed Ingredients, Marlborough, United Kingdom*, <sup>3</sup>*Hanor Company, Inc., Franklin, KY*
- 292 S20 **Responses of growing-finishing pigs to two levels of a multi-enzyme blend (Natuzyme) as compared to pigs fed a lower energy-higher fiber, or a higher energy-lower fiber diet.**  
*F. B. Sandberg\**, *S. J. England*, and *M. R. Bible*, *Furst McNess Company, Freeport, IL*

- 293 S21 **Impact of lipid peroxidation and antioxidants on nursery pig performance and health.**  
*P. L. Chang\* and E. van Heugten, Department of Animal Science, North Carolina State University, Raleigh*
- 294 S22 **Alteration of fecal bacterial communities in weanling pigs fed diets supplemented with chicory, mannan oligosaccharides, or chitosan.**  
*Y. S. Li\*, S. C. Fernando, P. S. Miller, and T. E. Burkey, University of Nebraska-Lincoln*

### ODOR AND NUTRIENT MANAGEMENT

- 303 S23 **Effect of feeding grower-finisher pig diets containing 20% soy-bean hulls with or without enzyme supplementation.**  
*L. J. Schertz<sup>1</sup>, G. A. Apgar<sup>2</sup>, L. A. Lekatz<sup>1</sup>, and P. J. Lammers<sup>\*3</sup>, <sup>1</sup>Illinois State University, Normal, <sup>2</sup>Southern Illinois University, Carbondale, <sup>3</sup>Univeristy of Wisconsin-Platteville*
- 304 S24 **A comparison of antibiotic-free and conventional management on nutrient excretion in swine.**  
*C. E. Vonderohe<sup>1</sup>, K. M. Mills<sup>\*1</sup>, A. M. Jones<sup>2</sup>, M. D. Asmus<sup>1</sup>, E. R. Otto-Tice<sup>1</sup>, J. Ni<sup>1</sup>, B. T. Richert<sup>1</sup>, and J. S. Radcliffe<sup>1</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Kansas State University, Manhattan*

**MIDWEST SECTION ADSA/ASAS**  
**Committee Assignment**

**PROGRAM COMMITTEES**

**Animal behavior, Housing and Well-being**

J. Brown, Chair  
D. Lay  
A. DeDecker  
K. Vogel

**Breeding and Genetics**

J. Steibel, Chair  
J. Decker  
L. Hanna

**Extension – Beef/Small Ruminant**

A. Radunz, Chair  
J. Held  
B. Doran

**Extension – Dairy**

J. Anderson, Chair  
K. Mjourn  
B. Heins

**Extension – Equine**

P. Miller, Chair  
T. Douthit  
D. Smarsh

**Extension – Swine**

R. Goodband, Chair  
M. Rinker

**Growth, Development, Muscle Biology and Meat Science**

D. Boler, Chair  
J. Rickard  
C. Stahl

**Nonruminant Nutrition**

T. Burkey, Chair  
C. Levensque  
V. Perez  
W. Oliver



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## **Odor and Nutrient Management**

R. Thaler, Chair  
M. Brouk  
A. DiCostanzo

## **Physiology**

P. Gunn, Chair  
C. Lents  
T. Wilmoth

## **Ruminant Nutrition**

P. Cardoso, Chair  
K. Hales  
T. Felix  
M. Drewnowski

## **Teaching and Undergraduate Education**

B. Wiegand, Chair  
J. Bormann  
J. Sterle

## **SPECIAL COMMITTEES**

### **ADSA Nominations**

D. B. Carlson  
T. Nennich

### **ASAS Nominations**

A. G. Mathew  
J. K. Apple

### **Academic Quadrathlon**

T. J. Safranski  
C. G. Jackson  
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

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## AWARD COMMITTEES

### Outstanding Early Career Agribusiness Award

J. M. DeFrain  
A. E. Wertz-Lutz  
M. Wolfe  
J. Jedzha

### Innovation in Dairy Research Award

D. B. Carlson  
T. D. Nennich  
D. M. Spurlock  
F. C. Cardoso

### Outstanding Young Extension Specialist Award

R. L. Weaber  
W. J. Sexten  
J. W. Waggoner  
J. K. Apple  
M. L. Spangler

### National Pork Board Award Swine Innovation

C. Hostetler  
A. G. Mathew  
J. K. Apple  
P. S. Miller  
T. Kellner

### Outstanding Young Researcher Award

J. P. Steibel  
N. K. Gabler  
G. A. Perry  
K. A. Vonnahme

### Tim S. Stahly Award

N. L. Horn  
J. S. Moneque  
C. A. Jones  
J. P. Schoonmaker  
R. B. Hinson

### Outstanding Young Teacher Award

T. L. Douthit  
J. M. Bormann  
T. A. Strauch  
B. D. Whitaker  
J. M. Kouba

# 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. Nelszen, 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. DeRouchey, 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

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## OUTSTANDING RESEARCHER AWARD

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

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

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## OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD

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

## INNOVATION IN DAIRY RESEARCH AWARD

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

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## NATIONAL PORK BOARD INNOVATION AWARD

- 2006 M. C. Brumm, University of Nebraska\*  
N. L. Berry, Iowa State University\*\*  
T. V. Serenius, Iowa State University\*\*
- 2007 T. 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. Boddicker, Iowa State University\*\*  
P. J. Lammers, Iowa State University\*
- 2010 E. 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\*

\*Education

\*\* Research

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## PAST WINNERS OF INVITATIONAL COMPETITIVE RESEARCH PAPER AWARDS

### UNDERGRADUATE STUDENTS - ORAL

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

### UNDERGRADUATE STUDENTS - POSTER

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



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## GRADUATE STUDENTS - ORAL

- 1976 D. G. Haught, Iowa State University  
1977 L. L. Berger, University of Nebraska  
1978 G. F. Collings, Michigan State University  
1979 R. D. Boyd, University of Nebraska  
1980 D. G. Cieslak, University of Wisconsin  
1981 W. F. Pope, University of Nebraska  
1982 P. F. Saenger, Purdue University  
1983 D. A. Redmer, University of Missouri  
1984 W. F. Brown, University of Nebraska  
1985 J. H. Brendemuhl, University of Nebraska  
1986 P. L. Houghton, Purdue University  
1987 M. H. Wilde, The Ohio State University  
1988 T. R. Radke, University of Nebraska  
1989 K. K. Kreikemeier, Kansas State University  
1990 R. A. Nold, Kansas State University  
1991 M. D. Tokach, University of Minnesota  
1992 G. F. Louis, University of Nebraska  
1993 B. T. Larson, University of Missouri  
1994 L. H. Anderson, The Ohio State University  
1995 M. L. Augenstein, University of Minnesota  
1996 D. D. Koehler, University of Minnesota  
1997 R. A. Nold, South Dakota State University  
1998 K. J. Rozeboom, University of Minnesota  
1999 L. A. Averette, North Carolina State University  
2000 T. A. Armstrong, North Carolina State University  
2001 T. G. McDanel, University of Nebraska\*  
J. H. Hampton, University of Missouri\*\*  
2002 K. M. Hargrave, University of Nebraska\*  
M. J. Hersom, Oklahoma State University\*\*  
2003 J. Luther, North Dakota State University\*  
R. Main, Kansas State University\*\*  
2004 R. C. Bott, University of Nebraska\*  
M. M. Martinez, Michigan State University\*\*  
2005 J. M. Koch, West Virginia University\*  
N. D. Fastinger, The Ohio State University\*\*  
2006 D. M. Larson, North Dakota State University\*  
M. Gorocica-Buenfil, The Ohio State University\*\*  
2007 P. E. Urriola, University of Minnesota\*  
R. N. Dilger, University of Illinois\*\*  
2008 J. M. Mapes, Michigan State University\*  
E. Kiarie, University of Manitoba, Winnipeg, Canada\*\*  
2009 L. A. Lekatz, North Dakota State University\*  
D. M. Gorbach, Iowa State University\*\*  
2010 H. L. Evans, University of Missouri\*  
R. C. Sulabo, Kansas State University\*\*

- 
- 2011 J. 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. 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\*\*

### 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. Gunn, Purdue University\*  
C. O. Lemley, West Virginia University\*\*
- 2010 N. S. Schmetz, Purdue University\*  
L. Senaratne, University of Nebraska\*\*
- 2011 K. E. Boesche, Purdue University\*  
P. J. Gunn, Purdue University\*
- 2012 M. 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\*\*

\*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. Rumph, Michigan State University  
M. Schoenfield, University of Minnesota
- 1999 L. Becker, University of Minnesota
- 2000 R. Hawkins, North Dakota State University
- 2001 Discontinued

---

## YOUNG DAIRY SCHOLARS

- 2006 B. J. Bradford, Michigan State University  
N. Litherland, University of Illinois  
W. Miller, Kansas State University  
R. Rastani, University of Wisconsin
- 2007 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. Bettgowda, 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. Akins, University of Wisconsin  
M. Osman, Iowa State University  
S. Ranathunga, South Dakota State University
- 2013 R. Cabral, University of New Hampshire  
K. Herrick, South Dakota State University  
J. Anderson, South Dakota State University  
H. Tucker, Purdue University  
J. Farney, Kansas State University  
D. Koltes, Iowa State University  
E. Castillo Lopez, University of Nebraska  
J. Osorio, University of Illinois
- 2014 K. Yuan, Kansas State University  
P. Piantoni, Michigan State University
- 2015 J. Boerman, Cargill Animal Nutrition  
T. Dennis, Provimi  
L. Ferraretto, University of Wisconsin  
J. Laporta, University of Florida

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## ASAS ANIMAL SCIENCE YOUNG SCHOLARS

- 2010 J. 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. Leach, USDA-ARS, US Meat Animal Research Center  
J. Kelzer, University of Minnesota  
R. Manjarin, Michigan State University  
M. Song, University of Illinois  
Y. Liu, University of Illinois  
I. S. Choi, USDA  
S. Cervantes-Pahm, University of Illinois  
M. Weber, Cargill
- 2013 Y. Shen, North Carolina State University  
L. Mack, Purdue University  
F. Almeida, University of Illinois  
A. Hanson, University of Minnesota  
E. Bobeck, Iowa State University  
A. Summers, University of Nebraska  
D. Brake, Kansas State University  
N. 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. Erasmus, Michigan State University  
O. N. Genther, Iowa State University  
N. A. Gutierrez, Iowa State University

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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

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

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

**ASAS MIDWESTERN SECTION PRESIDENTS**

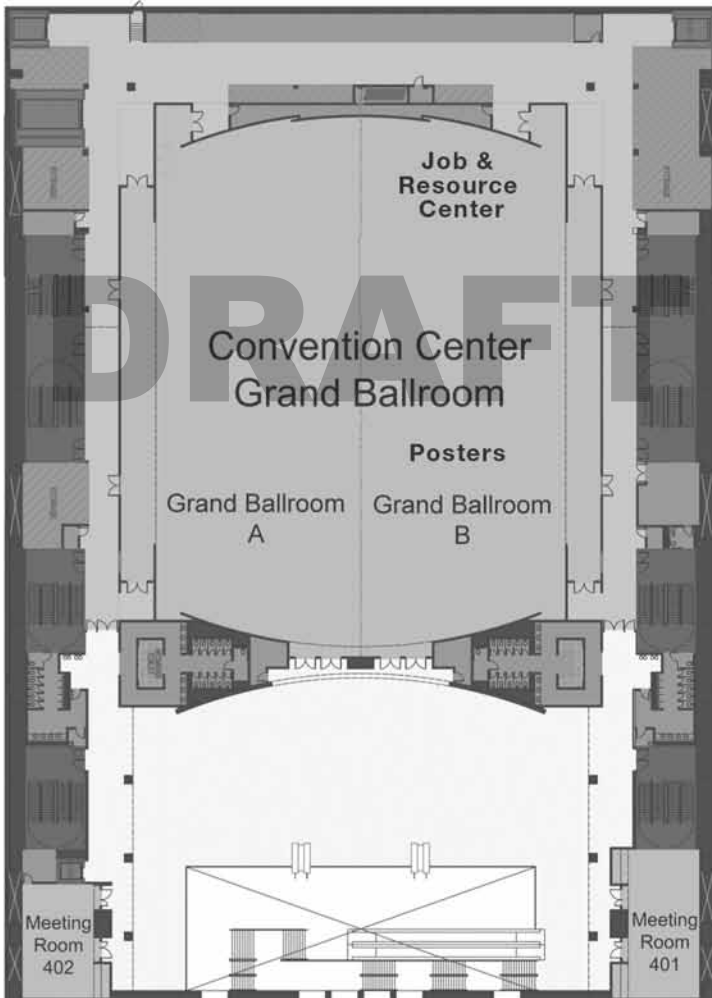
1963 O. G. Bentley, University of Illinois  
1964-65 R. H. Grummer, University of Wisconsin  
1966-67 G. R. Johnson, The Ohio State University  
1968 R. J. Meade, University of Minnesota  
1969 J. A. Hoefler, Michigan State University  
1970-71 W. E. Dinusson, North Dakota State University  
1972 J. F. Lasley, University of Missouri  
1973 U. S. Garrigus, University of Illinois  
1974-75 V. C. Speer, Iowa State University  
1976 H. S. Teague, The Ohio State University  
1977 R. M. Luther, South Dakota State University  
1978 B. N. Day, University of Missouri  
1979-80 D. R. Zimmerman, University of Nebraska  
1981 A. L. Pope, University of Wisconsin  
1982 R. D. Goodrich, University of Minnesota  
1983 E. R. Miller, Michigan State University  
1984 W. R. Woods, Purdue University  
1985 L. R. Corah, Kansas State University  
1986 B. D. Moser, University of Missouri  
1987 S. E. Curtis, University of Illinois  
1988 R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana  
1989 T. J. Klopfenstein, University of Nebraska  
1990 J. R. Romans, South Dakota State University  
1991 J. E. Pettigrew, University of Minnesota  
1992 C. E. Sasse, Cenex/Land O'Lakes  
1993 M. G. Hogberg, Michigan State University  
1994 G. L. Allee, University of Missouri  
1995 S. K. Webel, Purina Mills

---

1996	D. L. Meeker, National Pork Producers Council
1997	T. S. Stahly, Iowa State University
1998	R. P. Lemenager, Purdue University
1999	S. P. Ford, Iowa State University
2000	J. R. Males, Oregon State University
2001	M. L. Day, The Ohio State University
2002	R. K. Johnson, University of Nebraska
2003	C. L. Ferrell, USDA, Clay Center
2004	G. C. Shurson, University of Minnesota
2005	A. L. Grant, Purdue University
2006	D. L. Hancock, Elanco Animal Health
2007	R. L. Moser, JBS United, Inc.
2008	M. K. Nielsen, University of Nebraska
2009	M. E. Spurlock, Iowa State University
2010	T. D. Crenshaw, University of Wisconsin
2011	C. W. Ernest, Michigan State University
2012	J. S. Radcliffe, Purdue University
2013	J. F. Patience, Iowa State University
2014	B. R. Wiegand, University of Missouri
2015	A. G. Mathew, Purdue University
2016	J. K. Apple, University of Arkansas

## ADSA MIDWEST BRANCH PRESIDENTS

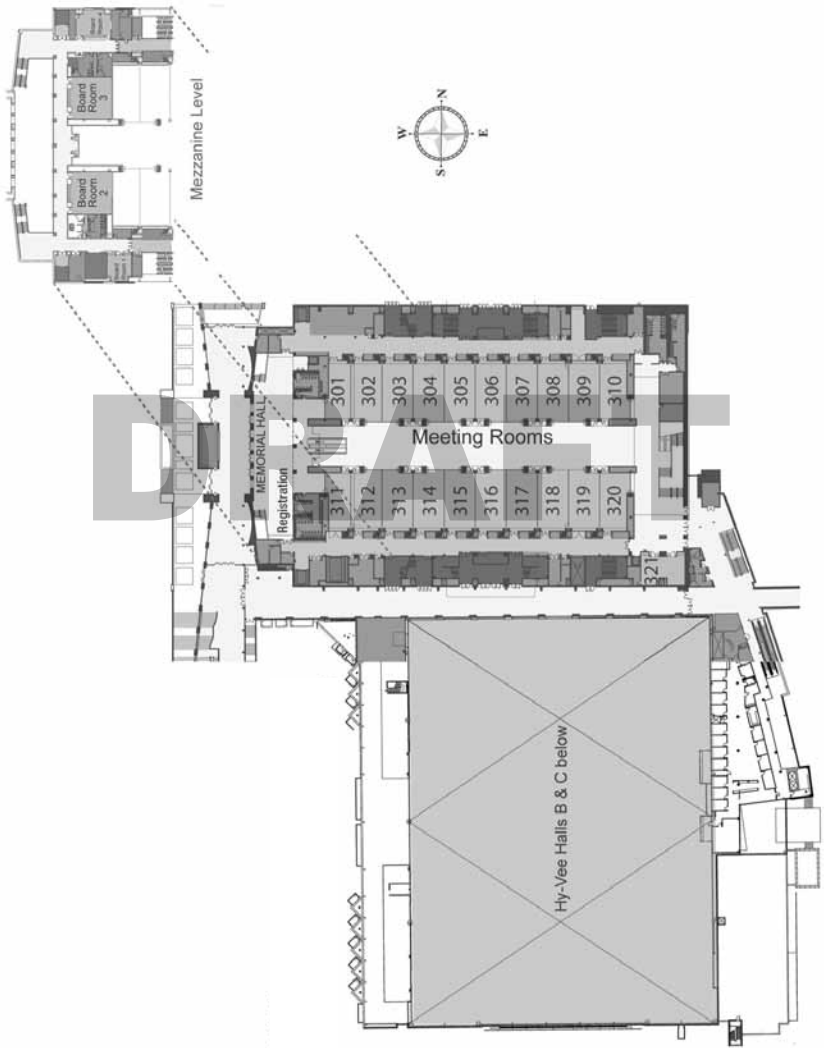
1992	J. F. Keown, University of Nebraska
1993	J. G. Linn, University of Minnesota
1994	D. J. Schingoethe, South Dakota State University
1995	J. L. Morrill, Kansas State University
1996	M. F. Hutjens, University of Illinois
1997	M. A. Faust, Iowa State University
1998	J. K. Drackley, University of Illinois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



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## LEVEL 3

### Meeting Room Level Community Choice Credit Union Convention Center

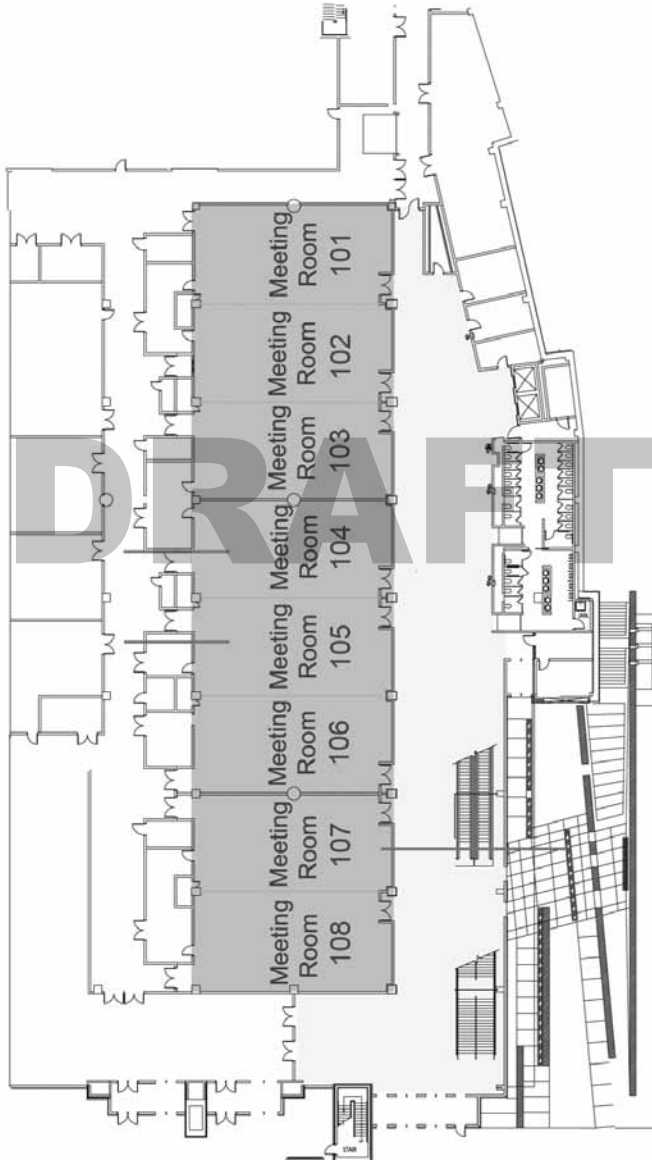




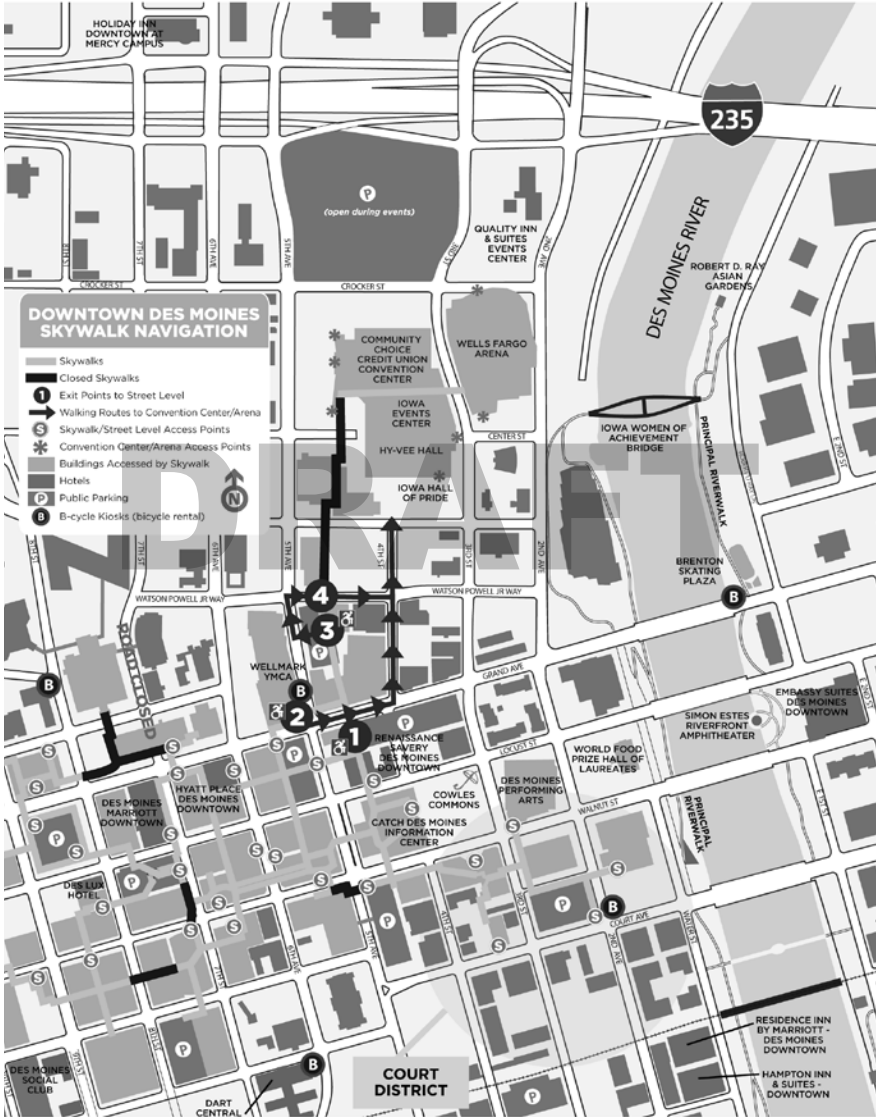
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## LEVEL 1

### Meeting Room Level Hy-Vee Hall



# Downtown Des Moines Skywalk Navigation



## 3 THINGS YOU SHOULD KNOW

**#1.** Areas of our skywalk system are closed because we are building a new, 330-room convention center hotel. Come back and check it out in 2018!

**#2.** If you are headed to the Convention Center/Arena, exit points 1-4 will get you there.

**#3.** Lean on locals. If you have questions, stop someone passing by!

## IMPORTANT INFO TO NOTE

- Exit Points 1, 2 and 3 are ADA accessible
- Closest elevator to Exit Point 4 is at Exit Point 3

## WALKING DISTANCE/DIRECTIONS

### Exit Point 1

*3.5 blocks to the Convention Center/Arena*

Once at street level, head East on Grand Avenue. Turn left/North on 4th Street and proceed 3 blocks to the Convention Center/Arena

### Exit Point 2

*4 blocks to the Convention Center/Arena*

Once at street level, head East on Grand Avenue. Turn left/North on 4th Street and proceed 3 blocks to the Convention Center/Arena

### Exit Point 3

*3.5 blocks to the Convention Center/Arena*

Once at street level, exit parking garage onto 5th Avenue. Turn right/North on 5th Avenue. Turn right/East on Watson Powell Jr Way. Then turn left/North on 4th Street and proceed 1 block to the Convention Center/Arena

### Exit Point 4

*3 blocks to the Convention Center/Arena*

Once at street level, head East on Watson Powell Jr Way. Then turn left/North on 4th Street and proceed 1 block to the Convention Center/Arena

**SkywalkDSM App available for  
download on iOS and Android**



**DRAFT**