



American Dairy Science Association®

# MIDWEST

American Society of Animal Science



ASAS Midwestern Section and  
ADSA® Midwest Branch

## Scientific Sessions & Business Meeting

Des Moines, IA • March 16-18

# 2015



American Dairy Science Association®

**MIDWEST**  
American Society of Animal Science



## **FUTURE MEETINGS**

### **2016**

March 14 - March 16  
Des Moines

### **2017**

March 13 - March 15

### **2018**

March 12 - March 14

### **2019**

March 11 - March 13

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Dr. Michael J. Brouk, Past President  
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Dr. Dan Illg, ADSA Midwest Director  
Standard Dairy Consultants, Omaha, NE

Dr. Daryl Kleinschmit, ASAS/ADSA Director-at-Large  
Agri-King, Inc., Fulton, IL

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## REGISTRATION

Iowa Events Center, Lobby  
Sunday, March 15, 3:00 pm – 5:00 pm  
Monday, March 16, 7:00 am – 6:00 pm  
Tuesday, March 17, 7:00 am – 4:00 pm  
Wednesday, March 18, 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<br>4:00 pm to 7:30 pm | 7:00 am to 9:00 am<br>6:00 pm to 8:00 pm | 7:00 am to 9:00 am<br>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<br>12:00 pm to 2:00 pm<br>4:00 pm to 7:30 pm | 7:00 am to 9:00 am<br>12:00 pm to 2:00 pm<br>6:00 pm to 8:00 pm | 7:00 am to 9:00 am<br>11:00 am to 1:00 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 |
| Hyatt Place Des Moines (Downtown): | 515.282.5595 |

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## **JOB RESOURCE CENTER**

Continuing in 2015: The traditional Job Resource Center will be located in the Exhibit Hall, Ballroom of 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 in Des Moines beginning at noon on Monday, March 16, 2015.

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## **ARPAS CONTINUING EDUCATION UNITS**

The 2015 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**

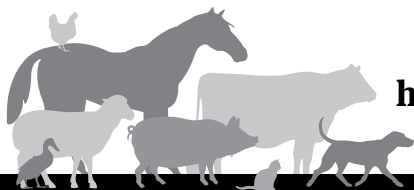
ASAS Career Center is the premier electronic recruitment resource for the animal science industry. This site is a great tool that offers benefits to both employers and job seekers alike.

### **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 Community Choice Credit Union Convention Center (CC-CUCC) unless otherwise noted.

### UPDATES TO THE SCHEDULE

**New in 2015:** All posters will be presented as ePosters. This new 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 16, 2015

- 7:30 am 2015 Breakfast to kick off AQ Activities, Grand Ballroom Foyer  
8:00 am AQ Written Exams, CCCUCC (See AQ organizer for room assignments)  
8:00 am Gary Allee Symposium: Impact of FDA Guidance's 209 and 213 on the Swine Industry, Grand Ballroom  
8:30 am ADSA/ASAS Midwest Board of Directors, Boardroom 2  
10:00 am AQ Quiz Bowl Preliminary Rounds, 302/303, 304/305, and 306/307  
12:00 pm Digestive Physiology of Pigs Lecture and Lunch (sponsored by DPP-NA), Grand Ballroom  
12:45 pm Poster Session I, Grand Ballroom (see page 59 for poster schedule)  
1:00 pm David H. Baker Symposium: Broadening the Ideal Protein Horizon: Further Elucidation and Application, 318/319/320  
2:00 pm Graduate Student Competition MS Oral I, 302/303  
2:00 pm Graduate Student Competition MS Oral II, 304/305  
2:00 pm Graduate Student Competition PhD Oral, 306/307  
1:30 pm Undergraduate Student Competition Oral I, 312/313  
5:00 pm Poster Session II, Grand Ballroom (see page 63 for poster schedule)  
5:45 pm Reception & Recognition of Young Scholar Winners, Grand Ballroom  
7:00 pm Final AQ Quiz Bowl Competition and Awards Presentation, Grand Ballroom  
7:15 pm Graduate Student Dinner and Learn, 101/102  
8:30 pm Program Committee Reception, Eleanor Roosevelt Room at the Renaissance Savery Hotel  
9:00 pm Graduate Student Social, TBA

#### TUESDAY, MARCH 17, 2015

##### MORNING

- 7:30 am Poster Session III, Grand Ballroom (see page 68 for poster schedule)  
8:30 am Physiology: Fertility and Reproductive Management, 302/303  
8:30 am Breeding and Genetics Symposium: Functional Genomics, 304/305  
8:30 am Ruminant Nutrition: Minerals and Feed Additives in Feedlot, 308/309  
8:30 am Harlan Ritchie Symposium: Have We Entered a New Era in Beef Production?, 312/313  
8:30 am Nonruminant Nutrition: Grow-Finish Nutrition and Management, 314/315

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- 8:30 am Nonruminant Nutrition: Feed Additives, 316/317
  - 8:30 am Nonruminant Nutrition: Minerals and Vitamins, 318/319
  - 8:30 am Extension - Swine, 401
  - 12:00 pm Bentley Symposium and Lunch, Grand Ballroom
  - 12:30 pm AQ Lunch, 101/102

**AFTERNOON**

- 12:45 pm Poster Session IV, Grand Ballroom (see page 72 for poster schedule)
- 1:30 pm Breeding & Genetics I, 302/303
- 1:30 pm Billy Day Symposium: History and current status of some milestones in swine reproduction research, 304/305
- 1:30 pm Extension - Dairy Symposium: Strategies To Improve Dairy Cattle Health, Welfare and Performance, 306/307
- 1:30 pm Ruminant Nutrition: Byproduct feeds, 308/309
- 1:30 pm Ruminant Nutrition Symposium: Feed Efficiency and Residual Feed Intake in Ruminant Nutrition, 312/313
- 1:30 pm Nonruminant Nutrition: Exogenous Enzymes, 314/315
- 1:30 pm Nonruminant Nutrition: Sow Nutrition and Management, 316/317
- 1:30 pm Nonruminant Nutrition: Feed Ingredients and Processing, 318/319
- 1:30 pm Animal Behavior, Housing, & Well-Being: Housing and Technology to Address Animal Welfare, 401
- 5:00 pm Poster Session V, Grand Ballroom (see page 76 for poster schedule)
- 6:00 pm Business Meeting and Awards Program, Grand Ballroom
- 7:00 pm Reception, Grand Ballroom

**WEDNESDAY, MARCH 18, 2015**

- 7:30 am Poster Session VI, Grand Ballroom (see page 80 for poster schedule)
- 8:30 am Ruminant Nutrition: Dairy and Beef Cow Nutrition and Forage Supplementation, 302/303
- 8:30 am Physiology Symposium: Follicle Development, Sperm, Embryo Mortality and Maternal Effects on Carcass Quality / Physiology: Stress Physiology, 304/305
- 8:30 am Nonruminant Nutrition Symposium: Feed Ingredient Biosafety, 306/307
- 8:30 am Nonruminant Nutrition: Lipids and Energy, 308/309
- 8:30 am Breeding & Genetics II, 312/313
- 8:30 am Growth, Development, Meat Science & Muscle Biology, 314/315
- 8:30 am Extension - Beef/Small Ruminant, 316/317
- 12:00 pm ADSA/ASAS Midwest Board of Directors, Boardroom 2

**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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## **A SPECIAL THANK YOU**

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2015 awards to the following companies:

### **Outstanding Young Scientist Awards**

Extension Award – Land O’Lakes Purina Feed LLC  
Research Award – DSM Nutritional Products Inc.  
Teaching Award – ADSA ASAS MW Board

### **National Pork Board Swine Innovation (Abstract) Awards**

Research – National Pork Board  
Education – National Pork Board

### **Agribusiness Award**

BASF

### **Student Competition Paper Awards**

Graduate Oral, Ph.D. – ADSA ASAS MW Board  
Graduate Poster, M.S. – ADSA ASAS MW Board  
Graduate Poster, Ph.D. – ADSA ASAS MW Board  
Undergraduate Oral – ADSA ASAS MW Board  
Undergraduate Poster – ADSA ASAS MW Board

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

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

### **Academic Quadrathlon**

Agri-King  
ASAS Foundation  
Iowa State University

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## **2015 MIDWEST MEETING SPONSORS**

### **PLATINUM LEVEL**

American Society of Animal Science  
ASAS Foundation  
Zoetis

### **GOLD LEVEL**

Diamond V Mills, Inc.  
Kemin Industries  
National Pork Board  
NutriQuest

### **SILVER LEVEL**

AB Vista  
Agri-King Inc.  
ADM  
American Registry of Professional Animal Scientists (ARPAS)  
BASF  
Catch Des Moines (Greater Des Moines Convention and Visitors Bureau)  
DSM Nutritional Products Inc.  
DPP-NA  
Dupont  
Elanco Animal Health

### **BRONZE LEVEL**

Iowa State University  
JBS United Inc.  
Land O'Lakes Purina Feed LLC

### **FRIEND LEVEL**

American Dairy Science Association (ADSA)  
American Meat Science Association (AMSA)

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## POSTER SCHEDULE

### **\*\*NEW in 2015 - ePosters\*\***

All posters will be presented as ePosters. This new 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. 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 the presenters. The list of poster sessions, with presentation times, appears below.

### **MONDAY, MARCH 16, 2015**

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

Graduate Student Competition: MS Poster  
Undergraduate Student Competition Poster: Group 1  
Nonruminant Nutrition: Protein and Amino Acid Nutrition

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

Animal Behavior, Housing, & Well-Being: Feed Intake and Lameness in Livestock  
Breeding & Genetics Poster  
Graduate Student Competition: PhD Poster  
Undergraduate Student Competition Poster: Group 2

### **TUESDAY, MARCH 17, 2015**

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

Extension - Dairy Posters  
Growth, Development, Meat Science & Muscle Biology Poster  
Nonruminant Nutrition: Feed Ingredients

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

Extension - Swine Poster  
Odor And Nutrient Management  
Physiology Posters  
Ruminant Nutrition I

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

Extension - Beef/Small Ruminant Poster  
Nonruminant Nutrition: Feed Additives and Technologies

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**WEDNESDAY, MARCH 18, 2015**  
*Poster Session VI – Authors present 7:30 am – 8:15 am*  
Nonruminant Nutrition: Grow-Finish Nutrition  
Ruminant Nutrition II  
Teaching

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## **SPECIAL EVENTS**

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

**Monday, March 16 • 12:00 pm • Grand Ballroom**

**The physiological role of zinc in the pig – does it have a Janus head?**

**Dr. Jürgen Zentek, Faculty of Veterinary Medicine of the Freie Universitaet Berlin, Germany**

The trace element zinc has beyond its nutritional importance interesting effects in pigs. Work will be presented demonstrating effects of zinc in suboptimal, physiological and very high so-called “pharmacological” concentrations. Both, the intestinal microbiota and the host organism showed distinct reactions that have been comprehensively described. Zinc affects the diversity of the intestinal microbiota especially in very young piglets, and has an impact on the composition and metabolism of the intestinal microbiome and the reactivity of the intestinal tissue. This seems to be the factor for health improvement after weaning. The “price” of the known benefits is a negative environmental impact and according to recent findings an increase in multi-resistant intestinal bacteria.

Sponsored by: ASAS Midwestern Section / ADSA Midwestern Branch Joint Board  
Registration is required; attendance is limited to the first 400 registrants. Registration fee is \$5.00.

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

**Monday, March 16 • 5:30 pm • Grand Ballroom**

Join us for the opening reception of the 2015 Midwest Meeting. This is a great time to catch up with your colleagues. We will also take the time to recognize the 2015 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 16 • 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 Orlando. Following the Quiz Bowl final the AQ Awards will be presented. Please come out and support our undergraduates.

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## **Graduate Student Dinner and Learn**

**Monday, March 16 • 7:15-9:00 pm • Room 101-102**

The objective of the Graduate Student Dinner and Learn is to provide undergraduate and graduate students with opportunities for professional development and networking. This year each table/topic will have a company sponsor. The topics will involve discussion on career preparation, job search, and effective scientific communication in the areas of Industry Research & Development, and Industry Technical Consulting/Sales. Each company will send a professional to represent their topic and students will be assigned to a table based on their area of interest. Join us and take advantage of the opportunity to discuss your interests with professionals in the field.

*Preregistration is required. Registration fee is \$5.00.*

## **Graduate Student Mixer**

**Monday, March 16 • 9:00 pm • Location TBD**

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 \$5.00*

## **Bentley Lecture**

**Tuesday, March 17 • 12:30 pm • Grand Ballroom**

**Production and quality of exotic meats produced in input agricultural systems**

**Dr. Louw Hoffman, Distinguished Professor in Meat Science, DST/NRF South African Research Chair in Meat Science Genomics to Nutriomics, Department of Animal Sciences, Faculty of AgriSciences, Stellenbosch University**

To view information about Dr. Hoffman and his research, please visit his website: [www0.sun.ac.za/sarchi/](http://www0.sun.ac.za/sarchi/)

Sponsored by: Bentley Appreciation Club

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

## **Business Meeting and Awards Program**

**Tuesday, March 17 • 6:00 pm • Grand Ballroom**

Please join the ASAS Midwestern Section / ADSA Midwestern Branch Joint Board this evening for the annual Business Meeting and 2015 Awards Program. Immediately following the Awards Program, everyone is invited to come to the final reception of the 2015 meeting.

## **Reception**

**Tuesday, March 17 • 7:00 pm • Grand Ballroom**

Come and join us after the Business Meeting and Awards Program to celebrate and congratulate all of the 2015 Midwest award winners.



# SYMPOSIA AND ORAL SESSIONS

Monday, March 16, 2015

## GARY ALLEE SYMPOSIUM: IMPACT OF FDA GUIDANCE'S 209 AND 213 ON THE SWINE INDUSTRY

Chair: Jason W Frank, Diamond V

Sponsor: Gary Allee Appreciation Club, ASAS Foundation  
Grand Ballroom

- 8:00 AM                    **Introductory Remarks**
- 8:10 AM        70        **(Invited) Use it and lose it: The dilemma of antibiotic resistance development.**  
*E. Topp\**, Agriculture and Agri-Food Canada, London, ON, Canada
- 8:40 AM        71        **(Invited) Antibiotic resistance in the swine industry.**  
*P. R. Davies\**, University of Minnesota, St. Paul
- 9:10 AM        72        **(Invited) What FDA guidance 213 and the veterinary feed directive mean on the farm.**  
*E. A. Wagstrom\**, National Pork Producers Council, Washington, DC
- 9:40 AM                    **Break**
- 10:00 AM       73        **(Invited) Identifying potential alternatives to antibiotics.**  
*H. K. Allen\**, *T. Looft*, *J. Trachsel*, *T. A. Casey*, and *T. B. Stanton*, USDA National Animal Disease Center, Ames, IA
- 10:30 AM       74        **(Invited) The paradigm of restricted antimicrobial use: Swine production in the EU.**  
*T. van Kempen\**, North Carolina State University, Raleigh; *Nutreco R&D*, Boxmeer, Netherlands
- 11:00 AM       75        **(Invited) Use of antibiotics in swine production in the light of new FDA guidelines.**  
*C. J. Rademacher\**, Murphy-Brown, LLC, Ames, IA
- 11:30 AM                    **Panel Discussion**
- 11:50 AM                    **Concluding Remarks**

**DAVID BAKER SYMPOSIUM:  
BROADENING THE IDEAL PROTEIN HORIZON:  
FURTHER ELUCIDATION AND APPLICATION**

Chair: Christopher M. Peter, JBS United Inc.

Sponsor: David Baker Appreciation Club, ASAS Foundation, DPP-NA  
318-319

- 1:00 PM                      **Introductory Remarks**
- 1:05 PM      39                      **(Invited) The influence and consequences of free versus protein bound amino acids on the efficacy of analytical methods.**  
*T. P. Mawhinney\**, University of Missouri, Columbia
- 1:50 PM      40                      **Effect of feed-grade amino acid supplementation in reduced crude protein (RCP) diets formulated on a NE basis on performance and carcass characteristics of growing-finishing pigs.**  
*J. K. Apple<sup>1</sup>, C. V. Maxwell<sup>1</sup>, T. C. Tsai<sup>1</sup>, H. J. Kim<sup>1</sup>, D. G. Cook<sup>1</sup>, K. J. Touchette<sup>2</sup>, J. E. Thomson<sup>3</sup>, J. Less<sup>4</sup>, and J. J. Chewning<sup>5</sup>*, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL, <sup>3</sup>Evonik Degussa Corp, Kennesaw, GA, <sup>4</sup>Archer Daniels Midland Co, Decatur, IL, <sup>5</sup>Swine Research Services, Inc., Springdale, AR
- 2:05 PM      41                      **Impact of reduced dietary crude protein concentration with crystalline amino acid supplementation on lactation performance and ammonia emission of sows housed under thermo neutral and thermal heat stress environments.**  
*D. Chamberlin<sup>1</sup>, W. J. Powers<sup>1</sup>, D. W. Rozeboom<sup>1</sup>, T. M. Brown-Brandl<sup>2</sup>, S. Erwin<sup>1</sup>, C. Walker<sup>1</sup>, and N. L. Trottier<sup>1</sup>*, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 2:20 PM      42                      **(Invited) Leucine supplementation to improve the efficiency of utilization of dietary protein for lean growth.**  
*T. A. Davis\**, D. A. Columbus, R. Manjarin, and M. L. Fiorotto, USDA/ARS Children's Nutrition Research Center, Dept. Pediatrics, Baylor College of Medicine, Houston, TX
- 3:05 PM                      **Break**
- 3:15 PM      43                      **(Invited) Amino acid nutrition of lactating dairy cows: Applying the concept of Ideal Protein.**  
*C. G. Schwab\**, Schwab Consulting, LLC, Boscobel, WI
- 4:00 PM      44                      **(Invited) Amino Acid Nutrition and Immunophysiology.**  
*R. N. Dilger\**, University of Illinois at Urbana-Champaign

- 4:45 PM 45 **Lactation performance in sows fed diets with graded levels of crystalline amino acids as substitute for crude protein at lysine requirement.**  
*D. Chamberlin\**, *D. W. Rozeboom*, *S. Erwin*, and *N. L. Trottier*, *Michigan State University, East Lansing*
- 5:00 PM **Concluding Remarks**

**GRADUATE STUDENT COMPETITION: PHD ORAL**

**Chair: Justin Rickard, Illinois State University**

**Sponsor: ADASA ASAS Midwest Board  
 306-307**

- 1:30 PM 384 **Whole Body and Maternal Protein Deposition in Gestating Gilts at Two Feeding Levels.**  
*E. G. Miller\**<sup>1</sup>, *D. Wey*<sup>1</sup>, *C. L. Levesque*<sup>2</sup>, and *C. F. de Lange*<sup>1</sup>,  
<sup>1</sup>*Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*, <sup>2</sup>*South Dakota State University, Brookings*
- 1:45 PM 385 **Effects of different feeding level during three periods of gestation on sow and litter performance.**  
*P. Ren\**, *X. Yang*, *J. Kim*, *D. Menon*, *D. P. Pangen*, *H. Manu*,  
*A. Tekeste*, and *S. Baidoo*, *Southern Research and Outreach Center, University of Minnesota, Waseca*
- 2:00 PM 386 **Evaluating strategic pellet feeding regimens on finishing pig performance, stomach morphology, and carcass characteristics.**  
*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>,  
*S. S. Dritz*<sup>1</sup>, and *M. Allerson*<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Holden Farms Inc., Northfield, MN*
- 2:15 PM 387 **Effect of β–glucan from microalgae on the growth performance and gut health of nursery pigs.**  
*N. E. Manzke\**<sup>1</sup>, *F. Castolini*<sup>1,2</sup>, *R. L. Payne*<sup>3</sup>, and *S. W. Kim*<sup>1</sup>,  
<sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Universidade Estadual de São Paulo, Jaboticabal, Brazil*, <sup>3</sup>*Evonik Corp, Kennesaw, GA*
- 2:30 PM 388 **Effect of altered dietary Lysine: energy ratio in gestation on gilt performance and piglet survivability.**  
*A. Ampaire\** and *C. L. Levesque*, *South Dakota State University, Brookings*

- 2:45 PM 389 **Effects of heat stress on adipose tissue fatty acid composition and moisture content in pigs.**  
*J. T. Seibert<sup>1</sup>, M. Abuajamieh<sup>1</sup>, M. V. Sans-Fernandez<sup>1</sup>, J. S. Johnson<sup>1</sup>, S. M. Lei<sup>1</sup>, S. K. Stoakes<sup>1</sup>, J. F. Patience<sup>1</sup>, J. W. Ross<sup>1</sup>, R. P. Rhoads<sup>2</sup>, S. M. Lonergan<sup>1</sup>, L. H. Baumgard<sup>1</sup>, and R. C. Johnson<sup>3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Virginia Tech, Blacksburg, <sup>3</sup>Smithfield Farmland, Denison, IA*
- 3:00 PM 390 **Efficacy of pea protein isolate-alginate encapsulation on viability of *Lactobacillus reuteri* in the porcine gastrointestinal tract.**  
*J. Wang<sup>1</sup>, M. Nickerson<sup>2</sup>, N. Low<sup>2</sup>, T. Scott<sup>1</sup>, and A. G. Van Kessel<sup>1</sup>, <sup>1</sup>Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, <sup>2</sup>Department of Food and Bioproduct Sciences, University of Saskatchewan, Saskatoon, SK, Canada*
- 3:15 PM 391 **Differential MicroRNA Expression in Sperm Cells and Seminal Plasma due to PRRSV Infection.**  
*S. M. Calcaterra<sup>1</sup>, D. L. Reicks<sup>2</sup>, A. Feltus<sup>1</sup>, and S. L. Pratt<sup>1</sup>, <sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>Swine Vet Center, Saint Peter, MN*
- 3:30 PM 392 **Effects of maternal plane of nutrition during late gestation on beef calf post-weaning growth and feed efficiency, methane production, insulin sensitivity, and carcass characteristics.**  
*T. B. Wilson\*, B. C. Ramírez, L. F. Rodríguez, A. R. Green, D. D. Boler, A. C. Dilger, T. L. Felix, and D. W. Shike, University of Illinois at Urbana-Champaign*
- 3:45 PM 393 **Influence of feed efficiency ranking on diet digestibility and performance of beef steers.**  
*J. R. Russell<sup>1</sup>, N. O. Minton<sup>2</sup>, W. J. Sexten<sup>2</sup>, M. S. Kerley<sup>3</sup>, and S. L. Hansen<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>3</sup>University of Missouri, Columbia*
- 4:00 PM 394 **Evaluation of a feed additive mixture of pre- and probiotics, enzymes and yeast on in vitro true digestibility of feeds.**  
*H. Larson\*, N. Kenney-Rambo, and A. DiCostanzo, University of Minnesota, St. Paul*

**UNDERGRADUATE STUDENT COMPETITION: ORAL**

Chair: James L. Sartin, ASAS

Sponsor: ADSA ASAS Midwest Board

312-313

- 1:00 PM 396 **Digestibility in steers fed modified distiller grains with solubles and corn silage to partially replace corn in finishing diets.**  
*S. E. Gardine<sup>\*</sup>, D. B. Burken, J. L. Harding, M. J. Jolly-Briethaupt, T. J. Klopfenstein, G. E. Erickson, J. C. MacDonald, and B. L. Nuttelman, University of Nebraska-Lincoln*
- 1:15 PM 397 **Effect of trace mineral injection and ractopamine hydrochloride on growth performance and carcass characteristics of finishing cattle.**  
*E. K. Niedermayer<sup>\*1</sup>, O. N. Genter-Schroeder<sup>1</sup>, C. A. Clark<sup>2</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*
- 1:30 PM 398 **Differential expression of genes in the jejunum of steers with extreme feed efficiency phenotypes.**  
*A. R. Butler<sup>\*1</sup>, A. K. Lindholm-Perry<sup>2</sup>, and H. C. Freetly<sup>3</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>USDA, ARS, US MARC, Clay Center, NE, <sup>3</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 1:45 PM 399 **Characterization of microbial community structure during Shiga toxin-producing Escherichia coli (STEC) shedding in beef cattle.**  
*M. Klosterman<sup>\*</sup>, N. D. Aluthge, C. L. Anderson, G. E. Erickson, T. J. Klopfenstein, and S. C. Fernando, University of Nebraska-Lincoln*
- 2:00 PM 400 **Effect of corn residue composition on DMD of crossbred wether lambs.**  
*L. J. McPhillips<sup>\*</sup>, J. J. Updike, J. C. MacDonald, T. J. Klopfenstein, J. L. Harding, and M. J. Jolly-Briethaupt, University of Nebraska-Lincoln*
- 2:15 PM 401 **The effects of cutting height and plant maturity on yield and nutritional value of smooth brome forage over a two year period.**  
*M. A. Woolsoncroft<sup>\*</sup>, S. R. Duncan, A. J. Sexten, and A. K. Sexten, Kansas State University, Manhattan*
- 2:30 PM 402 **Effects of an algae-modified montmorillonite clay and deoxynivalenol on nursery pig performance.**  
*J. A. Erceg<sup>\*</sup>, H. L. Frobose, M. D. Tokach, J. M. DeRouchey, S. S. Dritsch, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan*

- 2:45 PM 403 **The effects of an algae-modified montmorillonite clay on nursery pig growth performance in diets contaminated with deoxynivalenol.**  
*S. Q. Fowler<sup>\*</sup>, H. L. Frobose, R. D. Goodband, S. S. Dritz, J. C. Woodworth, J. M. DeRouchey, and M. D. Tokach, Kansas State University, Manhattan*
- 3:00 PM **Break**
- 3:15 PM 404 **Immune system stimulation by repeated lipopolysaccharide injection alters liver cytoplasmic protein profile in pigs.**  
*A. C. Outhouse<sup>\*</sup>1, J. K. Grubbs<sup>1</sup>, C. K. Tuggle<sup>2</sup>, N. K. Gabler<sup>1</sup>, A. Rakhshandeh<sup>3</sup>, and S. M. Lonergan<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Bioinformatics and Computational Biology Program, Department of Animal Science, Iowa State University, Ames, <sup>3</sup>Texas Tech University, Lubbock*
- 3:30 PM 405 **Exogenous glucagon-like peptide 2 and epidermal growth factor are important trophic factors associated with enhanced intestinal tissue repair and barrier function in a piglet model of intestinal failure.**  
*J. Koepke<sup>1</sup>, D. Lim<sup>2</sup>, P. W. Wales<sup>3</sup>, P. Wizzard<sup>2</sup>, D. Sigaler<sup>4</sup>, J. Li<sup>5</sup>, J. M. Turner<sup>2</sup>, and C. L. Levesque<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>University of Alberta, Edmonton, AB, Canada, <sup>3</sup>University of Toronto, Toronto, ON, Canada, <sup>4</sup>University of Calgary, Calgary, AB, Canada, <sup>5</sup>University of Guelph, Guelph, ON, Canada*
- 3:45 PM 406 **Water administration of glucose and amino acids attenuates changes in intestinal structure and lesion scores in PRRSV and PEDV co-infected pigs.**  
*A. S. Clifton<sup>\*</sup>1, W. P. Schweer<sup>1</sup>, S. C. Pearce<sup>1</sup>, D. M. McKilligan<sup>2</sup>, K. Schwartz<sup>1</sup>, K. J. Yoon<sup>1</sup>, and N. K. Gabler<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>TechMix LLC, Stewart, MN*
- 4:00 PM 407 **Effect of Vitamin E injection pre-farrowing on antioxidant enzymes and performance of nursery pigs following a PEDV outbreak.**  
*J. T. Gebhardt<sup>1</sup>, G. M. Hill<sup>1</sup>, J. E. Link<sup>1</sup>, R. Becerra<sup>1</sup>, and R. L. Stuart<sup>2</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>Stuart Products Inc, Bedford, TX*
- 4:15 PM 408 **Survival and mitigation strategies of porcine epidemic diarrhea virus (PEDV) in complete feed.**  
*M. P. Trudeau<sup>\*</sup>1, H. Verma<sup>2</sup>, F. Sampedro<sup>2</sup>, P. E. Urriola<sup>1</sup>, G. C. Shurson<sup>1</sup>, and S. M. Goyal<sup>2</sup>, <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>Veterinary Population Medicine, University of Minnesota, St. Paul*
- 4:30 PM 409 **Evaluation of environmental sampling methods for PED.**  
*R. E. Bardot<sup>\*</sup>1 and T. Fangman<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Boehringer-Ingelheim Vetmedica, Inc., Ames, IA*

- 4:45 PM 410 **The effects of uric acid supplementation during oocyte maturation on the in vitro fertilization of pigs.**  
*K. J. Jaciuk\**, *C. Streaker*, and *B. D. Whitaker*<sup>1</sup>, *University of Findlay, Findlay, OH*
- 5:00 PM 411 **The effects of  $\alpha$ -lipoic acid on oxidative stress during pig oocyte maturation.**  
*M. M. Dean*<sup>1</sup>, *R. Lane*<sup>2</sup>, and *B. D. Whitaker*<sup>1</sup>, <sup>1</sup>*University of Findlay, Findlay, OH*, <sup>2</sup>*The University of Findlay, Findlay, OH*

## GRADUATE STUDENT COMPETITION: MS ORAL I

Chair: Gary Cromwell, University of Kentucky

Sponsor: ADSA ASAS Midwest Board  
302-303

- 2:00 PM 363 **Influence of dietary fat source and feeding duration on pig growth performance, carcass composition, and fat quality.**  
*E. W. Stephenson\**, *M. A. Vaughn*, *D. D. Burnett*, *C. B. Paulk*, *M. D. Tokach*, *S. S. Dritz*, *J. M. DeRouchey*, *R. D. Goodband*, *J. M. Gonzalez*, and *J. C. Woodworth*, *Kansas State University, Manhattan*
- 2:15 PM 364 **Effects of lysine intake and divergent selection for residual feed intake on nitrogen metabolism and lysine utilization in growing pigs.**  
*D. J. Hewitt*<sup>1</sup>, *C. F. de Lange*<sup>2</sup>, *A. Gheisari*<sup>1</sup>, *J. C. M. Dekkers*<sup>3</sup>, and *A. Rakhshandeh*<sup>1</sup>, <sup>1</sup>*Texas Tech University, Lubbock*, <sup>2</sup>*Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*, <sup>3</sup>*Iowa State University, Ames*
- 2:30 PM 365 **Effect of substitution of wheat for corn on growth performance and digestibility in nursing pigs.**  
*D. J. Bloxham\**, *C. R. Dove*, and *M. J. Azain*, *University of Georgia, Athens*
- 2:45 PM 366 **Evaluation of NE prediction equations for corn distillers dried grains with solubles (DDGS) for growing-finishing pigs.**  
*F. Wu*<sup>1</sup>, *L. J. Johnston*<sup>2</sup>, *P. E. Urriola*<sup>3</sup>, and *G. C. Shurson*<sup>3</sup>, <sup>1</sup>*Department of Animal Science, University of Minnesota, St. Paul*, <sup>2</sup>*West Central Research and Outreach Center, University of Minnesota, Morris*, <sup>3</sup>*Department of Animal Science, University of Minnesota, St. Paul*

- 3:00 PM 367 **Models of immune system stimulation in growing pigs: porcine reproductive and respiratory syndrome (PRRS) versus E.coli lipopolysaccharide (LPS).**  
*W. D. Stuart<sup>\*1</sup>, T. E. Burkey<sup>2</sup>, N. K. Gabler<sup>3</sup>, K. Schwartz<sup>3</sup>, C. F. de Lange<sup>4</sup>, and A. Rakhshandeh<sup>1</sup>, <sup>1</sup>Texas Tech University, Lubbock, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>Iowa State University, Ames, <sup>4</sup>Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*
- 3:15 PM 368 **Effect of diet composition and particle size on nutrient excretion of finishing pigs and the propensity to cause manure pit foaming.**  
*Z. Luo<sup>\*1</sup>, P. E. Urriola<sup>1</sup>, B. J. Kerr<sup>2</sup>, B. Hu<sup>3</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>USDA - ARS, Ames, IA, <sup>3</sup>Department of Bioproducts and Biosystems Engineering, University of Minnesota, St. Paul*
- 3:30 PM 369 **Enzyme supplementation to increase value of soyhulls fed to finishing pigs.**  
*L. J. Schertz<sup>\*</sup> and P. J. Lammers, Illinois State University, Normal*
- 3:45 PM 370 **Effects of amino acid supplementation of reduced crude protein (RCP) diets formulated on a NE basis on belly fatty acid deposition in swine.**  
*D. G. Cook<sup>\*</sup>, J. K. Apple, C. V. Maxwell, A. N. Young, D. L. Galloway, H. J. Kim, and T. C. Tsai, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville*
- 4:00 PM 371 **Effects of in utero heat stress on subsequent lactational performance of gilts and transgenerational effects on offspring.**  
*J. G. Wiegert<sup>\*1</sup>, R. H. Preisser<sup>1</sup>, M. C. Lucy<sup>2</sup>, T. J. Safranski<sup>2</sup>, R. P. Rhoads<sup>1</sup>, J. W. Ross<sup>3</sup>, L. H. Baumgard<sup>3</sup>, M. J. Estienne<sup>4</sup>, and M. L. Rhoads<sup>1</sup>, <sup>1</sup>Virginia Tech, Blacksburg, <sup>2</sup>University of Missouri, Columbia, <sup>3</sup>Iowa State University, Ames, <sup>4</sup>Virginia Tech, Suffolk*
- 4:15 PM 372 **Impact of reduced dietary crude protein concentration with crystalline amino acid supplementation on lactation performance and ammonia emission of sows housed under thermo neutral and thermal heat stress environments.**  
*D. Chamberlin<sup>\*1</sup>, W. J. Powers<sup>1</sup>, D. W. Rozeboom<sup>1</sup>, T. M. Brown-Brandl<sup>2</sup>, S. Erwin<sup>1</sup>, C. Walker<sup>1</sup>, and N. L. Trottier<sup>1</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*



**GRADUATE STUDENT COMPETITION: MS ORAL II**

Chair: Gretchen Hill, Michigan State University

Sponsor: ADSA ASAS Midwest Board

304-305

- 2:00 PM 373 **Influence of wet distillers grains produced from a novel cellulosic ethanol process utilizing corn kernel fiber on feedlot growth and carcass characteristics of steers.**  
*E. L. Lundy\**, *D. D. Loy*, and *S. L. Hansen*, *Iowa State University, Ames*
- 2:15 PM 374 **Effect of inorganic or organic selenium supplementation during gestation and lactation on feedlot performance of steer progeny.**  
*C. R. Muegge\**<sup>1</sup>, *K. M. Brennan*<sup>2</sup>, *R. P. Lemenager*<sup>1</sup>, and *J. P. Schoonmaker*<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*Alltech, Nicholasville, KY*
- 375 Withdrawn
- 2:30 PM 376 **Effects of corn dried distiller's grains plus solubles supplementation to gestating cows fed low-quality forage on cow performance and feeding behavior.**  
*V. C. Kennedy\**, *M. L. Bauer*, *K. C. Swanson*, and *K. A. Vonnahme*, *North Dakota State University, Fargo*
- 2:45 PM 377 **Effects of zinc, chromium, and beta-agonist supplementation to feedlot steers on growth performance, carcass characteristics, and meat quality.**  
*B. M. Edenburn\**<sup>1</sup>, *S. G. Kneeskern*<sup>1</sup>, *B. M. Bohrer*<sup>1</sup>, *P. W. Rounds*<sup>2</sup>, *D. D. Boler*<sup>1</sup>, *A. C. Dilger*<sup>1</sup>, and *T. L. Felix*<sup>1</sup>, <sup>1</sup>*University of Illinois at Urbana-Champaign*, <sup>2</sup>*Kemin Industries, Inc., Des Moines, IA*
- 3:00 PM 378 **Post-weaning nutritional programming of ovarian development in beef heifers.**  
*O. L. Amundson\**<sup>1,2</sup>, *T. G. Fountain*<sup>2,3</sup>, *E. L. Larimore*<sup>1</sup>, *B. N. Richardson*<sup>1</sup>, *A. K. McNeel*<sup>2</sup>, *E. C. Wright-Johnson*<sup>2</sup>, *D. H. Keisler*<sup>4</sup>, *R. A. Cushman*<sup>2</sup>, *G. A. Perry*<sup>1</sup>, and *H. C. Freely*<sup>2</sup>, <sup>1</sup>*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, Kansas State University, Manhattan*, <sup>4</sup>*University of Missouri, Columbia*

- 3:15 PM 379 **Effects of corn treated with foliar fungicide at various times of applications on corn silage quality and aerobic stability.**  
*K. J. Haerr<sup>\*1</sup>, N. M. Lopes<sup>2</sup>, J. Weems<sup>3</sup>, C. A. Bradley<sup>3</sup>, M. N. Pereira<sup>2</sup>, G. M. Fellows<sup>4</sup>, and F. C. Cardoso<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Federal University of Lavras, Lavras, Brazil, <sup>3</sup>Department of Crop Sciences, University of Illinois at Urbana-Champaign, <sup>4</sup>BASF Corporation, Research Triangle Park, NC*
- 3:30 PM 380 **Impact of prebreeding vaccination with modified-live or inactivated viral vaccines on subsequent reproductive performance in crossbred beef females.**  
*M. R. Crosswhite<sup>\*1</sup>, J. C. Rodgers<sup>2</sup>, J. T. Seeger<sup>2</sup>, B. W. Neville<sup>3</sup>, and C. R. Dahlen<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Zoetis, Florham Park, NJ, <sup>3</sup>North Dakota State University, Streeter*
- 3:45 PM 381 **Understanding interactions between diet, methane emissions and microbial community composition in growing and finishing beef cattle.**  
*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*
- 4:00 PM 382 **Effects of feeding stockpiled tall fescue versus tall fescue hay during late gestation on pre-weaning calf performance.**  
*K. N. Niederecker<sup>\*1</sup>, B. L. Vander Ley<sup>2</sup>, M. C. Heller<sup>3</sup>, and A. M. Meyer<sup>1</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>Department of Veterinary Medicine and Epidemiology, University of California, Davis*
- 4:15 PM 383 **Performance and blood measurements by Holstein steers supplemented with or without MFP<sup>®</sup> while grazing cool-season forages.**  
*H. L. Bartimus<sup>\*1,2</sup>, J. D. Caldwell<sup>1</sup>, A. L. Bax<sup>1</sup>, B. C. Shanks<sup>1</sup>, K. P. Coffey<sup>2</sup>, T. Hampton<sup>3</sup>, Y. Liang<sup>3</sup>, S. E. Bettis<sup>3</sup>, and M. Vazquez-Anon<sup>3</sup>, <sup>1</sup>Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, <sup>2</sup>University of Arkansas, Fayetteville, <sup>3</sup>Novus International, Inc., St. Charles, MO*

# SYMPOSIA AND ORAL SESSIONS

Tuesday, March 17, 2015

## BREEDING AND GENETICS: FUNCTIONAL GENOMICS

Chair: Amanda K. Lindholm-Perry, USDA, ARS, US MARC

Sponsor: CDGKV Appreciation Club, ASAS Foundation  
304-305

- 8:30 AM 13 **The value of a systems biology approach in cattle nutrition.**  
*J. C. McCann\* and J. J. Loor, University of Illinois at Urbana-Champaign*
- 9:00 AM 14 **Adventures in next generation sequencing of transcriptomes and genomes.**  
*J. F. Taylor\*, P. C. Tizioto, N. V. Grupioni, J. Kim, J. E. Decker, and R. D. Schnabel, University of Missouri, Columbia*
- 9:30 AM 15 **Beef cattle metabiomes and their relationships with economically important phenotypes.**  
*P. R. Myer\*, J. E. Wells, T. P. L. Smith, L. A. Kuehn, and H. C. Freetly, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 9:45 AM 16 **Mass spectrometry based proteomics and metabolomics: Phenotyping in the post-genomics era.**  
*C. D. Broeckling\* and J. E. Prenni, Colorado State University, Fort Collins*
- 10:15 AM 17 **Metabolomic differences in early and late lactation first-parity gilts.**  
*L. A. Rempel\* and J. R. Miles, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 10:30 AM 18 **Annotation of functional regulatory elements in livestock species.**  
*H. Zhou<sup>1</sup>, P. J. Ross<sup>1</sup>, I. Korj<sup>1</sup>, M. E. Delany<sup>1</sup>, H. Cheng<sup>2</sup>, J. F. Medrano<sup>1</sup>, A. L. Van Eenennaam<sup>1</sup>, C. W. Ernst<sup>3</sup>, and C. K. Tuggle<sup>4</sup>, <sup>1</sup>University of California, Davis, <sup>2</sup>USDA-ARS Avian Disease and Oncology Laboratory, East Lansing, <sup>3</sup>Genetics Program, Michigan State University, East Lansing, <sup>4</sup>Bioinformatics and Computational Biology Program, Department of Animal Science, Iowa State University, Ames*

**EXTENSION - SWINE**

Chair: Brian T. Richert, Purdue University

Sponsor: JBS United Inc.

401

- 8:30 AM 63 **Identification of gilt development factors that impact subsequent female reproduction.**  
*A. J. Cross<sup>\*1</sup>, K. A. Gray<sup>2</sup>, M. Knauer<sup>3</sup>, and J. P. Cassady<sup>1</sup>,  
<sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Smithfield Premium Genetics, Rose Hill, NC, <sup>3</sup>North Carolina State University, Raleigh*
- 8:45 AM 64 **Efficiency of replacement gilt production is affected by litter birth weight phenotype.**  
*G. Foxcroft<sup>\*1</sup>, J. Patterson<sup>1</sup>, N. Holden<sup>2</sup>, T. Werner<sup>2</sup>, M. Allerson<sup>2</sup>, E. Triemert<sup>2</sup>, L. Bruner<sup>3</sup>, and J. C. Pinilla<sup>4</sup>,  
<sup>1</sup>University of Alberta, Edmonton, AB, Canada, <sup>2</sup>Holden Farms Inc., Northfield, MN, <sup>3</sup>Swine Veterinary Center, St. Peter, MN, <sup>4</sup>PIC, Hendersonville, TN*
- 9:00 AM 65 **“Select” gilts have superior lifetime productivity.**  
*J. Patterson<sup>\*1</sup>, G. Foxcroft<sup>1</sup>, N. Holden<sup>2</sup>, T. Werner<sup>2</sup>, E. Triemert<sup>2</sup>, B. Gustafson<sup>2</sup>, and J. C. Pinilla<sup>3</sup>,  
<sup>1</sup>University of Alberta, Edmonton, AB, Canada, <sup>2</sup>Holden Farms Inc., Northfield, MN, <sup>3</sup>PIC, Hendersonville, TN*
- 9:15 AM 66 **Relationship of Minolta color scores at birth with piglet weights and survival.**  
*T. L. Carolan<sup>\*</sup>, T. J. Safranski, and M. R. Ellersieck,  
University of Missouri, Columbia*
- 9:30 AM 67 **Development of a mobile phone application to predict live body weight in Ugandan village pigs without the use of a scale using various body measurements.**  
*M. Walugembe<sup>\*</sup>, Y. Liu, V. Sukhwal, D. M. Weiss, K. J. Stalder, and M. F. Rothschild, Iowa State University, Ames*
- 9:45 AM 68 **Relationship between feeding behavior and performance traits in boars.**  
*C. E. Abell<sup>\*</sup>, A. Steuer, and T. Rathje, DNA Genetics,  
Columbus, NE*
- 10:00 AM 69 **The effect of DDGS particle size and pellet quality on grower-finisher pig performance.**  
*W. J. Pacheco<sup>\*1</sup>, M. Knauer<sup>1</sup>, E. van Heugten<sup>1</sup>, A. C. Fahrenheit<sup>1</sup>, C. E. Phillips<sup>2</sup>, and C. R. Stark<sup>3</sup>,  
<sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Murphy-Brown LLC, Rose Hill, NC, <sup>3</sup>Kansas State University, Manhattan*

**HARLAN RITCHIE SYMPOSIUM: HAVE WE ENTERED A NEW ERA IN BEEF PRODUCTION**

**Chair: Larry R Corah, Certified Angus Beef LLC.**

**Sponsor: Harlan Ritchie Appreciation Club, ASAS Foundation  
312-313**

- 8:30 AM                    **Introductory Remarks**
- 8:40 AM      85      **(Invited) Trends to watch in cattle nutrition.**  
*G. P. Lardy\**, North Dakota State University, Fargo
- 9:20 AM      86      **(Invited) Cow herd investment opportunities during a period of prosperity.**  
*W. J. Sexten\**, Division of Animal Sciences, University of Missouri, Columbia
- 10:00 AM    87      **(Invited) New innovations in how we sell beef.**  
*B. E. Wasser\**, National Cattlemen's Beef Association, Centennial, CO
- 10:40 AM    88      **(Invited) Tracking beef industry dollars.**  
*N. Speer\**, Bowling Green, KY

**NONRUMINANT NUTRITION: FEED ADDITIVES**

**Chair: Ryan N. Dilger, University of Illinois  
316-317**

- 8:30 AM      89      **Salmonella surrogate mitigation in poultry feed using a dry acid powder.**  
*R. A. Cochrane\**<sup>1</sup>, *C. R. Stark*<sup>1</sup>, *A. R. Huss*<sup>1</sup>, *G. Aldrich*<sup>1</sup>, *C. J. Knueven*<sup>2</sup>, *C. K. Jones*<sup>1</sup>, and *J. S. Pitts*<sup>3</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Jones-Hamilton Co., Walbridge, OH, <sup>3</sup>Jones-Hamilton Co., Weatherford, TX
- 8:45 AM      90      **Evaluating chemical mitigation of Porcine Epidemic Diarrhea virus in swine feed and ingredients.**  
*R. A. Cochrane\**, *J. C. Woodworth*, *S. S. Dritz*, *A. R. Huss*, *C. R. Stark*, *R. A. Hesse*, *M. D. Tokach*, *J. F. Bai*, and *C. K. Jones*, Kansas State University, Manhattan
- 9:00 AM      91      **Effects of dietary inclusion of direct-fed microbials on gut health and growth of nursery pigs orally challenged with F18-positive enterotoxigenic Escherichia coli.**  
*Y. Sun*, *I. Park\**, *C. H. Stahl*, and *S. W. Kim*, North Carolina State University, Raleigh

- 9:15 AM 92 **Effect of standardized ileal digestible (SID) tryptophan:lysine ratio on growth performance of 11- to 20-kg nursery pigs.**  
*M. A. 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>, J. M. DeRouche<sup>1</sup>, J. C. Woodworth<sup>1</sup>, and R. D. Goodband<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL*
- 9:30 AM **Break**
- 9:45 AM 94 **Effects of an essential oils blend on growth performance of nursery pigs.**  
*N. Lu<sup>\*1</sup>, M. D. Lindemann<sup>1</sup>, J. R. Bergstrom<sup>2</sup>, C. W. Parks<sup>2</sup>, H. J. Monegue<sup>1</sup>, and J. H. Cho<sup>1</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>DSM Nutritional Products, Parsippany, NJ*
- 10:00 AM 95 **Comparative effects of dietary Cu, Zn, essential oil, and chlortetracycline on nursery pig growth performance.**  
*J. A. Feldpausch<sup>\*1</sup>, J. A. De Jong<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. C. Woodworth<sup>1</sup>, R. G. Amachawadi<sup>1</sup>, H. M. Scott<sup>1,2</sup>, J. L. Nelssen<sup>1</sup>, and R. D. Goodband<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Texas A&M University, College Station*
- 10:15 AM 96 **Effect of ractopamine and enzyme supplementation 28 days prior to marketing on growth performance of finishing pigs.**  
*M. D. Asmus<sup>\*</sup>, A. M. Jones, E. R. Otto-Tice, C. E. Vonderohe, F. A. Cabezon, A. P. Schinckel, and B. T. Richert, Purdue University, West Lafayette, IN*
- 10:30 AM 97 **The effects of feeding narasin 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*
- 10:45 AM 98 **The effects of feeding narasin (Skycis) or virginiamycin (Stafac) on summer finishing pig performance.**  
*M. Knauer<sup>\*1</sup>, P. J. Rincker<sup>2</sup>, and S. Fry<sup>3</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Elanco Animal Health, Greenfield, IN, <sup>3</sup>Elanco, Greenfield, IN*

## NONRUMINANT NUTRITION: GROW-FINISH NUTRITION AND MANAGEMENT

**Chair: Benjamin E. Bass, Diamond V  
314-315**

- 8:30 AM 99 **(Invited ASAS Animal Science Young Scholar) Effects of reduced oil distillers dried grains with solubles and soybean oil on dietary lysine, fat, and fiber digestibility in corn based diets fed to growing pigs.**  
*N. A. Gutierrez\*, N. V. L. Serão, and J. F. Patience, Iowa State University, Ames*
- 9:00 AM 100 **The effect of divergent selection for residual feed intake on digestibility of control and low energy, high fiber diets.**  
*E. D. Mauch\*<sup>1</sup>, N. K. Gabler<sup>1</sup>, T. E. Weber<sup>1</sup>, J. F. Patience<sup>1</sup>, B. J. Kerr<sup>2</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>USDA - ARS, Ames, IA*
- 9:15 AM 101 **Effect of precision feeding strategy on feeding behavior of growing-finishing pigs.**  
*I. Andretta<sup>1</sup>, C. Pomar\*<sup>2</sup>, J. Rivest<sup>3</sup>, J. Pomar<sup>4</sup>, L. Hauschild<sup>5</sup>, and M. Kipper<sup>6</sup>, <sup>1</sup>Universidade Estadual Paulista, Jaboticabal, Brazil, <sup>2</sup>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, <sup>3</sup>Centre de Développement du Porc du Québec inc., Québec, QC, Canada, <sup>4</sup>Universitat de Lleida, Lleida, Spain, <sup>5</sup>FCAV/UNESP, Jaboticabal, Brazil, <sup>6</sup>Universidade Federal de Santa Maria, Santa Maria, Brazil*
- 9:30 AM 102 **Comparison of the effects of antibiotic-free and conventional management on growth performance in swine.**  
*C. E. Vonderohe\*, A. M. Jones, B. T. Richert, and J. S. Radcliffe, Purdue University, West Lafayette, IN*
- 9:45 AM 103 **A PRRS-PED virus co-infection reduces total tract digestibility in grower pigs.**  
*W. P. Schweer\*, K. Schwartz, K. J. Yoon, and N. K. Gabler, Iowa State University, Ames*
- 10:00 AM **Break**
- 10:15 AM 105 **(Invited ASAS Animal Science Young Scholar) The importance of implementing a by-product withdraw strategy prior to slaughter in finishing pigs: A review of strategies that mitigate the negative impact on carcass yield.**  
*K. F. Coble\*, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. C. Woodworth, Kansas State University, Manhattan*

- 10:45 AM 106 **Evaluation of the precision and accuracy of equations to predict backfat iodine value (IV) in pork carcasses of pigs fed diets containing distillers dried grains with solubles (DDGS).**  
*F. Wu<sup>\*1</sup>, L. J. Johnston<sup>2</sup>, P. E. Urriola<sup>1</sup>, and G. C. Shurson<sup>1</sup>,  
<sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota, Morris*
- 11:00 AM 107 **Effect of standardized ileal digestible (SID) tryptophan:lysine ratio on growth performance of finishing pigs.**  
*M. A. 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>, J. M. DeRouche<sup>1</sup>, J. C. Woodworth<sup>1</sup>, and R. D. Goodband<sup>1</sup>,  
<sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL*
- 11:15 AM 108 **Effects of increasing crystalline amino acids in sorghum- or corn-based diets on finishing pig growth performance.**  
*K. E. Jordan<sup>\*</sup>, J. Nemecek, M. A. Goncalves, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. M. DeRouche, and J. C. Woodworth, Kansas State University, Manhattan*
- 11:30 AM 109 **Growing pigs' simulated amino acid requirements differs between actual factorial methods.**  
*A. Remus<sup>\*1</sup>, C. Pomar<sup>2</sup>, and L. Hauschild<sup>3</sup>,  
<sup>1</sup>Department of Animal Science - FCAV/UNESP, Jaboticabal/SP, Brazil, <sup>2</sup>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, <sup>3</sup>FCAV/UNESP, Jaboticabal, Brazil*
- 11:45 AM 110 **The tryptophan:lysine requirement of grow-finish pigs.**  
*L. Greiner<sup>\*1</sup>, A. Graham<sup>1</sup>, and K. J. Touchette<sup>2</sup>,  
<sup>1</sup>Carthage Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL*

## NONRUMINANT NUTRITION: MINERALS AND VITAMINS

Chair: Tofuko Awori Woyengo, University of Alberta  
318-319

- 8:30 AM 111 **A survey of added trace mineral concentrations used in the U.S. swine industry.**  
*J. R. Flohr<sup>\*</sup>, M. D. Tokach, J. C. Woodworth, J. M. DeRouche, R. D. Goodband, and S. S. Dritz, Kansas State University, Manhattan*



- 8:45 AM 113 **Digestible calcium requirements and calcium and phosphorus balance for weanling 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 Feed Ingredients, Marlborough, United Kingdom*
- 9:00 AM 114 **Effect of particle size in calcium carbonate on apparent and standardized total tract digestibility and retention of calcium by growing pigs.**  
*L. A. Merriman<sup>\*</sup> and H. H. Stein, University of Illinois at Urbana-Champaign*
- 9:15 AM 116 **Effect of diets formulated based on standardized total tract digestible phosphorus fed to growing pigs.**  
*J. J. Abelilla<sup>\*1</sup>, R. C. Sulabo<sup>1</sup>, H. H. Stein<sup>2</sup>, S. P. Acda<sup>1</sup>, A. A. Angeles<sup>1</sup>, M. C. R. Oliveros<sup>1</sup>, and F. E. Merca<sup>3</sup>, <sup>1</sup>Animal and Dairy Sciences Cluster, University of the Philippines, Los Baños, Philippines, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>Institute of Chemistry, University of the Philippines, Los Baños, Philippines*
- 9:30 AM **Break**
- 9:45 AM 117 **Creating a Zn deficient model to understand the impact of different Zn sources on performance and oxidative status in pigs.**  
*J. Zhao<sup>\*1</sup>, M. Vazquez-Anon<sup>1</sup>, and G. Bowman<sup>2</sup>, <sup>1</sup>Novus International, Inc., St. Charles, MO, <sup>2</sup>Novus, St Charles, MO*
- 10:00 AM 118 **Effects of heat stress and zinc supplementation on swine metabolome.**  
*L. Wang<sup>\*1</sup>, P. E. Urriola<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*
- 10:15 AM 119 **A survey of added vitamin concentrations used in the U.S. swine industry.**  
*J. R. Flohr<sup>\*</sup>, M. D. Tokach, J. C. Woodworth, J. M. DeRouchey, R. D. Goodband, and S. S. Dritz, Kansas State University, Manhattan*
- 10:30 AM 112 **Quantitative relationships between standardized total tract digestible phosphorus and calcium intake and its retention and excretion in growing pigs fed corn-soybean meal diets.**  
*N. A. Gutierrez<sup>\*1</sup>, N. V. L. Serão<sup>1</sup>, A. J. Elsbernd<sup>1</sup>, S. L. Hansen<sup>1</sup>, C. L. Walk<sup>2</sup>, M. R. Bedford<sup>2</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom*

**PHYSIOLOGY: FERTILITY AND REPRODUCTIVE MANAGEMENT**

Chair: Patrick J. Gunn, Department of Animal Science,  
Iowa State University  
302-303

- 8:30 AM 172 **(Invited ASAS Animal Science Young Scholar) Enhanced prediction of frozen boar sperm fertility by assessing classical and novel traits collectively.**  
*B. W. Daigneault<sup>1</sup>, K. A. McNamara<sup>1</sup>, P. H. Purdy<sup>2</sup>, S. L. Rodriguez Zas<sup>1</sup>, R. L. Krisher<sup>1,3</sup>, R. V. Knox<sup>1</sup>, and D. J. Miller<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>USDA-ARS-National Animal Germplasm Program, Fort Collins, CO, <sup>3</sup>National Foundation for Fertility Research, Lone Tree, CO*
- 9:00 AM 173 **Effect of numbers of sperm and timing of a single, post-cervical insemination on fertility of weaned sows treated with OvuGel®.**  
*K. C. Esparza-Harris<sup>1</sup>, M. E. Johnston<sup>2</sup>, S. K. Webel<sup>3</sup>, and R. V. Knox<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>JBS United, INC., Sheridan, IN, <sup>3</sup>JBS United, Inc., Sheridan, IN*
- 9:15 AM 174 **Effect of time of OvuGel® administration on timing of estrus and ovulation and pregnancy rates in gilts synchronized for estrus.**  
*L. M. Gesing<sup>1</sup>, M. Ellis<sup>1</sup>, R. V. Knox<sup>1</sup>, C. F. Shipley<sup>1</sup>, B. A. Peterson<sup>2</sup>, M. E. Johnston<sup>3</sup>, and S. K. Webel<sup>3</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, Carlyle, IL, <sup>3</sup>JBS United, Inc., Sheridan, IN*
- 9:30 AM 175 **Reproductive performance after two different breeding protocols following intravaginal OvuGel® administration in Matrix® treated gilts.**  
*M. E. Johnston<sup>\*</sup>, M. E. Swanson, and S. K. Webel, JBS United, Inc., Sheridan, IN*
- 9:45 AM 176 **Suckling reduction and boar exposure to induce estrus in lactating sows.**  
*H. L. Frobose<sup>\*</sup>, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, S. S. Dritz, J. C. Woodworth, J. L. Nelssen, and D. L. Davis, Kansas State University, Manhattan*
- 10:00 AM 177 **Litter of origin effects on gilt development in a commercial setting.**  
*J. L. Vallet<sup>\*1</sup>, J. A. Calderon-Diaz<sup>2</sup>, K. J. Stalder<sup>2</sup>, C. E. Phillips<sup>3</sup>, J. R. Miles<sup>1</sup>, E. C. Wright-Johnson<sup>1</sup>, L. A. Rempel<sup>1</sup>, C. A. Lents<sup>1</sup>, D. Nonneman<sup>1</sup>, G. A. Rohrer<sup>1</sup>, B. A. Freking<sup>1</sup>, and R. A. Cushman<sup>1</sup>, <sup>1</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Murphy-Brown LLC, Warsaw, NC*

- 10:15 AM 178 **Physiological characteristics of lactating sows with high milk production.**  
*C. F. Hansen<sup>1</sup>, T. S. Bruun<sup>2</sup>, and A. V. Strathe<sup>1</sup>, <sup>1</sup>Department of Large Animal Sciences, University of Copenhagen, Copenhagen, Denmark, <sup>2</sup>Danish Pig Research Centre, Danish Agriculture and Food Council, Copenhagen, Denmark*
- 10:30 AM 179 **Glucuronic acid supplementation during maturation improves the zona reaction during *in vitro* fertilization of pig oocytes.**  
*B. D. Whitaker<sup>\*</sup>, K. J. Jaciuk, and M. M. Dean, University of Findlay, Findlay, OH*
- 10:45 AM 180 **Age at puberty, ovulation rate, and reproductive tract traits of developing gilts fed two lysine levels and three metabolizable energy levels from 100 d to 260 d of age.**  
*J. A. Calderón Díaz<sup>1</sup>, J. L. Vallet<sup>2</sup>, C. A. Lents<sup>2</sup>, D. Nonneman<sup>3</sup>, J. R. Miles<sup>2</sup>, E. C. Wright-Johnson<sup>2</sup>, L. A. Rempel<sup>2</sup>, R. A. Cushman<sup>2</sup>, B. A. Freking<sup>2</sup>, G. A. Rohrer<sup>2</sup>, C. E. Phillips<sup>4</sup>, A. E. DeDecker<sup>4</sup>, G. Foxcroft<sup>5</sup>, and K. Stalder<sup>6</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>USDA/ARS, Clay Center, NE, <sup>4</sup>Murphy-Brown LLC, Rose Hill, NC, <sup>5</sup>Department of Swine Reproductive Physiology, University of Alberta, Edmonton, AB, Canada, <sup>6</sup>Iowa State University, Ames*
- 11:00 AM 181 **Divergent selection for residual feed intake influences whole blood transcriptomic profile in growing pigs.**  
*M. Jegou<sup>1,2</sup>, A. Vincent<sup>1,2</sup>, F. Gondret<sup>1,2</sup>, and I. Louveau<sup>1,2</sup>, <sup>1</sup>INRA UMR1348 PEGASE, Saint Gilles, France, <sup>2</sup>AgroCampus-Ouest UMR1348 PEGASE, Rennes, France*
- 11:15 AM 395 **The effects of high-stress verses low-stress cattle handling at the time of shipping to slaughter on physiological responses in cattle fed ractopamine hydrochloride.**  
*J. A. Hagenmaier<sup>\*1</sup>, S. J. Bartle<sup>1</sup>, C. Reinhardt<sup>1</sup>, D. Rethorst<sup>1</sup>, M. J. Ritter<sup>2</sup>, G. J. Vogel<sup>3</sup>, C. A. Guthrie<sup>2</sup>, and D. Thomson<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Elanco Animal Health, Greenfield, IN, <sup>3</sup>Elanco Animal Health, Canyon, TX*

**RUMINANT NUTRITION:  
MINERALS AND FEED ADDITIVES IN FEEDLOT**

**Chair: Kristin E. Hales, USDA-ARS-MARC  
308-309**

- 8:30 AM 196 **(Invited ASAS Animal Science Young Scholar) Effect of production system on mineral retention within serially slaughtered cattle.**  
*A. K. Watson<sup>1</sup>, T. McEvers<sup>2</sup>, M. J. Hersom<sup>3</sup>, M. P. McCurdy<sup>4</sup>, L. J. Walter<sup>2</sup>, N. D. May<sup>2</sup>, J. A. Reed<sup>2</sup>, N. A. Cole<sup>5</sup>, K. E. Hales<sup>6</sup>, G. W. Horn<sup>7</sup>, J. P. Hutcheson<sup>8</sup>, T. J. Klopfenstein<sup>1</sup>, C. R. Krehbiel<sup>9</sup>, T. Lawrence<sup>2</sup>, J. C. MacDonald<sup>1</sup>, and G. E. Erickson<sup>1</sup>,*  
*<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>West Texas A&M University, Canyon, <sup>3</sup>University of Florida, Gainesville, <sup>4</sup>Nutrition Service Associates, Amarillo, TX, <sup>5</sup>USDA-ARS, Bushland, TX, <sup>6</sup>USDA-ARS-MARC, Clay Center, NE, <sup>7</sup>Oklahoma Agricultural Experiment Station, Stillwater, <sup>8</sup>Merck Animal Health, Summit, NJ, <sup>9</sup>Oklahoma State University, Stillwater*
- 9:00 AM 197 **(Invited ASAS Animal Science Young Scholar) Injectable trace minerals in beef cattle.**  
*O. N. Genther-Schroeder\* and S. L. Hansen, Iowa State University, Ames*
- 9:30 AM 198 **Effect of a trace mineral injection on pregnancy rate of purebred and commercial Black Angus heifers synchronized using a 14 day CIDR-PG protocol.**  
*C. J. Brasche<sup>1</sup>, J. B. Hall<sup>2</sup>, S. Harrison<sup>3</sup>, and M. E. Drewnoski<sup>1</sup>,*  
*<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Idaho, Carmen, ID, <sup>3</sup>Riverbend Ranch, Idaho Falls, ID*
- 199 Withdrawn
- 200 Withdrawn
- 9:45 AM 202 **Effects of shade and feeding zilpaterol hydrochloride to finishing steers on performance, carcass quality, mobility, and body temperature.**  
*B. M. Boyd<sup>1</sup>, S. D. Shackelford<sup>2</sup>, K. E. Hales<sup>3</sup>, T. M. Brown-Brandt<sup>2</sup>, M. L. Bremer<sup>1</sup>, M. L. Spangler<sup>1</sup>, and G. E. Erickson<sup>1</sup>,*  
*<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>USDA-ARS-MARC, Clay Center, NE*
- 10:00 AM **Break**

- 10:15 AM 203 **Effects of supplementation of OMNIGEN-AF and ractopamine hydrochloride on feedlot performance and carcass characteristics.**  
*K. M. Sudbeck<sup>1</sup>, G. E. Erickson<sup>1</sup>, M. K. Luebke<sup>2</sup>, K. H. Jenkins<sup>2</sup>, R. G. Bondurant<sup>1</sup>, T. Wistuba<sup>3</sup>, K. DeHaan<sup>3</sup>, and J. C. MacDonald<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff, <sup>3</sup>Prince Agriproducts, Quincy, IL*
- 10:30 AM 204 **Effect of bacterial inoculation on feedlot performance with or without the addition of yeast product.**  
*C. A. Row<sup>\*1</sup>, C. J. Bittner<sup>1</sup>, J. L. Harding<sup>1</sup>, D. B. Burken<sup>1</sup>, J. C. MacDonald<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, A. Aguilar<sup>2</sup>, R. Schmidt<sup>3</sup>, and G. E. Erickson<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Lallemand, Martinsville, IN, <sup>3</sup>Lallemand Animal Nutrition, Milwaukee, WI*
- 10:45 AM 205 **Effects of backgrounding rate of gain on carcass characteristics.**  
*A. R. Taylor<sup>\*1</sup>, R. H. Pritchard<sup>1</sup>, and K. W. Bruns<sup>2</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>University of Nebraska-Lincoln, West Central Research & Extension Center, North Platte*
- 11:00 AM 206 **Changes in leptin and metabolite concentrations over time in finishing beef steers and heifers.**  
*A. P. Foote<sup>2</sup>, D. H. Keisler<sup>2</sup>, K. E. Hales<sup>3</sup>, R. G. Tait, Jr.<sup>4</sup>, and H. C. Freely<sup>4</sup>, <sup>1</sup>USDA, ARS, US Meat Animal Research Center, Clay Center, NE, <sup>2</sup>University of Missouri, Columbia, <sup>3</sup>USDA-ARS-MARC, Clay Center, NE, <sup>4</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*

**ANIMAL BEHAVIOR, HOUSING, & WELL-BEING: HOUSING AND TECHNOLOGY TO ADDRESS ANIMAL WELFARE**

**Chair: Jennifer A. Brown, Prairie Swine Centre  
401**

- 1:30 PM 1 **(Invited ASAS Animal Science Young Scholar) Associations among temperament, feather pecking behavior and meat quality characteristics in two strains of turkeys.**  
*M. A. Erasmus<sup>\*</sup>, H. C. Lee, I. Kang, and J. C. Swanson, Michigan State University, East Lansing*

- 2:00 PM 2 **The effect of overgrown claws on behavior and claw lesions of sows in farrowing crates.**  
*J. A. Calderón Díaz<sup>1</sup>, I. M. J. Stienez<sup>1</sup>, F. C. Leonard<sup>2</sup>, and L. A. Boyle<sup>1</sup>, <sup>1</sup>Pig Development Department, Teagasc Animal and Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork, Ireland, <sup>2</sup>University College Dublin, Dublin, Ireland*
- 2:15 PM 3 **The effect of corrective claw trimming on gait analysis of sows.**  
*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, <sup>2</sup>Zinpro Corporation, Eden Prairie, MN, <sup>3</sup>Zinpro Corporation, Sheridan, IN*
- 2:30 PM 4 **Selection of variables for predicting and comparing number of skin lesions.**  
*K. E. Wurtz<sup>1</sup>, J. P. Steibel<sup>1,2</sup>, R. O. Bates<sup>1</sup>, C. W. Ernst<sup>1</sup>, and J. M. Siegford<sup>1</sup>, <sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, <sup>2</sup>Department of Fisheries and Wildlife, Michigan State University, East Lansing*
- 2:45 PM 5 **Lameness detection trial in a commercial environment using an embedded microcomputer based force plate system.**  
*B. M. McNeil<sup>1</sup>, J. D. Stock<sup>1</sup>, J. A. Calderón Díaz<sup>1</sup>, T. D. Parsons<sup>2</sup>, A. K. Johnson<sup>1</sup>, L. A. Karriker<sup>3</sup>, S. T. Millman<sup>3</sup>, S. J. Hoff<sup>4</sup>, and K. J. Stalder<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Department of Clinical Studies, School of Veterinary Medicine, University of Pennsylvania, Kenneth Square, <sup>3</sup>Iowa State University College of Veterinary Medicine, Ames, <sup>4</sup>Agricultural and Biosystems Engineering, Iowa State University, Ames*
- 3:00 PM 6 **Mixing strategies for group-housed gestating sows: Effects on production.**  
*J. A. Brown<sup>1</sup>, Y. M. Seddon<sup>1</sup>, Y. Li<sup>2</sup>, and M. M. Bouvier<sup>1</sup>, <sup>1</sup>Prairie Swine Centre, Saskatoon, SK, Canada, <sup>2</sup>University of Minnesota, West Central Research and Outreach Center, Morris*
- 3:15 PM 7 **Effect of feeding system (dry vs liquid) on the behavior of wean to finish pigs.**  
*D. Menon<sup>\*</sup>, D. P. Pangeni, J. Kim, P. Ren, X. Yang, and S. Baidoo, Southern Research and Outreach Center, University of Minnesota, Waseca*

- 3:30 PM 8 **Effect of shade on performance, carcass quality, and welfare of finishing cattle fed a beta-adrenergic agonist in a commercial feedlot.**  
*J. A. Hagenmaier\**, *S. J. Bartle*, *C. Reinhardt*, and *D. Thomson*, *Kansas State University, Manhattan*

**BILLY DAY SYMPOSIUM: HISTORY AND CURRENT STATUS OF SOME MILESTONES IN SWINE REPRODUCTION RESEARCH**

**Chair: Timothy J Safranski, University of Missouri**  
**Sponsor: Billy Day Appreciation Club, ASAS Foundation**  
**304-305**

- 1:30 PM **Welcoming Remarks**
- 1:40 PM 9 **(Invited) Control of the estrous cycle, ovulation, time of insemination and subsequent farrowing in swine.**  
*S. K. Weibel<sup>1</sup>* and *R. R. Kraeling<sup>2</sup>*, *<sup>1</sup>JBS United, Inc., Sheridan, IN, <sup>2</sup>L&R Research Associates, Watkinsville, GA*
- 2:20 PM 10 **(Invited) In vitro maturation and fertilization.**  
*H. Funahashi\**, *Okayama University, Okayama, Japan*
- 3:00 PM **Break**
- 3:15 PM 11 **(Invited) Evolution and adoption of artificial insemination (A.I.) in the U.S.**  
*W. Flowers\**, *North Carolina State University, Raleigh*
- 3:55 PM 12 **(Invited) Non-surgical embryo transfer in pigs.**  
*E. A. Martinez\**, *C. Cuello*, *I. Parrilla*, *J. L. Vazquez*, *J. M. Vazquez*, *J. ROCA*, and *M. A. Gil*, *University of Murcia, MURCIA, Spain*

**BREEDING AND GENETICS I**

**Chair: Amanda K. Lindholm-Perry, USDA, ARS, US MARC**  
**302-303**

- 1:30 PM 19 **Estimates of genetic parameters and response to 10 generations of selection for residual feed intake in Yorkshire pigs.**  
*W. L. Hsu<sup>1</sup>*, *J. M. Young<sup>2</sup>*, *E. D. Mauch<sup>1</sup>*, and *J. C. M. Dekkers<sup>1</sup>*, *<sup>1</sup>Iowa State University, Ames, <sup>2</sup>North Dakota State University, Fargo*

- 1:45 PM 20 **Genomic prediction accuracies of residual feed intake (RFI) and component traits of feed efficiency in pigs divergently selected for RFI.**  
*N. V. L. Serão<sup>1</sup>, E. D. Mauch<sup>1</sup>, W. L. Hsu<sup>1</sup>, A. Wolc<sup>1,2</sup>, M. F. Rothschild<sup>1</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Hy-Line International, Dallas Center, IA*
- 2:00 PM 21 **Genomic prediction of growth traits in Brangus beef cattle.**  
*Z. Q. Weng<sup>1</sup>, H. Su<sup>1</sup>, J. Lee<sup>1</sup>, J. Zeng<sup>1</sup>, and D. J. Garrick<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Massey University, Palmerston North, New Zealand*
- 2:15 PM 22 **Genetic variance and covariance components for feed intake, average daily gain, and postweaning gain in growing beef cattle.**  
*K. J. Retallick<sup>1</sup>, J. M. Bormann<sup>1</sup>, R. L. Weaver<sup>1</sup>, M. D. MacNeil<sup>1</sup>, H. L. Bradford<sup>1</sup>, H. C. Freetly<sup>2</sup>, W. M. Snelling<sup>3</sup>, R. M. Thallman<sup>2</sup>, D. W. Moser<sup>1</sup>, and L. A. Kuehn<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>USDA, ARS, US MARC, Clay Center, NE*
- 2:30 PM 23 **Accuracies of genomic and pedigree based predictions for swine litter size traits in Large White and Landrace breeds.**  
*A. M. Putz<sup>1</sup>, K. A. Gray<sup>2</sup>, C. Maltecca<sup>1</sup>, M. Knauer<sup>1</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 24 **Improved accuracy of genomic prediction combining linkage disequilibrium and co-segregation by fitting haplotypes in addition to SNP genotypes.**  
*X. Sun<sup>\*</sup>, R. L. Fernando, D. J. Garrick, and J. C. M. Dekkers, Iowa State University, Ames*
- 3:00 PM 25 **Comparison of a QTL versus marker effects model for genomic prediction with training across families, generations, or breeds.**  
*J. Zeng<sup>\*</sup>, D. J. Garrick, and R. L. Fernando, Iowa State University, Ames*
- 3:15 PM 26 **Genome-wide association and genomic prediction of response to infection for two isolates of porcine reproductive and respiratory syndrome virus.**  
*E. H. Waide<sup>1</sup>, N. V. L. Serão<sup>1</sup>, A. Hess<sup>1</sup>, R. R. Rowland<sup>2</sup>, J. K. Lunney<sup>3</sup>, G. S. Plastow<sup>4</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Kansas State University, Manhattan, <sup>3</sup>USDA, ARS, BARC, APDL, Beltsville, MD, <sup>4</sup>University of Alberta, Edmonton, AB, Canada*



- 3:30 PM 27 **A comparison of viremia profiles between piglets infected with one of two isolates of porcine reproductive and respiratory syndrome virus.**  
*A. Hess<sup>\*1</sup>, Z. Islam<sup>2</sup>, R. R. R. Rowland<sup>3</sup>, J. K. Lunney<sup>4</sup>, A. Doeschl-Wilson<sup>5</sup>, S. C. Bishop<sup>5</sup>, G. S. Plastow<sup>6</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Roslin Institute, University of Edinburgh, Edinburgh, Scotland, <sup>3</sup>Kansas State University, Manhattan, <sup>4</sup>USDA, ARS, BARC, APDL, Beltsville, MD, <sup>5</sup>The Roslin Institute and R(D)SVS, University of Edinburgh, Midlothian, United Kingdom, <sup>6</sup>University of Alberta, Edmonton, AB, Canada*
- 3:45 PM 28 **Genomic prediction of host response to co-infection with PRRSV and PCV2b using a PRRSV-only infected training population.**  
*J. R. Dunkelberger<sup>\*1</sup>, E. H. Waide<sup>1</sup>, N. V. L. Serão<sup>1</sup>, J. K. Lunney<sup>2</sup>, R. R. R. Rowland<sup>3</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>USDA, ARS, BARC, APDL, Beltsville, MD, <sup>3</sup>Kansas State University, Manhattan*

## EXTENSION – DAIRY SYMPOSIUM: STRATEGIES TO IMPROVE DAIRY CATTLE HEALTH, WELFARE AND PERFORMANCE

Chair: J. A. Salfer, University of Minnesota  
 306-307

- 1:30 PM 56 **(Invited) Colostrum: Its effect on cattle health and performance.**  
*P. S. Erickson<sup>\*</sup>, University of New Hampshire, Durham, NH*
- 2:05 PM 57 **Calf growth and feed intake associations with milk yield.**  
*D. L. Beam<sup>\*1</sup>, K. J. Stalder<sup>1</sup>, A. J. Heinrichs<sup>2</sup>, and C. D. Dechow<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Pennsylvania State University, University Park*
- 2:20 PM 58 **(Invited) Serotonin: A new player in hypocalcemia.**  
*L. L. Hernandez<sup>\*</sup> and J. Laporta, University of Wisconsin-Madison*
- 2:55 PM 59 **(Invited) Holistic approach for the identification, risk assessment and mitigation of mycotoxins' impact in ruminant.**  
*A. Yiannikouris<sup>\*</sup>, Center for Animal Nutrigenomics and Applied Animal Nutrition, Alltech, Nicholasville, KY*

- 3:30 PM 60 **(Invited) A nutritional strategy to help control digital dermatitis in growing animals.**  
*A. Gomez<sup>1</sup>, D. Döpfer<sup>2</sup>, J. DeFrain<sup>1</sup>, D. H. Kleinschmit<sup>1</sup>, D. J. Tomlinson<sup>1</sup>, and M. Socha<sup>\*1</sup>, <sup>1</sup>Zinpro Corporation, Eden Prairie, MN, <sup>2</sup>School of Veterinary Medicine, University of Wisconsin-Madison*
- 4:05 PM 61 **(Invited) Chromium for dairy cattle: An essential nutrient.**  
*K. J. Herrick<sup>\*</sup>, K. E. Griswold, P. W. Rounds, A. Duffield, and D. O'Connor, Kemin Industries, Inc., Des Moines, IA*
- 4:40 PM 62 **Relationship between early lactation body condition score and mid-lactation feed efficiency in primiparous Holstein cows.**  
*L. C. Hardie<sup>\*1</sup>, M. J. VandeHaar<sup>2</sup>, and D. M. Spurlock<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Michigan State University, East Lansing*

## NONRUMINANT NUTRITION: EXOGENOUS ENZYMES

Chair: Thomas E. Burkey, University of Nebraska  
 314-315

- 1:30 PM 120 **Effects of phytase on phosphorus digestibility of rice co-products fed to growing pigs.**  
*G. A. Casas<sup>\*</sup> and H. H. Stein, University of Illinois at Urbana-Champaign*
- 1:45 PM 121 **Effect of microbial phytase on the standardized total tract digestibility and in vitro release of phosphorus in corn, soybean meal, and rice bran fed to growing pigs.**  
*J. J. Abelilla<sup>\*1</sup>, R. C. Sulabo<sup>1</sup>, H. H. Stein<sup>2</sup>, S. P. Acda<sup>1</sup>, A. A. Angeles<sup>1</sup>, M. C. R. Oliveros<sup>1</sup>, and F. E. Merca<sup>3</sup>, <sup>1</sup>Animal and Dairy Sciences Cluster, University of the Philippines, Los Baños, Philippines, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>Institute of Chemistry, University of the Philippines, Los Baños, Philippines*
- 2:00 PM 122 **Effects of increasing dietary levels of *Aspergillus oryzae*-derived phytase (Ronozyme) on the growth performance of nursery pigs fed an adequate phosphorous diet.**  
*T. C. Tsai<sup>\*1</sup>, H. J. Kim<sup>1</sup>, J. R. Bergstrom<sup>2</sup>, J. J. Chewning<sup>3</sup>, J. K. Apple<sup>1</sup>, and C. V. Maxwell<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>DSM Nutritional Products, Inc., Parsippany, NJ, <sup>3</sup>Swine Research Services, Inc., Springdale, AR*

- 2:15 PM 123 **Super-dosed phytase improves rate and efficiency of gain in nursery pigs.**  
*D. D. Koehler<sup>1</sup>, B. Corrigan<sup>1</sup>, A. J. Elsbernd<sup>2</sup>, S. A. Gould<sup>2</sup>, C. L. Holloway<sup>2</sup>, and J. F. Patience<sup>2</sup>, <sup>1</sup>VitaPlus Corporation, Madison, <sup>2</sup>Iowa State University, Ames*
- 2:30 PM 124 **Improving nutrient utilization through the use of super-dosing of phytase in growing pig diets.**  
*C. L. Holloway<sup>1</sup>, R. D. Boyd<sup>2</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>The Hanor Company, Inc., Franklin, KY*
- 2:45 PM 125 **The effect of superdosing phytase with or without the addition of live yeast in diets void of spray dried plasma in pigs from weaning to 21 days post-weaning.**  
*C. L. Bradley<sup>\*</sup>, C. L. Walk, N. D. Walker, and P. Wilcock, AB Vista Feed Ingredients, Marlborough, United Kingdom*
- 3:00 PM **Break**
- 3:05 PM 127 **Response of protease supplementation on growth performance of weanling pigs.**  
*F. N. Almeida<sup>\*</sup>, J. Zhao, J. Escobar, and M. Vazquez-Anon, Novus International, Inc., St. Charles, MO*
- 3:20 PM 128 **Efficacy of protease on growth, gut health, and nutrient digestibility in nursery pigs fed diets with different levels of soybean meal.**  
*I. Park<sup>1</sup>, P. Biggs<sup>2</sup>, and S. W. Kim<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>BioResource International, Inc., Durham, NC*
- 3:35 PM 129 **Effects of xylanase supplementation and feeding method on nutrient digestibility in pigs fed diets containing corn dried distillers grains with solubles or wheat middlings.**  
*K. Moran<sup>1</sup>, E. van Heugten<sup>1</sup>, R. D. Boyd<sup>1,2</sup>, P. Wilcock<sup>3</sup>, and C. F. de Lange<sup>4</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>The Hanor Company, Inc., Franklin, KY, <sup>3</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>4</sup>Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*
- 3:50 PM 130 **The effect of xylanase in grower-finisher pigs fed low or high fat diets.**  
*P. Wilcock<sup>1</sup>, C. L. Bradley<sup>1</sup>, H. V. Masey O'Neill<sup>1</sup>, and G. Gourley<sup>2</sup>, <sup>1</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>2</sup>Gourley Research Group LLC, Webster City, IA*
- 4:05 PM 131 **Effects of dietary  $\beta$ -mannanase on the growth performance of growing pigs.**  
*O. F. Mendoza<sup>1</sup>, A. M. Gaines<sup>1</sup>, B. A. Peterson<sup>1</sup>, P. J. Rincker<sup>2</sup>, and C. M. Shull<sup>1</sup>, <sup>1</sup>The Maschhoffs, LLC, Carlyle, IL, <sup>2</sup>Elanco Animal Health, Greenfield, IN*

**NONRUMINANT NUTRITION:  
FEED INGREDIENTS AND PROCESSING**

**Chair: Huyen Tran, University of Nebraska  
318-319**

- 1:30 PM 132 **Energy digestibility in 23 sources of distillers dried grains with solubles fed to pigs.**  
*S. M. Curry\* and H. H. Stein, University of Illinois at Urbana-Champaign*
- 1:45 PM 133 **Impact of feeding diets containing corn distillers dried grains with solubles (DDGS) with variable predicted NE content on growth performance and carcass characteristics of growing-finishing pigs.**  
*F. Wu\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, P. E. Urriola<sup>1</sup>, A. M. Hilbrands<sup>2</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota, Morris*
- 2:00 PM 134 **Digestibility of energy and concentrations of digestible and metabolizable energy in processed soybean and rapeseed products fed to growing pigs.**  
*D. M. D. L. Navarro\*<sup>1</sup>, Y. Liu<sup>1</sup>, T. S. Bruun<sup>3</sup>, and H. H. Stein<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Danish Pig Research Centre, Danish Agriculture and Food Council, Copenhagen, Denmark*
- 2:15 PM 135 **Evaluation of a microbially-converted soybean meal as a substitute for fishmeal in weaned pig diets.**  
*S. M. Sinn\*<sup>1</sup>, W. Gibbons<sup>1</sup>, M. Brown<sup>1</sup>, J. M. DeRouchey<sup>2</sup>, and C. L. Levesque<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Kansas State University, Manhattan*
- 2:30 PM 136 **(Invited ASAS Animal Science Young Scholar) Use of feed technology to improve the nutritional value of feed ingredients feed to pigs.**  
*O. J. Rojas\* and H. H. Stein, University of Illinois at Urbana-Champaign*
- 3:00 PM **Break**
- 3:15 PM 138 **Diet nutrient digestibility and growth performance of weaned pigs fed sugar beet pulp.**  
*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 Rural Development, Edmonton, AB, Canada*

- 3:30 PM 139 **(Invited ASAS Animal Science Young Scholar) Use of spectroscopy to predict nutrient digestibility in pigs and to identify in vitro digestion limits.**  
*L. F. Wang<sup>\*1</sup>, M. L. Swift<sup>1,2</sup>, E. Beltranena<sup>1,3</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 Rural Development, Lethbridge, AB, Canada, <sup>3</sup>Alberta Agriculture and Rural Development, Edmonton, AB, Canada*
- 4:00 PM 140 **Formation of fines during the pelleted feed manufacturing process and the resulting differences in nutrient composition of fines and pellets.**  
*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>, L. McKinney<sup>2</sup>, G. Smith<sup>2</sup>, and J. A. Erceg<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>DFS, Newell, IA*
- 4:15 PM 141 **Impact of particle size and grinding method (roller or hammermill) on apparent total tract digestibility of energy in growing pigs.**  
*J. A. Acosta Camargo<sup>\*1</sup>, S. A. Gould<sup>1</sup>, C. K. Jones<sup>2</sup>, C. R. Stark<sup>2</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Kansas State University, Manhattan*
- 4:30 PM 142 **Using extreme thermal processing to improve nutrient utilization of diets for finishing pigs.**  
*G. E. Bokelman<sup>\*1</sup>, K. F. Coble<sup>2</sup>, C. R. Stark<sup>1</sup>, J. C. Woodworth<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. Alavi<sup>3</sup>, and C. K. Jones<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>New Fashion Pork, Jackson, MN, <sup>3</sup>Kansas, Manhattan, KS*
- 4:45 PM 143 **Effects of seaweed  $\beta$ -1,3-glucan (Algamune) on growth performance of weaned piglets.**  
*Z. Cheng<sup>\*1</sup>, Y. Wang<sup>1</sup>, D. Hou<sup>1</sup>, H. Zhang<sup>1</sup>, Y. Chen<sup>1</sup>, H. Lei<sup>1</sup>, B. Wang<sup>1</sup>, and R. Levine<sup>2</sup>, <sup>1</sup>Animal Nutrition & Feed Center, COFCO Nutrition and Health Institute, Beijing, China, <sup>2</sup>Algal Scientific Corporation, Northville, MI*

**NONRUMINANT NUTRITION:  
SOW NUTRITION AND MANAGEMENT**

**Chair: Crystal L. Levesque, South Dakota State University  
316-317**

- 1:30 PM    144    **Effects of lysine and energy intake during late gestation on weight gain and reproductive performance of gilts and sows under commercial conditions.**  
*M. A. Goncalves<sup>\*</sup>, K. M. Gourley, S. S. Dritz, M. D. Tokach, N. M. Bello, J. M. DeRouchey, J. C. Woodworth, and R. D. Goodband, Kansas State University, Manhattan*
- 1:45 PM    145    **Impact of feeding level post-weaning on wean to estrus interval, conception and farrowing rates, and subsequent farrowing performance.**  
*A. Graham<sup>1</sup>, K. J. Touchette<sup>2</sup>, S. Jungst<sup>3</sup>, M. Tegtmeyer<sup>1</sup>, J. Connor<sup>4</sup>, and L. Greiner<sup>1</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, <sup>4</sup>Carthage Veterinary Service, Ltd, Carthage, IL*
- 2:00 PM    146    **Understanding the impact on performance and the costs associated with increasing gestation feed allowance to sows classified as thin body condition.**  
*E. K. Weber<sup>\*1</sup>, J. A. Calderón Díaz<sup>2</sup>, K. J. Stalder<sup>2</sup>, M. A. FitzSimmons<sup>3</sup>, and G. Gourley<sup>4</sup>, <sup>1</sup>Gourley Premium Pork LC, Long Prairie, MN, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>MAF Veterinary Services, Mapleton, MN, <sup>4</sup>Gourley Research Group LLC, Webster City, IA*
- 2:15 PM    147    **Feeding an activated animal protein improves sow and offspring performance.**  
*R. E. Musser<sup>\*</sup>, R. Song, K. W. Purser, and C. D. Hagen, NUTRIQUEST, Mason City, IA*
- 2:30 PM    148    **(Invited ASAS Animal Science Young Scholar) Essential nature of fatty acids for the modern lactating sow.**  
*D. S. Rosero<sup>\*1,2</sup>, J. Odle<sup>1</sup>, R. D. Boyd<sup>1,2</sup>, and E. van Heugten<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>The Hanor Company, Inc., Franklin, KY*
- 3:00 PM           **Break**

- 3:15 PM 150 **Sow performance in response to dietary betaine fed in lactation and weaning-to-35 d post-insemination during moderate heat stress.**  
*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>, and R. D. Boyd<sup>1,3</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>AB Vista Feed Ingredients, Marlborough, United Kingdom, <sup>3</sup>The Hanor Company, Inc., Franklin, KY*
- 3:30 PM 151 **Impact of reduced dietary crude protein concentration with crystalline amino acid supplementation on lactation performance and ammonia emission of sows housed under thermo neutral and thermal heat stress environments.**  
*D. Chamberlin<sup>1</sup>, W. J. Powers<sup>1</sup>, D. W. Rozeboom<sup>1</sup>, T. M. Brown-Brandl<sup>2</sup>, S. Erwin<sup>1</sup>, C. Walker<sup>1</sup>, and N. L. Trottier<sup>1</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 3:45 PM 152 **Growth and body composition, feed intake and carcass composition traits of developing gilts fed different dietary lysine and metabolizable energy levels.**  
*J. A. Calderón Díaz<sup>1</sup>, J. L. Vallet<sup>2</sup>, T. J. Prince<sup>3</sup>, C. E. Phillips<sup>4</sup>, A. E. DeDecker<sup>4</sup>, and K. Stalder<sup>5</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>3</sup>Prince Nutrition Service LLC, Auburn, AL, <sup>4</sup>Murphy-Brown LLC, Rose Hill, NC, <sup>5</sup>Iowa State University, Ames*
- 4:00 PM 153 **The determination of amount of feed grade lysine usage in lactating sows.**  
*L. Greiner<sup>1</sup>, A. Graham<sup>1</sup>, M. Tegtmeier<sup>1</sup>, K. J. Touchette<sup>2</sup>, and S. Jungst<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*
- 4:15 PM 154 **Increasing dietary valine-to-lysine ratio did not affect litter and sow performance during lactation.**  
*A. V. Strathe<sup>1</sup>, T. S. Bruun<sup>2</sup>, J. E. Zehrann<sup>3</sup>, and C. F. Hansen<sup>1</sup>, <sup>1</sup>Department of Large Animal Sciences, University of Copenhagen, Copenhagen, Denmark, <sup>2</sup>Danish Pig Research Centre, Danish Agriculture and Food Council, Copenhagen, Denmark, <sup>3</sup>Evonik Degusa International AG, Vejle, Denmark*
- 4:30 PM 155 **Lactation performance in sows fed diets with graded levels of crystalline amino acids as substitute for crude protein at lysine requirement.**  
*D. Chamberlin<sup>1</sup>, D. W. Rozeboom<sup>1</sup>, S. Erwin<sup>1</sup>, and N. L. Trottier<sup>1</sup>, Michigan State University, East Lansing*

## RUMINANT NUTRITION SYMPOSIUM: FEED EFFICIENCY AND RESIDUAL FEED INTAKE IN RUMINANT NUTRITION

Chair: Stephanie L. Hansen, Iowa State University  
312-313

- 1:30 PM (Invited) **Integrating genomic and phenotypic biomarkers for RFI with nutrition models to improve the prediction of growth performance in beef cattle.**  
*G. E. Carstens\* and L. O. Tedeschi, Texas A&M University, College Station*
- 2:15 PM 193 (Invited) **Using residual feed intake as a tool to improve dairy feed efficiency.**  
*M. J. VandeHaar\*<sup>1</sup> and D. M. Spurlock<sup>2</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>Iowa State University, Ames*
- 3:00 PM **Break**
- 3:15 PM 194 (Invited) **The role of the rumen and its microbial population in feed efficiency.**  
*K. A. Johnson\*, Washington State University, Pullman*
- 4:00 PM 195 (Invited) **Relationship of residual feed intake (Metabolic Efficiency) to post-ruminal metabolism in beef cattle.**  
*M. S. Kerley\*<sup>1</sup>, W. J. Sexten<sup>2</sup>, and A. M. Meyer<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia*

## RUMINANT NUTRITION: BYPRODUCT FEEDS

Chair: Jon P. Schoonmaker, Purdue University  
308-309

- 1:30 PM 207 **Starch inclusion in beef cattle finishing diets.**  
*A. K. Watson\*<sup>1</sup>, M. K. Luebbe<sup>2</sup>, and G. E. Erickson<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, Scottsbluff*
- 1:45 PM 208 **Effect of corn residue harvest method and monensin inclusion on performance of growing cattle.**  
*J. J. Updike\*, A. C. Pesta, R. G. Bondurant, S. C. Fernando, G. E. Erickson, J. C. MacDonald, and T. J. Klopfenstein, University of Nebraska-Lincoln*
- 2:00 PM 209 **Effect of harvest method of corn residue on digestibility.**  
*J. J. Updike\*, L. J. McPhillips, M. L. Jolly, J. L. Harding, J. C. MacDonald, and T. J. Klopfenstein, <sup>1</sup>University of Nebraska-Lincoln*



- 2:15 PM 210 **Effect of the addition of calcium oxide in soybean hull and non-soybean hull based beef diets on feedlot performance and carcass characteristics.**  
*C. R. Muegge\* and J. P. Schoonmaker, Purdue University, West Lafayette, IN*
- 2:30 PM 211 **Effect of pelleted byproducts on performance when fed to growing cattle.**  
*C. A. Welchons\*, C. J. Bittner, D. B. Burken, J. C. MacDonald, and G. E. Erickson, University of Nebraska-Lincoln*
- 2:45 PM 212 **Effects of replacing corn with a pellet consisting of treated corn stover and distillers byproducts on performance of finishing cattle.**  
*J. L. Harding\*, J. C. MacDonald, C. J. Bittner, G. E. Erickson, and D. B. Burken, University of Nebraska-Lincoln*
- 3:00 PM **Break**
- 3:15 PM 214 **Impact of feeding distillers grains or isolated components in distillers grains on feedlot performance and carcass traits.**  
*B. B. Conroy<sup>1</sup>, J. A. Hansen<sup>1</sup>, G. E. Erickson<sup>2</sup>, and M. K. Luebke<sup>1</sup>, <sup>1</sup>University of Nebraska, Scottsbluff, <sup>2</sup>University of Nebraska-Lincoln*
- 3:30 PM 215 **Modifying different components of distillers grains and the impact on feedlot performance.**  
*Z. E. Carlson\*, C. J. Bittner, D. B. Burken, G. E. Erickson, and J. C. MacDonald, University of Nebraska-Lincoln*
- 3:45 PM 216 **Influence of dry-rolled corn processing and distillers grain inclusion rate on rumen pH, VFA and NH<sub>3</sub> concentration and in vitro methane production.**  
*F. E. Doscher\*, M. C. Ruch, J. D. Kirsch, C. R. Dahlen, S. Rahman, M. S. Borhan, M. L. Bauer, and K. C. Swanson, North Dakota State University, Fargo*
- 4:00 PM 217 **Impact of dietary nitrate and sulfate on methane to carbon dioxide ratio and performance of finishing steers.**  
*A. C. Pesta\*, R. G. Bondurant, S. C. Fernando, and G. E. Erickson, University of Nebraska-Lincoln*
- 4:15 PM 218 **Impact of crude glycerin supplementation on rumen and duodenal microbial populations in beef cattle diets.**  
*A. McCain\*, University of Nebraska-Lincoln*

# SYMPOSIA AND ORAL SESSIONS

Wednesday, March 18, 2015

## BREEDING AND GENETICS II

Chair: Amanda K. Lindholm-Perry, USDA, ARS, US MARC  
312-313

- 8:30 AM 29 **(Invited ASAS Animal Science Young Scholar) Selection for maintenance energy requirements in mice: Lifecycle biological efficiency.**  
*A. S. Bhatnagar\* and M. K. Nielsen, University of Nebraska-Lincoln*
- 9:00 AM 30 **Selection for feed efficiency: Direct and correlated responses on production traits in two rabbit lines selected under ad libitum and restricted feeding.**  
*H. Gilbert<sup>\*1</sup>, L. Drouilhet<sup>1</sup>, J. Ruesche<sup>1</sup>, A. Tircazes<sup>1</sup>, M. Theau-Clément<sup>1</sup>, T. Joly<sup>2</sup>, E. Balmisse<sup>1</sup>, and H. Garreau<sup>1</sup>, <sup>1</sup>INRA UMR1388 GenPhySE, F-31326 Castanet-Tolosan, France, <sup>2</sup>ISARA-Lyon, F-69007 Lyon, France*
- 9:15 AM 31 **Statistical methods for eQTL mapping using RNA-seq data.**  
*D. Velez-Irizarry\*, C. W. Ernst, R. O. Bates, P. D. Reeb, Y. L. Bernal Rubio, N. E. Raney, and J. P. Steibel, Department of Animal Science, Michigan State University, East Lansing*
- 9:30 AM 32 **Evidence of RNA editing in pig longissimus dorsi muscle.**  
*S. A. Funkhouser<sup>\*1</sup>, J. P. Steibel<sup>2</sup>, R. O. Bates<sup>2</sup>, N. E. Raney<sup>2</sup>, and C. W. Ernst<sup>1,2</sup>, <sup>1</sup>Genetics Program, Michigan State University, East Lansing, <sup>2</sup>Department of Animal Science, Michigan State University, East Lansing*
- 9:45 AM 33 **Effect of hair coat shedding on ADG in weaned Angus calves.**  
*B. N. Richardson\*, A. J. Cross, and J. P. Cassady, South Dakota State University, Brookings*
- 10:00 AM 34 **Estimation of the relationship between intramuscular fat, testosterone, and scrotal circumference in yearling Angus bulls.**  
*J. T. Parham<sup>\*1</sup>, C. S. Whisnant<sup>2</sup>, G. B. Huntington<sup>2</sup>, M. H. Poore<sup>2</sup>, K. A. Gray<sup>3</sup>, and J. P. Cassady<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>North Carolina State University, Raleigh, <sup>3</sup>Smithfield Premium Genetics, Rose Hill, NC*

- 10:15 AM 35 **The effect of calf sex on dam milk yield in the New Zealand dairy cattle population.**  
*M. K. Hayr<sup>1</sup>, A. Hess<sup>1</sup>, and D. J. Garrick<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Massey University, Palmerston North, New Zealand*
- 10:30 AM 36 **Effect of litter size on piglet birth weight and birth weight as an indicator of pig quality.**  
*C. E. Abell<sup>\*</sup>, R. Komenda, and T. Rathje, DNA Genetics, Columbus, NE*
- 10:45 AM 37 **Characterization and symmetry study of objective feet and leg joint measurements in five separate lines of maternal gilts.**  
*J. D. Stock<sup>1</sup>, B. E. Mote<sup>2</sup>, T. J. Baas<sup>3</sup>, M. F. Rothschild<sup>3</sup>, and K. J. Stalder<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Fast Genetics Inc., Saskatoon, SK, Canada, <sup>3</sup>Iowa State University, Ames*
- 11:00 AM 38 **Assaying the metabolic network of the bovine rumen microbiome.**  
*T. M. Taxis<sup>\*</sup>, S. Wolff, C. Zhang, J. Dai, R. D. Schnabel, J. F. Taylor, M. Kerley, J. C. Pires, W. R. Lamberson, and G. C. Conant, University of Missouri, Columbia*

## EXTENSION – BEEF/SMALL RUMINANT

Chair: Justin W. Waggoner, Kansas State University  
**316-317**

- 8:30 AM 46 **Collection method affects hay waste estimates.**  
*D. J. Tomczak<sup>1</sup>, N. E. Mertz<sup>1</sup>, and W. J. Sexten<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia*
- 8:45 AM 47 **Relationship between pre-weaning gain, age at puberty, and reproductive tract development in Angus heifers.**  
*R. A. Cushman<sup>\*</sup>, A. K. McNeel<sup>1</sup>, E. C. Wright-Johnson<sup>1</sup>, O. L. Amundson<sup>2</sup>, S. C. Tenley<sup>3</sup>, E. L. Larimore<sup>2</sup>, B. N. Richardson<sup>2</sup>, C. C. Chase, Jr.<sup>1</sup>, G. A. Perry<sup>4</sup>, and A. S. Cupp<sup>3</sup>, <sup>1</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, <sup>2</sup>South Dakota State University, Brookings, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>South Dakota State University; Department of Animal Sciences, Brookings*

- 9:00 AM 48 **Factors affecting the adoption of grazing systems and grass-based management by beef and sheep producers in Ohio.**  
*J. S. McCutcheon<sup>\*1</sup>, L. W. Morton<sup>2</sup>, H. N. Zerby<sup>3</sup>, S. C. Loerch<sup>4</sup>, L. Miller<sup>5</sup>, and F. L. Fluharty<sup>4</sup>, <sup>1</sup>The Ohio State University, Mount Gilead, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>The Ohio State University, Columbus, <sup>4</sup>The Ohio State University, Wooster, <sup>5</sup>Small Farm Institute, Millersburg, OH*
- 9:15 AM 49 **Comparison of the host immune response to the footrot pathogenic bacteria in different genotypes of Katahdin sheep.**  
*S. Azarpajouh<sup>\*1</sup>, T. Wuliji<sup>2</sup>, and A. Bax<sup>2</sup>, <sup>1</sup>Department of Animal Sciences, University of Missouri-Columbia, <sup>2</sup>Department of Agriculture & Environmental Sciences, Jefferson City, MO*
- 9:30 AM 50 **Heifer intake and feed efficiency as indicators of cow intake and efficiency.**  
*C. Cassady<sup>\*1</sup>, J. Adcock<sup>1</sup>, K. M. Retallick<sup>2</sup>, and D. W. Shike<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>California Polytechnic State University, San Luis Obispo*
- 9:45 AM 51 **Ensiled high moisture corn stover as an alternative forage in gestating and lactating beef cow diets.**  
*W. T. Meteer<sup>\*8</sup>, W. C. Meteer, W. P. Chapple, and D. W. Shike, University of Illinois at Urbana-Champaign*
- 10:00 AM 52 **Long term effect of corn residue grazing on crop yields.**  
*M. E. Drewnoski<sup>\*</sup>, J. C. MacDonald, G. E. Erickson, K. Hanford, and T. J. Klopfenstein, University of Nebraska-Lincoln*
- 10:15 AM 53 **Evaluation of the anthelmintic efficacy of a single subcutaneous injection of LongRange™ in stocker calves when compared to a positive (Dectomax™) and a negative (saline) control.**  
*A. C. Vesco<sup>\*1</sup>, A. K. Sexten<sup>1</sup>, C. S. Weibert<sup>1</sup>, B. E. Oleen<sup>1</sup>, W. R. Hollenbeck<sup>1</sup>, L. C. Grimes<sup>1</sup>, and D. A. Blas<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Dep't. of Animal Sci. & Industry, Manhattan, KS*
- 10:30 AM 54 **Determining growth performance implications on meat goat kids fed soybean hull or corn based pelleted diets.**  
*A. C. Vesco<sup>\*</sup>, C. K. Jones, L. C. Grimes, T. H. Fountain, B. R. Faris, and A. K. Sexten, Kansas State University, Manhattan*
- 10:45 AM 55 **Technology 2-step research project: Genetic improvement made through use of DNA testing and artificial insemination to high-growth, high carcass value angus sires.**  
*L. C. Grimes<sup>\*1</sup>, L. R. Corah<sup>2</sup>, T. Brink<sup>3</sup>, M. Gardiner<sup>4</sup>, and A. K. Sexten<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Certified Angus Beef LLC., Manhattan, KS, <sup>3</sup>Top Dollar Angus, Greeley, CO, <sup>4</sup>Gardiner Angus Ranch, Ashland, KS*

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

**Chair: Chad A Stahl, Food Animal Consultation & Testing Services  
314-315**

- 8:30 AM 76 **Effects of in utero heat stress on muscle development of barrows.**  
*T. A. Wilmoth<sup>\*1</sup>, Z. D. Callahan<sup>2</sup>, T. J. Safranski<sup>2</sup>, and B. R. Wiegand<sup>2</sup>, <sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>University of Missouri, Columbia*
- 8:45 AM 77 **Integrative responses of pig adipose tissues to high-fat high-fiber diet: Towards key regulators of energy flexibility.**  
*F. Gondret<sup>\*1,2</sup>, A. Vincent<sup>1,2</sup>, M. Houee<sup>3</sup>, S. Lagarrigue<sup>1,2</sup>, A. Siegel<sup>4</sup>, D. Causeur<sup>3</sup>, and I. Louveau<sup>1,2</sup>, <sup>1</sup>INRA UMR1348 PEGASE, Saint Gilles, France, <sup>2</sup>AgroCampus-Ouest UMR1348 PEGASE, Rennes, France, <sup>3</sup>AgroCampus-Ouest UMR6625 IRMAR, Rennes, France, <sup>4</sup>CNRS-Université de Rennes 1-INRIA, UMR6074 IRISA, Rennes, France*
- 9:00 AM 78 **Correlation of fresh muscle firmness with sensory characteristics of pork loins destined for export to a quality focused market.**  
*E. K. Arkfeld<sup>\*1</sup>, S. Mancini<sup>1,2</sup>, B. Fields<sup>3</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>University of Pisa, Pisa, Italy, <sup>3</sup>Genus PIC, Hendersonville, TN,*
- 9:15 AM 79 **Dietary hydrolysable tannins from chestnut have the potential to reduce the risk of boar-tainted carcasses.**  
*G. Bee<sup>\*1</sup> and S. Ampuero Kragten<sup>2</sup>, <sup>1</sup>Agroscope Institute for Livestock Sciences, Posieux, Switzerland, <sup>2</sup>Agroscope, Institute for Livestock Sciences, Posieux, Switzerland*
- 9:30 AM 447 **Effects of dietary narasin inclusion level on the growth performance, incidence and severity of diarrhea, and viral shedding in nursery pigs infected with Porcine Epidemic Diarrhea Virus (PEDV).**  
*C. L. Puls<sup>\*1</sup>, K. S. Rosenkrans<sup>1</sup>, J. A. King<sup>1</sup>, T. E. Weber<sup>1</sup>, M. J. Ritter<sup>1</sup>, C. T. Herr<sup>1</sup>, J. G. Owens<sup>1</sup>, K. K. Keffaber<sup>1</sup>, L. Kesl<sup>2</sup>, and T. A. Marsteller<sup>1</sup>, <sup>1</sup>Elanco Animal Health, Greenfield, IN, <sup>2</sup>Veterinary Resources, Inc., Ames, IA*
- 9:45 AM **Break**

- 10:00 AM 80 **(Invited ASAS Animal Science Young Scholar) The effects of maternal energy restriction during mid-gestation on growth performance, gene expression, and immune function in the resultant beef offspring.**  
*A. R. Taylor<sup>\*1</sup>, D. A. Mohrhauser<sup>1</sup>, K. R. Underwood<sup>1</sup>, R. H. Pritchard<sup>1</sup>, A. E. Wertz-Lutz<sup>2</sup>, and A. D. Blair<sup>3</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>ADM Alliance Nutrition, Quincy, IL, <sup>3</sup>South Dakota State University, Rapid City, SD*
- 10:30 AM 81 **Effects of maternal plane of nutrition during mid-gestation on beef calf post-weaning growth and feed efficiency, methane production, insulin sensitivity, and carcass characteristics.**  
*T. B. Wilson<sup>\*</sup>, B. C. Ramirez<sup>1</sup>, L. F. Rodriguez<sup>1</sup>, A. R. Green<sup>1</sup>, D. D. Boler<sup>1</sup>, A. C. Dilger<sup>1</sup>, T. L. Felix<sup>1</sup>, and D. W. Shike<sup>1</sup>, University of Illinois at Urbana-Champaign*
- 10:45 AM 82 **Evaluation of the effects of zilpaterol hydrochloride supplementation on catecholamine response and other blood metabolites following a combined corticotropin releasing hormone and vasopressin challenge.**  
*J. O. Buntyn<sup>\*1</sup>, N. C. Burdick Sanchez<sup>2</sup>, T. B. Schmidt<sup>1</sup>, S. E. Sieren<sup>1</sup>, G. E. Erickson<sup>1</sup>, S. J. Jones<sup>1</sup>, and J. A. Carroll<sup>2</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>USDA-ARS, Livestock Issues Research Unit, Lubbock, TX*
- 11:00 AM 83 **Supplementation of zilpaterol hydrochloride does not significantly alter the serum metabolic profile and metabolic enzyme profile of finishing heifers.**  
*S. E. Sieren<sup>\*1</sup>, S. J. Jones<sup>1</sup>, J. O. Buntyn<sup>1</sup>, J. A. Carroll<sup>2</sup>, N. C. Burdick Sanchez<sup>2</sup>, and T. B. Schmidt<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>USDA-ARS, Livestock Issues Research Unit, Lubbock*
- 11:15 AM 84 **A comparison of performance, carcass characteristics and meat quality from intact male beef cattle relative to castrated male beef cattle administered growth promotion technology.**  
*M. E. Stephens<sup>\*1</sup>, S. J. Bartle<sup>1</sup>, D. N. Rethorst<sup>1</sup>, C. D. Reinhardt<sup>1</sup>, M. G. Siemens<sup>2</sup>, and D. U. Thomson<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Cargill, Wichita, KS*

**NONRUMINANT NUTRITION SYMPOSIUM:  
FEED INGREDIENT BIOSAFETY**

**Chair: Jason W Frank, Diamond V  
306-307**

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 156 **(Invited) Biosecurity in the global feed industry.**  
*W. H. Turlington\**, *R. S. Sellers*, and *J. G. Newman*, *American Feed Industry Association, Arlington, VA*
- 9:05 AM 157 **(Invited) FSMA partnership in animal feed safety.**  
*K. E. Klommmhaus\**, *US FDA CVM, Des Moines, IA*
- 9:35 AM 158 **(Invited) Safety of feed ingredients derived from animal by-products.**  
*D. L. Meeker\**, *National Renderers Association, Alexandria, VA*
- 10:05 AM **Break**
- 10:10 AM 159 **(Invited) Current technologies to control pathogens in feed.**  
*K. E. Richardson\**, *Anitox, Lawrenceville, GA*
- 10:40 AM 160 **(Invited) Determining the minimum infectious dose of porcine epidemic diarrhea virus in a feed matrix.**  
*L. L. Schumacher\*<sup>1</sup>*, *J. C. Woodworth<sup>1</sup>*, *J. Zhang<sup>2</sup>*, *P. C. Gauger<sup>2</sup>*, *Q. Chen<sup>2</sup>*, *M. Welch<sup>2</sup>*, *H. Salzebrenner<sup>2</sup>*, *J. Thomas<sup>2</sup>*, *R. Main<sup>2</sup>*, *S. S. Dritz<sup>1</sup>*, *R. A. Cochrane<sup>1</sup>*, and *C. K. Jones<sup>1</sup>*,  
*<sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames*
- 10:55 AM 161 **(Invited) Recent research into feed processing and biosafety.**  
*C. K. Jones\**, *C. R. Stark*, *S. S. Dritz*, *A. R. Rigdon*, and *J. C. Woodworth*, *Kansas State University, Manhattan*
- 11:25 AM 162 **(Invited) An epidemiological investigation of porcine-origin feed ingredients and the occurrence of porcine epidemic diarrhea on Midwestern United States pork farms.**  
*E. J. Neumann<sup>1</sup>*, *M. A. Ackerman<sup>2</sup>*, *C. Troxel<sup>3</sup>*, and *R. L. Moser<sup>4</sup>*, *<sup>1</sup>Epi-Insight Limited, Palmerston North, New Zealand, <sup>2</sup>Swine Veterinary Services PC, Greensburg, IN, <sup>3</sup>JBS United, Inc, Sheridan, IN, <sup>4</sup>JBS United, Inc., Sheridan, IN*

**NONRUMINANT NUTRITION: LIPIDS AND ENERGY**

**Chair: William T. Oliver, USDA, ARS, U.S. Meat Animal  
Research Center  
308-309**

- 8:30 AM 163 **Calibration of net energy for fat by growth assay in early and late phases of growth in pigs.**  
*R. D. Boyd<sup>1,2</sup>, C. E. Zier-Rush<sup>1</sup>, M. McGrath<sup>1</sup>, R. Palan<sup>1</sup>, J. Picou<sup>1</sup>, and E. van Heugten<sup>2</sup>, <sup>1</sup>The Hanor Company, Inc., Franklin, KY, <sup>2</sup>North Carolina State University, Raleigh*
- 8:45 AM 164 **Evaluation of different oil sources for nursery pigs.**  
*K. E. Jordan\*, M. A. Goncalves, J. A. De Jong, J. C. Woodworth, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. M. DeRouchey, Kansas State University, Manhattan*
- 9:00 AM 165 **Effects of reducing the dietary Omega-6 to Omega-3 fatty acid ratio in low protein quality nursery diets on growth performance and immune response in starter pigs.**  
*S. Hooda\*, R. E. Fisher, N. Karrow, and C. F. de Lange, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*
- 9:15 AM 166 **Can omega-3 fatty acids replace antibiotics in starter feeds?**  
*L. Eastwood\*, D. A. Gillis, M. R. Deibert, and D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada*
- 9:30 AM 167 **Effects of reduced CP diets, formulated on either an ME or NE basis, on growth performance and carcass characteristics of growing-finishing swine.**  
*J. K. Apple<sup>\*1</sup>, C. V. Maxwell<sup>1</sup>, T. C. Tsai<sup>1</sup>, H. J. Kim<sup>1</sup>, J. W. Yancey<sup>1</sup>, K. J. Touchette<sup>2</sup>, J. E. Thomson<sup>3</sup>, J. Less<sup>4</sup>, and J. J. Chewing<sup>5</sup>, <sup>1</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, <sup>2</sup>Ajinomoto Heartland, Inc., Chicago, IL, <sup>3</sup>Evonik Degussa Corp, Kennesaw, GA, <sup>4</sup>Archer Daniels Midland Co, Decatur, IL, <sup>5</sup>Swine Research Services, Inc., Springdale, AR*
- 9:45 AM 168 **Endogenous and exogenous fat digestion in growing pigs.**  
*J. A. Acosta Camargo<sup>\*1</sup>, R. D. Boyd<sup>2</sup>, and J. F. Patience<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>The Hanor Company, Inc., Franklin, KY*
- 10:00 AM 169 **Effect of added crystalized dietary fat on the energy digestibility and growth performance of fattening pigs.**  
*G. Bee\* and P. Stoll, Agroscope Institute for Livestock Sciences, Posieux, Switzerland*



- 10:15 AM 170 **Does heat stress alter the pig's response to dietary fat source, as it relates to carcass iodine value?**  
*T. A. Kellner\**, *L. H. Baumgard*, *K. J. Prusa*, and *J. F. Patience*, *Iowa State University, Ames*
- 10:30 AM 171 **Apparent balance of essential fatty acids for the prolific lactating sow.**  
*D. S. Rosero*<sup>\*1,2</sup>, *J. Odle*<sup>1</sup>, *R. D. Boyd*<sup>1,2</sup>, and *E. van Heugten*<sup>1</sup>,  
<sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*The Hanor Company, Inc., Franklin, KY*

**PHYSIOLOGY SYMPOSIUM:  
 FOLLICLE DEVELOPMENT, SPERM, EMBRYO MORTALITY  
 AND MATERNAL EFFECTS ON CARCASS QUALITY**

**Chair: Rodney D. Geisert, University of Missouri - Columbia  
 304-305**

- 8:30 AM 182 **(Invited) Specific sugars on oviduct cells bind porcine sperm and regulate sperm calcium and lifespan.**  
*D. J. Miller\**, *S. Machado*, *E. Pedroso-Silva*, and *G. Kadirvel*,  
*University of Illinois at Urbana-Champaign*
- 9:00 AM 183 **(Invited) Regulation of FSH target genes in ovarian granulosa cells requires input from the WNT signaling pathway.**  
*J. Hernandez Gifford\**, *Oklahoma State University, Stillwater*
- 9:30 AM 184 **(Invited) Embryonic mortality: Novel models for predicting the loss.**  
*K. G. Pohler*<sup>\*1</sup>, *J. A. Green*<sup>1</sup>, *M. H. Pereira*<sup>2</sup>, *R. G. Peres*<sup>2</sup>, *J. L. M. Vasconcelos*<sup>2</sup>, and *M. F. Smith*<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*UNESP - FMVZ, Botucatu, Brazil*
- 10:00 AM 185 **(Invited) Just a walk in the park: How maternal activity may be linked to carcass quality in pigs.**  
*K. A. Vonnahme\** and *E. P. Berg*, *North Dakota State University, Fargo*

## RUMINANT NUTRITION: DAIRY AND BEEF COW NUTRITION AND FORAGE SUPPLEMENTATION

Chair: Felipe C. Cardoso, University of Illinois  
302-303

- 8:30 AM 219 **(Invited ASAS Animal Science Young Scholar) Effects of maternal nutrition during gestation in ruminant maternal and fetal and offspring viscera energy use and hypothalamic neurohormone content in the offspring.**  
*L. Prezotto\**, North Dakota State University, Fargo
- 9:00 AM 220 **Methane production and diet digestibility by growing cattle fed high or low quality forage.**  
*A. C. Pesta\**, *M. L. Jolly*, *P. J. Kononoff*, *S. C. Fernando*, and *G. E. Erickson*, University of Nebraska-Lincoln
- 9:15 AM 221 **Effect of tannin-containing legume forages on crude protein degradation in vitro.**  
*N. F. Johnson\**, *M. E. Lees*, *M. S. Kerley*, and *H. D. Naumann*, University of Missouri, Columbia
- 9:30 AM 222 **Three summer forage finishing systems effect on lamb growth and carcass characteristics.**  
*J. S. McCutcheon\**<sup>1</sup>, *H. N. Zerby*<sup>2</sup>, *S. C. Loerch*<sup>3</sup>, and *F. L. Fluharty*<sup>3</sup>, <sup>1</sup>The Ohio State University, Mount Gilead, <sup>2</sup>The Ohio State University, Columbus, <sup>3</sup>The Ohio State University, Wooster
- 9:45 AM **Break**
- 10:00 AM 224 **(Invited ADSA Young Dairy Scholar) Nutritional management strategies to improve growth and feed efficiency of prepubertal dairy heifers.**  
*T. S. Dennis\** and *T. D. Nennich*, Purdue University, West Lafayette, IN
- 10:30 AM 225 **Rumen microbial protein synthesis in total mixed ration vs. component fed high-producing dairy cows.**  
*A. Nikkhah\**, University of Zanjan, Zanjan, Iran
- 10:45 AM 226 **(Invited ADSA Young Dairy Scholar) Dietary factors affecting fatty acid digestion and metabolism in lactating dairy cows.**  
*J. P. Boerman\**<sup>1</sup>, *M. J. VandeHaar*<sup>1</sup>, *A. L. Lock*<sup>1</sup>, *J. L. Firkins*<sup>2</sup>, *S. B. Potts*<sup>3</sup>, and *N. St-Pierre*<sup>4</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>The Ohio State University, Columbus, OH, <sup>3</sup>University of Maryland, College Park, MD, <sup>4</sup>Ohio State University, Columbus

- 11:15 AM 227 **(Invited ADSA Young Dairy Scholar) Effect of ensiling time and exogenous protease addition on nitrogen fractions and ruminal in vitro starch digestibility in whole-plant corn silage from varied hybrid types, maturities and particle size.**  
*L. F. Ferraretto\* and R. D. Shaver, University of Wisconsin-Madison*
- 11:45 AM 228 **Estimation of rumen-undegradable protein (RUP) across high-protein feedstuffs using in situ and in vitro procedures.**  
*H. A. Paz Manzano\*, S. C. Fernando, and P. J. Kononoff, University of Nebraska-Lincoln*

### PHYSIOLOGY: STRESS PHYSIOLOGY

**Chair: Clay A. Lents, USDA, ARS, U.S. Meat Animal Research Center 304-305**

- 10:45 AM 186 **(Invited ADSA Young Dairy Scholar) The role of serotonin (5-HT) in calcium and energy homeostasis during lactation.**  
*J. Laporta\* and L. L. Hernandez, University of Wisconsin-Madison*
- 11:15 AM 187 **Effect of high stress and low stress cattle handling on selected blood chemistry parameters in finishing steers.**  
*D. A. Frese<sup>1</sup>, C. Reinhardt<sup>1</sup>, S. J. Bartle<sup>1</sup>, D. N. Rethorst<sup>1</sup>, B. E. Depenbusch<sup>2</sup>, J. P. Hutcheson<sup>3</sup>, M. E. Corrigan<sup>4</sup>, W. T. Nichols<sup>4</sup>, and D. Thomson<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Innovative Livestock Services, Inc., Great Bend, KS, <sup>3</sup>Merck Animal Health, Summit, NJ, <sup>4</sup>Merck Animal Health, DeSoto, KS*
- 11:30 AM 188 **Serum Insulin-like Growth Factor-I (IGF1), Growth Hormone (GH), insulin, and glucose in first parity sows exposed to Heat Stress (HS) during gestation.**  
*M. C. Lucy<sup>1</sup>, T. J. Safranski<sup>1</sup>, J. N. Rhoades<sup>1</sup>, D. H. Keisler<sup>1</sup>, J. W. Ross<sup>2</sup>, N. K. Gabler<sup>2</sup>, R. P. Rhoads<sup>3</sup>, and L. H. Baumgard<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Virginia Tech, Blacksburg*
- 11:45 AM 189 **Reproductive performance of gilts having developed in heat stressed dams.**  
*T. Safranski<sup>1</sup>, M. C. Lucy<sup>1</sup>, J. N. Rhoades<sup>1</sup>, M. Estienne<sup>2</sup>, J. G. Wiegert<sup>3</sup>, M. Rhoads<sup>4</sup>, R. P. Rhoads<sup>4</sup>, L. H. Baumgard<sup>5</sup>, and J. W. Ross<sup>5</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Virginia Tech, Suffolk, VA, <sup>3</sup>Virginia Tech, Blacksburg, <sup>4</sup>Virginia Tech University, Blacksburg, <sup>5</sup>Iowa State University, Ames*

- 12:00 PM 190 **Effects of heat stress and antioxidants (selenium or vitamin E) supplementation on oxidative status in growing pigs.**  
*F. Liu<sup>\*1</sup>, P. Celi<sup>1,2</sup>, S. Chauhan<sup>1</sup>, J. J. Cottrell<sup>1</sup>, A. Abrasaldo<sup>1</sup>, S. Talukder<sup>2</sup>, B. J. Leury<sup>1</sup>, and F. R. Dunshea<sup>1</sup>, <sup>1</sup>Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia, <sup>2</sup>Faculty of Veterinary Science, the University of Sydney, Camden, Australia*
- 12:15 PM 191 **Effect of high ambient temperature and genotype on thermoregulatory responses and gene expression in various tissues in growing pigs.**  
*D. Renaudeau<sup>1</sup>, J. L. Gourdine<sup>2</sup>, L. Liaubet<sup>3</sup>, H. Gilbert<sup>4</sup>, and J. Riquet<sup>5</sup>, <sup>1</sup>INRA 1348 UMR PEGASE, F-35590 Saint Gilles, France, <sup>2</sup>INRA UR 143 URZ, F-97170 Petit Bourg, France, <sup>3</sup>INRA UMR 1372 GenPhySe, Castanet Tolosan, France, <sup>4</sup>INRA UMRI388 GenPhySE, F-31326 Castanet-Tolosan, France, <sup>5</sup>INRA UMR 1372 GenPhySe, F-31326 Castanet-Tolosan, France*

# POSTER PRESENTATIONS

Monday, March 16, 2015

## POSTER SESSION I

Grand Ballroom

Presentation Time: 12:45 pm – 1:30 pm

### GRADUATE STUDENT COMPETITION: MS POSTER

| Ab # | Screen # |   |
|------|----------|---|
| 412  | S01      | Withdrawn   |
| 413  | S02      | <b>Seasonal and cryopreservation impacts on semen quality in boars.</b><br><i>M. M. Krautkramer<sup>1</sup>, J. J. Parrish<sup>1</sup>, T. M. Loether<sup>1</sup>, J. R. Miles<sup>2</sup>, and L. A. Rempel<sup>2</sup>, <sup>1</sup>University of Wisconsin-Madison, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE</i> |
| 414  | S03      | <b>Weight-shifting and locomotion scoring as measures of lameness in dairy cows: Repeatability and correlation.</b><br><i>N. A. Olson<sup>1</sup>, B. H. Manning<sup>2</sup>, and S. A. Wagner<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Zoetis Inc., Kalamazoo, MI</i>  |
| 415  | S04      | <b>Effect of dietary lysine on plasma amino acid profile of finishing pigs.</b><br><i>N. Regmi<sup>*</sup>, T. Wang, M. A. Crenshaw, B. J. Rude, and S. F. Liao, Mississippi State University, Mississippi State</i>  |
| 416  | S05      | <b>Effects of diet form and distillers dried grains with solubles (DDGS) on growth performance, carcass characteristics, and visceral weights of growing-finishing pigs.</b><br><i>M. F. Overholt<sup>*</sup>, J. E. Lowell, I. M. Grossman, H. H. Stein, A. C. Dilger, and D. D. Boler, University of Illinois at Urbana-Champaign</i>             |
| 417  | S06      | <b>Effects of dry acidulant coating of commercial pet food on Salmonella contamination.</b><br><i>A. M. Jeffrey<sup>1</sup>, C. K. Jones<sup>1</sup>, C. G. Aldrich<sup>1</sup>, A. R. Huss<sup>1</sup>, and C. Kneuen<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Jones Hamilton, Walbridge, OH</i>                   |
| 418  | S07      | <b>Influence of algae meal as a replacement of corn in feedlot lamb diets on nutrient digestibility.</b><br><i>R. S. Stokes<sup>*</sup>, D. D. Loy, M. L. Van Emon, and S. L. Hansen, Iowa State University, Ames</i>   |
| 419  | S08      | <b>Impact of managing cow-calf pairs on pasture or in a dry lot during a 10 day synchronization period on</b>   |

**reproductive performance and weight change in cows and their calves.**

*D. N. Black<sup>\*1</sup>, M. R. Crosswhite<sup>1</sup>, B. W. Neville<sup>2</sup>, and C. R. Dahlen<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>North Dakota State University, Streeter*

420 S09 **Effects of dietary inclusion of direct-fed microbials on growth performance and carcass traits of finishing pigs.**  
*A. L. Sevarolli<sup>\*</sup>, I. Park, F. Castellini, and S. W. Kim, North Carolina State University, Raleigh*

421 S10 **Effects of amino acid supplementation of reduced crude protein (RCP) diets formulated on a NE basis on the fatty acid composition of the LM and jowl subcutaneous fat.**  
*D. G. Cook<sup>\*</sup>, J. K. Apple, C. V. Maxwell, A. N. Young, D. L. Galloway, H. J. Kim, and T. C. Tsai, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville*

422 S11 **Effects of Cr supplementation during gestation on beef cow performance and the interaction with Cr during finishing on progeny growth performance and carcass characteristics.**  
*S. G. Kneeskern<sup>\*</sup>, A. C. Dilger, S. C. Loerch, D. W. Shike, and T. L. Felix, University of Illinois at Urbana-Champaign*

423 S12 **Determining energy value of oil-extracted corn co-products in feedlot diets.**  
*A. A. Hohertz<sup>\*</sup>, C. C. Zellmer, and A. DiCostanzo, University of Minnesota, St. Paul*

## UNDERGRADUATE STUDENT COMPETITION POSTER: GROUP 1

**Ab #      Screen #**

429 S13 **Effects of age and time of day on standing behavior between commercially-housed ewes and their lambs.**  
*M. S. Palmer<sup>\*</sup>, T. W. Harris, K. M. Hoelting, and J. D. Allen, Northwest Missouri State University, Maryville*

430 S14 **Effect of different light sources on discoloration of fresh ground beef.**  
*J. Cooper<sup>\*1</sup>, B. R. Wiegand<sup>2</sup>, A. B. Koc<sup>2</sup>, L. Schumacher<sup>2</sup>, and C. L. Lorenzen<sup>2</sup>, <sup>1</sup>Oklahoma State University, Stillwater, <sup>2</sup>University of Missouri, Columbia*

431 S15 **Differences in forage quality when comparing novel and endophyte-infected fescue over the grazing season.**  
*M. E. Bloemer<sup>\*</sup>, M. Srinivasan, F. A. Ireland, D. W. Shike, and T. L. Felix, University of Illinois at Urbana-Champaign*

- 432 S16 **Impact of porcine respiratory and reproductive virus on behavior and welfare of growing pigs.**  
*H. Wooten\*<sup>1</sup>, J. Mcglone<sup>1</sup>, W. D. Stuart<sup>1</sup>, K. Schwartz<sup>2</sup>, N. K. Gabler<sup>2</sup>, C. F. de Lange<sup>3</sup>, T. E. Burkey<sup>4</sup>, and A. Rakhshandeh<sup>1</sup>, <sup>1</sup>Texas Tech University, Lubbock, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, <sup>4</sup>University of Nebraska-Lincoln*
- 433 S17 **Prediction of primal cut weights in pigs using a non-linear mixed procedure.**  
*C. A. Hegg\*<sup>1</sup>, F. A. Cabezon<sup>1</sup>, A. P. Schinckel<sup>1</sup>, A. C. Kloth<sup>2</sup>, C. Northington<sup>2</sup>, E. B. Sheiss<sup>2</sup>, and A. W. Duttlinger<sup>2</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Indiana Packers Corporation, Delphi, IN*
- 434 S18 **Effects of different applications of pyrethrin/pyrethroid insecticides on bull reproductive parameters.**  
*C. L. Timlin\*, J. L. Stewart, F. A. Ireland, C. F. Shipley, V. L. Jarrell, D. W. Shike, and T. L. Felix, University of Illinois at Urbana-Champaign*
- 435 S19 **Role of exogenous estrogen in initiation of estrus and induction of an LH surge.**  
*C. L. Mogck\*<sup>1</sup>, C. A. Madsen<sup>1,2</sup>, T. W. Geary<sup>2</sup>, and G. A. Perry<sup>1</sup>, <sup>1</sup>South Dakota State University; Department of Animal Sciences, Brookings, <sup>2</sup>USDA ARS Fort Keogh, Miles City, MT*
- 436 S20 **Effects of diet form and distillers dried grains with solubles (DDGS) on stomach morphology and ulceration scores in growing-finishing pigs.**  
*I. M. Grossman\*, M. F. Overholt, J. E. Lowell, H. H. Stein, E. K. Arkfeld, A. C. Dilger, D. D. Boler, and D. D. Boler, University of Illinois at Urbana-Champaign*
- 437 S21 **Effects of a low-protein, high-fiber supplement on performance, blood metabolites, and first-service AI conception rate in beef cows grazing lush pasture.**  
*M. Jarboe\*, K. Doungkamchan, W. T. Meteer, W. P. Chapple, and D. W. Shike, University of Illinois at Urbana-Champaign*
- 438 S22 **Are porcine epidemic diarrhea virus (PEDv) exposed gilts and sows farrowing problems improved by vitamin E?**  
*R. Becerra\*<sup>1</sup>, J. E. Link<sup>1</sup>, K. C. Turner<sup>2</sup>, J. T. Gebhardt<sup>1</sup>, R. L. Stuart<sup>3</sup>, and G. M. Hill<sup>1</sup>, <sup>1</sup>Michigan State University, East Lansing, <sup>2</sup>Michigan State University, Okemos, <sup>3</sup>Stuart Products Inc, Bedford, TX*

**NONRUMINANT NUTRITION: PROTEIN AND AMINO ACID NUTRITION**

- | Ab # | Screen # |   |
|------|----------|---|
| 269  | S23      | <p><b>Effects of increasing crystalline amino acids in sorghum- or corn-based diets on nursery pig growth performance.</b><br/> <i>K. E. Jordan*</i>, <i>J. Nemecek</i>, <i>M. A. Goncalves</i>, <i>R. D. Goodband</i>, <i>M. D. Tokach</i>, <i>S. S. Dritz</i>, <i>J. M. DeRouche</i>, and <i>J. C. Woodworth</i>, <i>Kansas State University, Manhattan</i></p>   |
| 270  | S24      | <p><b>Effects of increasing standardized ileal digestible threonine:lysine ratio on performance of weaned pigs challenged with <i>Escherichia coli</i> K88.</b><br/> <i>B. Jayaraman*</i><sup>1</sup>, <i>J. K. Htoo</i><sup>2</sup>, and <i>C. M. Nyachoti</i><sup>1</sup>, <sup>1</sup><i>University of Manitoba, Winnipeg, MB, Canada</i>, <sup>2</sup><i>Evonik Industries AG, Hanau-Wolfgang, Germany</i></p>  |
| 271  | S25      | <p><b>Effects of dietary protein and rapidly fermentable carbohydrate contents on bacterial metabolites and intestinal microbiota composition in weanling pigs.</b><br/> <i>V. V. Almeida</i><sup>1</sup>, <i>M. C. Thomaz</i><sup>2</sup>, <i>A. J. C. Nuñez</i><sup>1</sup>, <i>P. V. A. Alvarenga</i><sup>3</sup>, <i>F. R. Castelin</i><sup>2</sup>, <i>Y. V. Silva-Guillen</i><sup>2</sup>, and <i>K. M. Ajuwon</i><sup>1</sup>, <sup>1</sup><i>Department of Animal Sciences, Purdue University, West Lafayette, IN</i>, <sup>2</sup><i>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil</i>, <sup>3</sup><i>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil</i></p> |
| 272  | S26      | <p><b>Evaluation of rendered animal protein sources on growth performance and blood chemistry in growing pigs.</b><br/> <i>Y. Lei</i><sup>*1</sup>, <i>S. C. Kim</i><sup>1</sup>, <i>M. Mohammadi Gheisar</i><sup>1</sup>, <i>M. C. Nyachoti</i><sup>2</sup>, and <i>I. H. Kim</i><sup>1</sup>, <sup>1</sup><i>Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea</i>, <sup>2</sup><i>University of Manitoba, Winnipeg, MB, Canada</i></p>   |
| 273  | S27      | <p><b>Determination of protein and amino acid digestibility of microbially-converted soybean meal in comparison to fish meal.</b><br/> <i>S. M. Sinn</i><sup>*1</sup>, <i>W. Gibbons</i><sup>1</sup>, <i>M. Brown</i><sup>1</sup>, <i>J. M. DeRouche</i><sup>2</sup>, and <i>C. L. Levesque</i><sup>1</sup>, <sup>1</sup><i>South Dakota State University, Brookings</i>, <sup>2</sup><i>Kansas State University, Manhattan</i></p>   |
| 274  | S28      | <p><b>Concentration of nutrients and predicted concentration of swine ME among types and sources of animal protein by-products.</b><br/> <i>P. E. Urriola</i><sup>1</sup>, <i>B. J. Kerr</i><sup>2</sup>, and <i>G. C. Shurson</i><sup>1</sup>, <sup>1</sup><i>Department of Animal Science, University of Minnesota, St. Paul</i>, <sup>2</sup><i>USDA - ARS, Ames, IA</i></p>   |



POSTER SESSION II

Grand Ballroom

Presentation Time: 5:00 pm – 5:45 pm

ANIMAL BEHAVIOR, HOUSING, & WELL-BEING:  
INTAKE AND LAMENESS IN LIVESTOCK

| Ab # | Screen # |  |
|------|----------|--|
| 229  | S01      | <p><b>Health and performance comparison of Pyramid 5 plus Prespense SQ versus Bovi-Shield Gold One Shot.</b><br/> <i>D. L. Hamlin<sup>1</sup>, B. L. Vander Ley<sup>2</sup>, W. J. Sexten<sup>3</sup>, C. A. Payne<sup>4,5</sup>, S. Zuidhof<sup>6</sup>, and C. A. Jones<sup>6</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Department of Veterinary Medicine and Surgery, University of Missouri, Columbia, <sup>3</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>4</sup>Department of Veterinary Medicine and Surgery; University of Missouri, Columbia, <sup>5</sup>University of Missouri Extension, Columbia, <sup>6</sup>Boehringer Ingelheim Vetmedica, Inc., St. Joseph, MO</i></p> |
| 230  | S02      | Withdrawn  |
| 231  | S03      | <p><b>Does lameness affect the lying down sequence in sows?</b><br/> <i>J. A. Calderón Díaz<sup>1</sup>, J. D. Stock<sup>2</sup>, and K. Stalder<sup>2</sup>, <sup>1</sup>Department of Animal Science; Iowa State University, Ames, <sup>2</sup>Iowa State University, Ames</i></p>   |
| 232  | S04      | <p><b>Automated monitoring of swine behavior using accelerometers: Classification of behavior of nursery pigs from acceleration patterns.</b><br/> <i>S. Cui<sup>1</sup>, J. E. Anderson<sup>2</sup>, L. Wang<sup>1</sup>, J. Deen<sup>3</sup>, and Y. Li<sup>1</sup>, <sup>1</sup>University of Minnesota, West Central Research and Outreach Center, Morris, <sup>2</sup>University of Minnesota-Morris, <sup>3</sup>University of Minnesota, St. Paul</i></p>   |
| 233  | S05      | <p><b>Behavior of groups of gestating sows on electronic feeders under commercial conditions.</b><br/> <i>K. Vande Pol<sup>1</sup>, M. Ellis<sup>1</sup>, C. Carrillo-Espino<sup>1</sup>, J. Guldner<sup>1</sup>, S. Vootkur<sup>1</sup>, B. A. Peterson<sup>2</sup>, and A. M. Gaines<sup>3</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, Carlyle, IL, <sup>3</sup>The Maschhoffs, LLC, Carlyle, IL</i></p>  |
| 234  | S06      | <p><b>Physiological characteristics of slow growing pigs from birth to market.</b><br/> <i>Y. He<sup>1</sup>, J. Deen<sup>2</sup>, G. C. Shurson<sup>1</sup>, and Y. Li<sup>3</sup>, <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>University of Minnesota, St. Paul, <sup>3</sup>University of Minnesota, West Central Research and Outreach Center, Morris</i></p>  |

- 235 S07 **Identifying risk factors of slow growth of pigs from birth to marketing.**  
*Y. He<sup>\*1</sup>, G. C. Shurson<sup>1</sup>, Y. Li<sup>2</sup>, and J. Deen<sup>3</sup>, <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>University of Minnesota, West Central Research and Outreach Center, Morris, <sup>3</sup>University of Minnesota, St. Paul*
- 236 S08 **Water disappearance rates in late-finishing pigs.**  
*C. Bernhard<sup>\*1</sup>, A. Nelson<sup>1</sup>, N. S. Grohmann<sup>1</sup>, M. Ellis<sup>1</sup>, T. E. Weber<sup>2</sup>, and M. J. Ritter<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Elanco Animal Health, Greenfield, IN*
- 237 S09 **Influence of feeding approaches, adaptation length, and direct-fed microbial inclusion on animal temperament and relationships with growth performance, feeding behavior, and carcass characteristics in feedlot steers.**  
*J. J. Gaspers<sup>\*</sup>, K. C. Swanson, J. M. Young, T. C. Gilbery, S. R. Underdahl, M. L. Bauer, G. P. Lardy, and G. L. Stokka, North Dakota State University, Fargo*

## BREEDING & GENETICS POSTER

- | Ab # | Screen # |  |
|------|----------|--|
| 238  | S10      | <b>Differences in feed efficiency during the nursery phase of pigs divergently selected for residual feed intake during grow-finish phase.</b><br><i>J. R. Steckelberg<sup>*</sup>, E. D. Mauch, A. M. Dannen, N. V. L. Serão, and J. C. M. Dekkers, Iowa State University, Ames</i>   |
| 239  | S11      | <b>Impact of harvest weight on the relative growth performance and carcass characteristics of progeny of two swine sire lines.</b><br><i>N. S. Grohmann<sup>*1</sup>, M. Ellis<sup>1</sup>, C. M. Shull<sup>2</sup>, and B. A. Peterson<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, Carlyle, IL</i>                                 |
| 240  | S12      | <b>Association of IgG concentration in colostrum with diarrhea in piglets born to Minpig and Landrace sows.</b><br><i>S. Cui<sup>*1</sup>, X. Huang<sup>1</sup>, Y. Xu<sup>1</sup>, X. Wang<sup>1</sup>, and Y. Li<sup>2</sup>, <sup>1</sup>Northeast Agricultural University, Harbin, China, <sup>2</sup>University of Minnesota, West Central Research and Outreach Center, Morris</i> |

- 241 S13 **Identification of early blood differentially expressed genes between two pig lines divergently selected for feed efficiency: Potential biomarkers for feed efficiency.**  
*H. Liu<sup>1</sup>, Y. Nguyen<sup>2</sup>, D. Nettleton<sup>1</sup>, J. C. M. Dekkers<sup>3</sup>, and C. K. Tuggle<sup>1</sup>, <sup>1</sup>Bioinformatics and Computational Biology Program, Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Department of Statistics, Iowa State University, Ames, <sup>3</sup>Iowa State University, Ames*
- 242 S14 **A simulation study on the effect of nested vs factorial mating on response to pedigree and genomic selection.**  
*W. L. Hsu<sup>1</sup>, R. L. Fernando<sup>1</sup>, J. C. M. Dekkers<sup>1</sup>, J. Arango<sup>2</sup>, P. Settar<sup>2</sup>, J. E. Fulton<sup>2</sup>, N. P. O'Sullivan<sup>2</sup>, and A. Wolc<sup>1,2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Hy-Line International, Dallas Center, IA*
- 243 S15 **Timing of ovulation in gilts relative to last Matrix<sup>®</sup> feeding.**  
*B. L. Quick<sup>\*</sup> and T. J. Safranski, University of Missouri, Columbia*
- 245 S16 **Economic gain associated with genomic selection for health in a terminal sire line in pigs.**  
*C. M. Dematawewa<sup>1</sup>, A. Grosse Holthaus<sup>2</sup>, H. Simianer<sup>3</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>University of Goettingen, Goettingen, Germany, <sup>3</sup>Georg-August-University, Göttingen, Germany*

**GRADUATE STUDENT COMPETITION: PHD POSTER**

- | Ab # | Screen # |  |
|------|----------|--|
| 424  | S17      | <b>Effects of standardized ileal digestible lysine and added tribasic copper chloride on growth performance and carcass characteristics of finishing pigs.</b><br><i>K. F. Coble<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. L. Usry<sup>2</sup>, M. D. Tokach<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>Micronutrients, Social Circle, GA</i> |
| 425  | S18      | <b>Effect of dietary lysine on carcass dressing percentage and lean cut yield in late finishing pigs.</b><br><i>T. Wang<sup>*</sup>, N. Regmi, M. A. Crenshaw, J. R. Blanton, and S. F. Liao, Mississippi State University, Mississippi State</i>  |
| 426  | S19      | <b>Feeding vitamin E may reverse sarcoplasmic reticulum membrane instability caused by feeding wet distillers grains plus solubles to cattle.</b><br><i>M. D. Chao<sup>*</sup>, K. Domenech-Perez, and C. R. Calkins, University of Nebraska-Lincoln</i>   |

- 427 S20 **Oral administration of amino acids as energy sources for newborn piglets.**  
*N. E. Manzke<sup>\*1,2</sup>, G. C. Hoch<sup>3</sup>, B. Gomes<sup>1</sup>, M. Kutschenko<sup>4</sup>, E. G. Xavier<sup>5</sup>, G. J. M. M. De Lima<sup>6</sup>, and E. Nogueira<sup>4</sup>,*  
*<sup>1</sup>Universidade Federal de Pelotas, Pelotas, Brazil, <sup>2</sup>North Carolina State University, Raleigh, <sup>3</sup>Universidade Federal do Pampa, Uruguaiana, Brazil, <sup>4</sup>Ajinomoto do Brasil/Ajinomoto Animal Nutrition, São Paulo, Brazil, <sup>5</sup>Universidade Federal de Pelotas (UFPEL) - Brazil, Pelotas, Brazil, <sup>6</sup>Embrapa, Concordia, Brazil*
- 428 S21 **Differential MicroRNA expression in sperm cells and seminal plasma due to PRRSV infection.**  
*S. M. Calcaterra<sup>\*1</sup>, D. L. Reicks<sup>2</sup>, A. Feltus<sup>1</sup>, and S. L. Pratt<sup>1</sup>,*  
*<sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>Swine Vet Center, Saint Peter, MN*

**UNDERGRADUATE STUDENT COMPETITION POSTER: GROUP 2**

- 244 S22 **Hair coat shedding and the relationship with productive traits in beef cattle.**  
*L. D. Watson<sup>\*1</sup>, B. Kutz<sup>1</sup>, J. G. Powell<sup>2</sup>, and A. H. Brown, Jr.<sup>2</sup>,*  
*<sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville*
- 439 S23 **Influence of forage inclusion level on growth performance and feeding behavior in finishing steers.**  
*M. C. Ruch<sup>\*</sup>, T. C. Gilbery, S. R. Underdahl, M. L. Bauer, and K. C. Swanson, North Dakota State University, Fargo*
- 440 S24 **Evaluation of further processing methods for soybean meal in diets for nursery pigs.**  
*A. M. Jeffrey<sup>\*</sup>, H. L. Frobose, M. D. Tokach, R. D. Goodband, S. S. Dritz, J. C. Woodworth, and J. M. DeRouchey, Kansas State University, Manhattan*
- 441 S25 **Evaluation of bovine plasma source and whole dried milk in nursery pig diets on growth performance.**  
*C. D. Evans<sup>\*1</sup>, H. L. Frobose<sup>1</sup>, D. W. Dean<sup>2</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. C. Woodworth<sup>1</sup>, and J. M. DeRouchey<sup>1</sup>,*  
*<sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>International Ingredient Corp, Fenton, MO*

- 442 S26 **Effect of amount and profile of AA supply on mammary AA metabolism.**  
*B. M. Dado<sup>\*1</sup>, M. A. C. Danes<sup>1</sup>, G. A. Broderick<sup>2</sup>, and M. A. Wattiaux<sup>1</sup>, <sup>1</sup>University of Wisconsin-Madison, <sup>2</sup>Broderick Nutrition & Research, LLC, Madison, WI*
- 443 S27 **Novel cecum cannulated pig model to investigate the human microbiota through inter species transfer of gut microbiota from humans to pigs.**  
*M. E. Kaiser<sup>\*</sup>, C. L. Anderson, N. D. Aluthge, T. E. Burkey, P. S. Miller, D. E. Hostetler, and S. C. Fernando, University of Nebraska-Lincoln*
- 444 S28 **Gross morphology, morphometric characteristics, and sequential changes in digesta fiber fractions of gastrointestinal tract segments from high postpartum piglet mortality extensively reared swine.**  
*S. N. Carr<sup>\*</sup> and Q. S. Baptiste, Berea College, Berea, KY*
- 445 S29 **Effects of detoxifying agents on growth performance of nursery pigs fed deoxynivalenol-contaminated wheat.**  
*H. L. Frobose<sup>\*1</sup>, E. W. Stephenson<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. E. Musser<sup>2</sup>, S. S. Dritz<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. C. Woodworth<sup>1</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>NUTRIQUEST, Mason City, IA*
- 446 S30 **Characterization of microbial community structure during Salmonella shedding in beef cattle.**  
*M. Muller<sup>\*</sup>, N. D. Aluthge, C. L. Anderson, A. L. Knoell, C. J. Bittner, G. E. Erickson, and S. C. Fernando, University of Nebraska-Lincoln*

# POSTER PRESENTATIONS

Tuesday, March 17, 2015

## POSTER SESSION III

Grand Ballroom

Presentation Time: 7:30 am – 8:15 am

### EXTENSION - DAIRY POSTERS

| Ab # | Screen # |  |
|------|----------|--|
| 250  | S01      | <b>Relationships between in vitro ruminal fermentation parameters and dairy performance.</b><br><i>K. Mjoun<sup>*1</sup> and A. M. Gehman<sup>2</sup>, <sup>1</sup>Alltech, Brookings, <sup>2</sup>Alltech, Inc., Nicholasville, KY</i>  |
| 251  | S02      | <b>Mature cow body weight associations with calf growth and feed intake traits.</b><br><i>D. L. Beam<sup>*1</sup>, K. J. Stalder<sup>1</sup>, A. J. Heinrichs<sup>2</sup>, and C. D. Dechow<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Pennsylvania State University, University Park</i> |
| 252  | S03      | <b>Conception rate for postpartum dairy cows treated with different gonadorelin (GnRH) products for first or resynchronized timed AI.</b><br><i>S. E. Poock<sup>*</sup> and M. C. Lucy, University of Missouri, Columbia</i>   |

### GROWTH, DEVELOPMENT, MEAT SCIENCE & MUSCLE BIOLOGY POSTER

| Ab # | Screen # |  |
|------|----------|--|
| 258  | S04      | <b>Impact of narasin (Skycis) on live performance and carcass traits of pigs sold in a three-phase marketing system.</b><br><i>E. K. Arkfeld<sup>*1</sup>, S. N. Carr<sup>2</sup>, P. J. Rincker<sup>2</sup>, G. L. Allee<sup>3</sup>, A. C. Dilger<sup>1</sup>, and D. D. Boler<sup>4</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Elanco Animal Health, Greenfield, IN, <sup>3</sup>Pork Tech, LLC, Columbia, MO</i> |
| 259  | S05      | <b>Effect of silicate on growth performance, meat quality and characteristics in finishing pigs.</b><br><i>V. Sharma<sup>*1</sup>, M. Bakhtiar<sup>1</sup>, S. Mohana Devi<sup>1</sup>, J. H. Cho<sup>2</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Department of Animal Science, Chungbuk National University, Cheongju, South Korea</i>       |

- 260 S06 **Effect of genotype and dietary supplement on live weight changes and average daily gains in ram lambs.**  
*T. Wuliji<sup>\*</sup>, J. D. Caldwell<sup>1</sup>, B. C. Shanks<sup>1</sup>, H. Smith<sup>2</sup>, H. Hilsenbeck<sup>1</sup>, L. S. Wilbers<sup>1</sup>, A. Bax<sup>1</sup>, and S. Azarpajouh<sup>1</sup>,*  
<sup>1</sup>Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, <sup>2</sup>Callaway County Extension Center, Fulton, MO
- 261 S07 **The effect of adipose tissue inclusion over pork loins on dual-energy x-ray absorptiometry (DXA) measurements.**  
*M. Kipper<sup>1,2</sup>, C. Pomar<sup>\*2</sup>, and M. Marcoux<sup>2</sup>,* <sup>1</sup>Universidade Federal de Santa Maria, Santa Maria, Brazil, <sup>2</sup>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada
- 262 S08 **Effects of feeding generic ractopamine (Actogain) with or without the combination of monensin and tylosin phosphate on growth performance, carcass characteristics, and tenderness of finishing steers.**  
*B. M. Bohrer<sup>\*1</sup>, H. O. Galloway<sup>1</sup>, D. M. Meeuwse<sup>2</sup>, J. L. Beckett<sup>3</sup>, M. D. Edmonds<sup>4</sup>, E. D. Sharman<sup>4</sup>, W. M. Moseley<sup>2</sup>, H. B. Vanimisetti<sup>2</sup>, A. L. Schroeder<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>Zoetis, Inc., Kalamazoo, MI, <sup>3</sup>Beckett Consulting, Fallbrook, CA, <sup>4</sup>Johnson Research LLC, Parma, ID
- 263 S09 **Effects of cold rearing temperature on meat quality parameters on loin and ham muscles in pigs.**  
*J. Faure<sup>\*1</sup>, L. M. Lefaucheur<sup>2</sup>, and B. Lebret<sup>3</sup>,* <sup>1</sup>INRA Agrocampus Ouest, Rennes, France, <sup>2</sup>INRA, Saint-Gilles, France, <sup>3</sup>INRA, Saint Gilles, France
- 264 S10 **Correlation of fatty acid composition and iodine value (IV) among 3 fat depots in pork carcasses.**  
*C. C. E. J. Villela<sup>\*1</sup>, R. B. Cox<sup>1</sup>, G. C. Shurson<sup>1</sup>, K. M. Compant<sup>1</sup>, P. E. Urriola<sup>1</sup>, and L. J. Johnston<sup>2</sup>,* <sup>1</sup>Department of Animal Science, University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota, Morris
- 265 S11 **Quality of broiler meat fed by-product of guava during the initial phase.**  
*M. D. de Oliveira, A. J. Silva Júnior, C. N. Souto, C. L. Andrade, H. P. F. Xavier, K. T. Andrade, A. G. Mascarenhas, and H. H. D. C. Mello<sup>\*</sup>,* Universidade Federal de Goiás, Goiânia, Brazil
- 266 S12 **Effects of dietary level and withdrawal period of distillers dried grains with solubles on pork belly fat iodine value.**  
*J. E. Estrada<sup>\*1</sup>, M. Ellis<sup>1</sup>, S. J. Hardman<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. A. Peterson<sup>2</sup>, and O. F. Mendoza<sup>2</sup>,* <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL

- 267 S13 **Effectiveness of flavor enhancers in reduced sodium natural deli-style turkey breast.**  
*C. G. Bower\**, *B. Cleveland*, *D. E. Burson*, and *G. Sullivan*,  
*University of Nebraska-Lincoln*
- 268 S14 **Effects of varying corn or soybean co-product inclusion in finishing diets of feedlot heifers on carcass characteristics and fresh meat quality.**  
*M. A. Nelson\**, *J. Johnston*, *A. DiCostanzo*, and *R. B. Cox*,  
*University of Minnesota, St. Paul*

**NONRUMINANT NUTRITION: FEED INGREDIENTS**

- Ab #      Screen #**
- 297 S15 **Influence of pineapple byproduct in nursery pig performance.**  
*U. D. S. Ruiz<sup>1</sup>*, *G. F. Ramos<sup>1</sup>*, *F. E. L. Budiño<sup>2</sup>*, *G. D. V. Polycarpo<sup>3</sup>*, *T. S. Vasconcelos<sup>1</sup>*, *C. D. Silva Júnior<sup>4</sup>*, *J. A. Oliveira<sup>1</sup>*, and *A. Faria<sup>4</sup>*, <sup>1</sup>*Univ. Estadual Paulista - UNESP, Dracena, Brazil*, <sup>2</sup>*Institute of Animal Science and Pastures, Nova Odessa, Brazil*, <sup>3</sup>*University of São Paulo - USP, Pirassununga, Brazil*, <sup>4</sup>*Univ. Estadual Paulista, Dracena, Brazil*
- 298 S16 **Digestibility of crude fat and energy from a micro-algae meal for nursery pigs.**  
*R. M. Delles<sup>1</sup>*, *S. Gregory<sup>2</sup>*, *C. L. Levesque<sup>3</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 Inc., Nicholasville, KY*, <sup>3</sup>*South Dakota State University, Brookings*
- 299 S17 **Lipid digestibility and energy values of corn and soybean oil containing varying levels of free fatty acids (FFA) in nursery pigs.**  
*B. J. Kerr<sup>1</sup>* and *G. C. Shurson<sup>2</sup>*, <sup>1</sup>*USDA - ARS, Ames, IA*, <sup>2</sup>*Department of Animal Science, University of Minnesota, St. Paul*
- 300 S18 **Effect of feeding wheat millrun on diet nutrient digestibility and growth performance in starter pigs.**  
*H. García<sup>1,2</sup>*, *L. F. Wang<sup>2</sup>*, *J. L. Landero<sup>2</sup>*, *E. Beltranena<sup>2,3</sup>*, *M. Cervantes<sup>1</sup>*, *A. Morales<sup>1</sup>*, and *R. T. Zijlstra<sup>2</sup>*, <sup>1</sup>*Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, Mexicali, Mexico*, <sup>2</sup>*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, <sup>3</sup>*Alberta Agriculture and Rural Development, Edmonton, AB, Canada*



- 301 S19 **Effect of dietary inclusion of insoluble fiber from sugar cane on carcass traits of finishing pigs.**  
*M. S. F. Oliveira<sup>\*1</sup>, M. C. Thoma<sup>z2</sup>, M. M. Lima<sup>3</sup>, P. V. A. Alvarenga<sup>3</sup>, F. F. Castro<sup>3</sup>, M. V. Marujo<sup>1</sup>, and D. J. Rodrigues<sup>3</sup>, <sup>1</sup>Dep.of Animal science, Sao Paulo State University, Jaboticabal/SP, Brazil, <sup>2</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil, <sup>3</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil*
- 302 S20 **Effects of corn distillers' whole stillage and condensed distillers' solubles on growth performance, carcass characteristics, and pork sensory quality of growing-finishing pigs.**  
*X. Yang<sup>\*1</sup>, C. Nath<sup>2</sup>, A. Doering<sup>3</sup>, J. H. Goihl<sup>4</sup>, and S. Baidoo<sup>1</sup>, <sup>1</sup>Southern Research and Outreach Center, University of Minnesota, Waseca, <sup>2</sup>Agricultural Utilization and Research Institute, Marshall, MN, <sup>3</sup>Agricultural Utilization and Research Institute, Waseca, MN, <sup>4</sup>Agri-Nutrition Services, Inc., Shakopee, MN*
- 303 S21 **Effects of extrusion of corn and oats on the digestibility of energy and nutrients in diets fed to pigs.**  
*Y. Liu<sup>\*</sup>, O. J. Rojas, and H. H. Stein, University of Illinois at Urbana-Champaign*
- 304 S22 **Effects of chemical, physical, or enzymatic treatments on concentration of digestible and metabolizable energy and on apparent total tract digestibility of energy, organic matter, and detergent fiber in distillers dried grains with solubles fed to growin.**  
*O. J. Rojas<sup>\*</sup> and H. H. Stein, University of Illinois at Urbana-Champaign*
- 305 S23 **Effect of feeding distillers dried grains with solubles and conjugated linoleic acid on growth performance, carcass characteristics, and fat quality in finishing pigs.**  
*C. B. Brown<sup>\*1</sup>, M. Ellis<sup>1</sup>, B. A. Peterson<sup>2</sup>, A. M. Gaines<sup>2</sup>, and D. I. Golz<sup>3</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, LLC, Carlyle, IL, <sup>3</sup>BASF Corporation, Florham Park, NJ*
- 306 S24 **Feeding value of cull lentils for growing and finishing swine.**  
*L. Eastwood, D. A. Gillis, M. R. Deibert, and D. Beaulieu<sup>\*</sup>, Prairie Swine Centre, Inc., Saskatoon, SK, Canada*

- 307 S25 **Amino acid digestibility in rice co-products fed to growing pigs.**  
*G. A. Casas<sup>\*1</sup>, J. Alameda<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Lindenwood University, Saint Louis, MO*
- 308 S26 **Effects of wheat source and particle size in pelleted diets on finishing pig growth performance and caloric efficiency.**  
*J. A. De Jong<sup>\*</sup>, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, C. B. Paulk, J. C. Woodworth, C. K. Jones, and C. R. Stark, Kansas State University, Manhattan*
- 309 S27 **Effects of 30% dried distillers grains with solubles and 5% added fat prior to slaughter on growth performance and carcass characteristics of finishing pigs.**  
*K. F. Coble<sup>\*</sup>, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan*

## POSTER SESSION IV

### Grand Ballroom

Presentation Time: 12:45 pm – 1:30 pm

### EXTENSION - SWINE POSTER

- | Ab # | Screen # |   |
|------|----------|---|
| 253  | S01      | <b>A decision support tool to evaluate sow housing options.</b><br><i>R. O. Bates<sup>*1</sup>, R. A. Betz<sup>2</sup>, and E. A. Ferry<sup>3</sup>, <sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, <sup>2</sup>Michigan State University Extension, Marshall, <sup>3</sup>Michigan State University Extension, Cassopolis</i>  |
| 254  | S02      | <b>Labor requirements and repeatability of sow body condition measures.</b><br><i>M. Knauer<sup>*</sup> and M. Bryan, North Carolina State University, Raleigh</i>  |
| 255  | S03      | <b>Effect of lactation feeder type on sow performance in a commercial unit.</b><br><i>A. J. Cross<sup>*1</sup>, A. Gelderman<sup>2</sup>, and R. C. Thaler<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>Standard Nutrition, Sioux Falls, SD</i>   |
| 256  | S04      | <b>Documentation of factors that contribute to the variation of pork nutrient composition.</b><br><i>M. Kerns<sup>1</sup>, B. Rossman<sup>1</sup>, S. Liewer<sup>1</sup>, M. Powell<sup>1</sup>, S. Herr<sup>1</sup>, S. Taylor<sup>1</sup>, J. Colletti<sup>1</sup>, S. M. Lonergan<sup>*1</sup>, P. Boettcher<sup>2</sup>, and R. Charrondiere<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Food and Agriculture Organization of the United Nations, Rome, Italy</i> |

- 257 S05 **Concentration of the non-starch polysaccharide 1,3  $\beta$ -glucan and  $\alpha$ -mannan protein in corn derived distillers grains with solubles.**  
*J. E. Ferrel\**, A. A. Ahmed, B. J. Krabel, D. M. Anderson, and T. A. Marsteller, *Elanco Animal Health, Greenfield, IN*
- 448 S06 **Impact of farrowing induction on the time of farrowing in sows.**  
*J. J. Nankivil<sup>1</sup>, M. Ellis<sup>1</sup>, B. A. Peterson<sup>2</sup>, C. M. Shull<sup>2</sup>, and E. Parr<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>The Maschhoffs, Carlyle, IL*

## ODOR AND NUTRIENT MANAGEMENT

- | Ab # | Screen # |  |
|------|----------|--|
| 325  | S07      | <b>Anaerobic digestion of high ash, open lot beef cattle manure.</b><br><i>A. K. Watson*</i> , G. E. Erickson, T. J. Klopfenstein, and A. M. Schmidt, <i>University of Nebraska-Lincoln</i>  |
| 326  | S08      | <b>Anaerobic digestion of feces from finishing swine fed with diferents levels of soluble fiber.</b><br><i>D. J. Rodrigues<sup>*1</sup>, M. C. Thomaz<sup>2</sup>, U. D. S. Ruiz<sup>3</sup>, M. M. Lima<sup>1</sup>, P. V. A. Alvarenga<sup>1</sup>, F. F. Castro<sup>1</sup>, and S. Sgavioli<sup>4</sup>, <sup>1</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil, <sup>2</sup>Department of Animal Science, São Paulo State University, Jaboticabal/SP, Brazil, <sup>3</sup>Univ. Estadual Paulista - UNESP, Dracena, Brazil, <sup>4</sup>Department of Morphology and Animal Physiology, São Paulo State University, Jaboticabal, Brazil</i> |
| 327  | S09      | <b>Impact of feedlot facility design, diet and cattle type on manure nutrient capture.</b><br><i>N. Kenney-Rambo<sup>*1</sup>, A. Nesseth<sup>2</sup>, and A. DiCostanzo<sup>3</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>Extended Ag Services, Lakefield, MN, <sup>3</sup>University of Minnesota, St. Paul</i>  |

## PHYSIOLOGY POSTERS

- | Ab # | Screen # |   |
|------|----------|---|
| 328  | S10      | <b>Differential MicroRNA expression in sperm cells and seminal plasma due to PRRSV infection.</b><br><i>S. M. Calcaterra<sup>*1</sup>, D. L. Reicks<sup>2</sup>, A. Feltus<sup>1</sup>, and S. L. Pratt<sup>1</sup>, <sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>Swine Vet Center, Saint Peter, MN</i> |

- 329 S11 **Dairy cattle pregnancy rates and progesterone concentrations in Kuwait following single and double injection PGF2 $\alpha$  estrus synchronization protocols.**  
*M. A. Aali\**, *Aridland Agriculture Department, Kuwait Institute for Scientific Research, Kuwait City, Kuwait*
- 330 S12 Withdrawn
- 331 S13 **Receiver Operator Curve (ROC) characteristics for a pregnancy test based on Milk Progesterone (mP4) concentration before or one week after Timed AI (TAI).**  
*L. J. Wilsdorf, S. E. Poock, and M. C. Lucy\**, *University of Missouri, Columbia*
- 332 S14 **Effect of in utero exposure to Lipotropic (One-Carbon) nutrients on mammary developmental genomic signals in rat offspring.**  
*W. S. Choi\*<sup>1</sup>, K. Cho<sup>1</sup>, L. Mabasa<sup>1</sup>, C. Crane<sup>1</sup>, M. Ribeiro de Almeida<sup>2</sup>, and C. S. Park<sup>3</sup>*, *<sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>University of Sao Paulo, Ribeirao Preto, Brazil, <sup>3</sup>North Dakota State University Animal Sciences, Fargo, ND*
- 333 S15 **Effects of sire breed, gender, and postnatal litter size on plasma concentrations of acyl ghrelin and its relationship with growth traits and feeding behavior in swine.**  
*C. A. Lents\*, T. M. Brown-Brandl, G. A. Rohrer, W. T. Oliver, and B. A. Freking*, *USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 334 S16 **Type I Interferon response in calves experimentally infected with bovine viral diarrhea virus type 1b and Mannheimia haemolytica.**  
*C. A. Gifford\*, J. L. Chase, J. Hernandez Gifford, B. K. Wilson, B. I. Gomez, D. L. Step, M. A. Montelongo, A. W. Confer, C. R. Krehbiel, and C. J. Richards*, *Oklahoma State University, Stillwater*
- 335 S17 **Effects of mid- to late gestational energy source on jejunal crypt cell proliferation in the ewe and fetus.**  
*J. M. Larson\*<sup>1</sup>, A. R. Smith<sup>1</sup>, M. A. Berg<sup>2</sup>, A. E. Radunz<sup>3</sup>, and A. M. Meyer<sup>1</sup>*, *<sup>1</sup>Division of Animal Sciences, University of Missouri, Columbia, <sup>2</sup>Department of Animal Sciences, University of Wisconsin-Madison, <sup>3</sup>Department of Animal and Food Science, University of Wisconsin, River Falls*
- 336 S18 **Prepartum somatotropin administration affects IGF-I and NEFA concentrations in serum and follicular fluid of first postpartum dominant follicle in Holstein heifers.**  
*D. A. Velasco Acosta\*<sup>1</sup>, A. Schneider<sup>2</sup>, C. Bespalhok Jacometo<sup>2</sup>, J. A. Rincon<sup>2</sup>, F. C. Cardoso<sup>1</sup>, and M. Nunes Corrêa<sup>2</sup>*, *<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Federal University of Pelotas, Pelotas, Brazil*

- 337 S19 **Effect of methionine and choline supplementation on postpartum follicular development in Holstein cows.**  
*D. A. Velasco Acosta<sup>\*1</sup>, M. I. Rivelli<sup>1</sup>, C. S. Skenandore<sup>1</sup>, Z. Zhou<sup>1</sup>, D. N. Luchini<sup>2</sup>, M. Nunes Corrêa<sup>3</sup>, and P. Cardoso<sup>1</sup>,  
<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Adisseo S.A.S., Alpharetta, GA, <sup>3</sup>Federal University of Pelotas, Pelotas, Brazil*

## RUMINANT NUTRITION I

- | Ab # | Screen # |   |
|------|----------|---|
| 338  | S20      | <b>Total mixed ration vs. component feeding does not improve individually-fed high-producing cow performance: Common wisdom challenged.</b><br><i>A. Nikkhah<sup>*</sup>, University of Zanjan, Zanjan, Iran</i>  |
| 339  | S21      | <b>Component vs. total mixed ration feeding improves peripheral energetics in high-producing lactating dairy cows.</b><br><i>A. Nikkhah<sup>*</sup>, University of Zanjan, Zanjan, Iran</i>   |
| 340  | S22      | <b>Sugar beets for growing and finishing feedlot cattle.</b><br><i>V. L. Anderson<sup>*1</sup> and C. L. Engel<sup>2</sup>, <sup>1</sup>North Dakota State University, Carrington, ND, <sup>2</sup>Carrington Research Extension Center, North Dakota State University, Carrington, ND</i>  |
| 341  | S23      | <b>The influence of dry-rolled corn particle size and dried corn distiller's grains plus solubles inclusion levels on digestibility in steers.</b><br><i>F. E. Doscher<sup>*</sup>, M. C. Ruch, J. D. Kirsch, M. L. Bauer, and K. C. Swanson, North Dakota State University, Fargo</i>  |
| 342  | S24      | <b>Effect of particle size and exogenous enzymes on degradability of corn grain rehydrated and ensiled for a short time.</b><br><i>N. M. Lopes<sup>1,2</sup>, M. N. Pereira<sup>1</sup>, and F. C. Cardoso<sup>*2</sup>, <sup>1</sup>Federal University of Lavras, Lavras, Brazil, <sup>2</sup>University of Illinois at Urbana-Champaign</i>   |
| 343  | S25      | <b>Effect of supplementing feedlot steers with a DHA-rich microalgae meal on performance, insulin sensitivity, and meat quality.</b><br><i>J. R. R. Carvalho<sup>1</sup>, K. M. Brennan<sup>2</sup>, and J. P. Schoonmaker<sup>*3</sup>,<br/> <sup>1</sup>Universidade Federal de Lavras, Lavras, Brazil, <sup>2</sup>Alltech, Nicholasville, KY, <sup>3</sup>Purdue University, West Lafayette, IN</i> |
| 344  | S26      | <b>Forage production and stocker cattle performance on BMR sudangrass and vegetative corn in upper Midwestern grazing systems.</b><br><i>C. C. Nieman<sup>*</sup>, University of Wisconsin-Madison</i>  |

- 345 S27 **Effect of trace mineral injection on growth and trace mineral status of nursing beef calves.**  
*C. J. Brasche<sup>\*1</sup>, J. B. Hall<sup>2</sup>, and M. E. Drewnoski<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Idaho, Carmen, ID*
- 346 S28 **Performance of Nellore beef cattle fed with whole corn diet.**  
*A. M. Mobiglia<sup>1</sup>, F. R. Camilo<sup>1</sup>, A. A. Miszura<sup>1</sup>, V. R. M. Couto<sup>\*1</sup>, F. G. F. Castro<sup>2</sup>, B. P. C. Mendonça<sup>2</sup>, and J. J. R. Fernandes<sup>1</sup>, <sup>1</sup>Universidade Federal de Goiás, Goiânia, Brazil, <sup>2</sup>AgroCria, Goiânia, Brazil*
- 347 S29 **Effects of phytogenic additives on intake, growth performance, carcass characteristics in steers fed high-concentrate diets.**  
*K. K. G. Moreira, J. T. Padua, V. R. M. Couto<sup>\*</sup>, A. A. Miszura, D. G. De Sousa, D. S. Chaves, M. E. Maronezi, W. V. D. S. Santos, L. D. Da Silva, and J. J. R. Fernandes, Universidade Federal de Goiás, Goiânia, Brazil*
- 348 S30 **Roughage removal from feedlot diets improve feed efficiency in feedlot cattle.**  
*N. O. Minton<sup>\*</sup>, A. M. Meyer, W. J. Sexten, and M. S. Kerley, Division of Animal Sciences, University of Missouri, Columbia*

## POSTER SESSION V

### Grand Ballroom

Presentation Time: 5:00 pm – 5:45 pm

#### EXTENSION - BEEF/SMALL RUMINANT POSTER

- | Ab # | Screen # |  |
|------|----------|--|
| 246  | S01      | <b>Effect of estrus activity when evaluating feed efficiency in heifers.</b><br><i>G. R. Dahlke<sup>*1</sup> and P. J. Gunn<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Department of Animal Science, Iowa State University, Ames</i>  |
| 247  | S02      | <b>Effects of diet, housing and season systems on feedlot cattle finishing programs.</b><br><i>J. G. Njoka<sup>*</sup>, M. P. Hoffman, P. J. Berger, and L. L. Schulz, Iowa State University, Ames</i>   |
| 248  | S03      | <b>Harvest method and feeder type effect on corn stover intake and waste.</b><br><i>N. E. Mertz<sup>*1</sup>, D. J. Tomczak<sup>1</sup>, and W. J. Sexten<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia</i> |

- 249 S04 **Herd health observations in an intensively managed cow-calf production system.**  
*J. M. Warner<sup>\*1</sup>, K. H. Jenkins<sup>2</sup>, R. J. Rasby<sup>1</sup>, M. K. Luebke<sup>2</sup>, D. R. Smith<sup>3</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>Mississippi State University, Mississippi State*

**NONRUMINANT NUTRITION: FEED ADDITIVES AND TECHNOLOGIES**

- | Ab # | Screen # |   |
|------|----------|---|
| 275  | S05      | <b>Effects of feeding increasing levels of a proprietary yeast blend on sow reproductive performance over a two-parity period.</b><br><i>R. Song<sup>*</sup>, K. W. Purser, R. E. Musser, and C. D. Hagen, NUTRIQUEST, Mason City, IA</i>   |
| 276  | S06      | <b>Efficacy of adding <math>\beta</math>-mannanase to hulled (44% CP) and dehulled (48%) soybean meal on growth performance, blood chemistry, fecal microflora and fecal noxious gas emission in growing pigs.</b><br><i>M. Jung<sup>*</sup>, Y. Lei, V. Sharma, S. D. Upadhaya, and I. H. Kim, Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea</i>   |
| 277  | S07      | <b>Influence of protected organic acid blends in diets with different nutrient densities on growth performance, nutrient digestibility and fecal noxious gas emission in growing pigs.</b><br><i>B. Balamuralikrishnan<sup>*1</sup>, D. Jung<sup>1</sup>, K. Y. Lee<sup>2</sup>, S. D. Upadhaya<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Morningbio Co., Cheonan, South Korea</i> |
| 278  | S08      | <b>Protected organic acid blends as an alternative to antibiotics in finishing pigs.</b><br><i>J. K. Kim<sup>*1</sup>, M. Jung<sup>1</sup>, K. Y. Lee<sup>2</sup>, S. Mohana Devi<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Morningbio Co., Cheonan, South Korea</i>   |
| 279  | S09      | <b>A study on the effect of phytogenic supplementation in growing-finishing pigs.</b><br><i>M. Mohammadi Gheisar<sup>1</sup>, P. Y. Zhao<sup>*1</sup>, S. Shanmugam<sup>1</sup>, D. Jung<sup>1</sup>, J. D. Hancock<sup>2</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>Department of Animal Resource &amp; Science, Dankook University, Cheonan, South Korea, <sup>2</sup>Kansas State University, Manhattan</i>   |

- 280 S10 **A study on the effect of phytochemicals in weanling pigs challenged with *Escherichia coli* K88.**  
*M. Begum*<sup>\*1</sup>, *A. Hosseindoust*<sup>1</sup>, *H. Y. Shin*<sup>1</sup>, *J. D. Hancock*<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>*Kansas State University, Manhattan*
- 281 S11 **Effects of fermented, aged garlic concentration supplementation in diets of lactating sows and their piglets.**  
*S. C. Kim*<sup>\*1</sup>, *T. S. Li*<sup>1</sup>, *P. Y. Zhao*<sup>1</sup>, *M. C. Nyachoti*<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>*University of Manitoba, Winnipeg, MB, Canada*
- 282 S12 **Effects of a novel protease enzyme (CIBENZA) on finishing pig growth performance and carcass characteristics.**  
*E. W. Stephenson*<sup>\*1</sup>, *J. M. DeRouchey*<sup>1</sup>, *J. Escobar*<sup>2</sup>, *J. C. Woodworth*<sup>1</sup>, *M. D. Tokach*<sup>1</sup>, *R. D. Goodband*<sup>1</sup>, and *S. S. Dritz*<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan,* <sup>2</sup>*Novus International, Inc., St. Charles, MO*
- 283 S13 **Impact of an endo 1,4  $\beta$ -D-mannanase in nursery diets on two genetic populations of pigs selected for soybean meal allergic response.**  
*J. E. Ferrel*<sup>\*1</sup>, *F. A. Cabezon*<sup>2</sup>, *A. P. Schinckel*<sup>2</sup>, *B. T. Richert*<sup>2</sup>, *J. S. Radcliffe*<sup>2</sup>, and *T. S. Stewart*<sup>2</sup>, <sup>1</sup>*Elanco Animal Health, Greenfield, IN,* <sup>2</sup>*Purdue University, West Lafayette, IN*
- 284 S14 **Antioxidants reduce lipid peroxidation of dried distillers grains with solubles (DDGS) and distillers corn oil (DCO) stored under high temperature and humidity conditions.**  
*A. R. Hanson*<sup>\*1</sup>, *P. E. Urriola*<sup>1</sup>, *L. J. Johnston*<sup>2</sup>, and *G. C. Shurson*<sup>1</sup>, <sup>1</sup>*Department of Animal Science, University of Minnesota, St. Paul,* <sup>2</sup>*West Central Research and Outreach Center, University of Minnesota, Morris*
- 285 S15 **Effects of a multi-component enzyme product in diets with/without wheat middlings on the performance of nursery pigs during the first 23 d post-weaning.**  
*H. J. Kim*<sup>\*1</sup>, *T. C. Tsai*<sup>1</sup>, *J. R. Bergstrom*<sup>2</sup>, *J. J. Chewning*<sup>3</sup>, *J. K. Apple*<sup>1</sup>, and *C. V. Maxwell*<sup>1</sup>, <sup>1</sup>*Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville,* <sup>2</sup>*DSM Nutritional Products, Inc., Parsippany, NJ,* <sup>3</sup>*Swine Research Services, Inc., Springdale, AR*
- 286 S16 **Effects of Endo-1,4- $\beta$ -D-mannanase on growth performance and carcass characteristics of finishing pigs fed ractopamine HCl and marketed in a 3-cut strategy.**  
*K. D. Haydon*<sup>1</sup>, *P. J. Rincker*<sup>1</sup>, *J. E. Ferrel*<sup>1</sup>, *M. J. Schneider*<sup>1</sup>, *C. W. Hastad*<sup>\*2</sup>, *K. F. Coble*<sup>2</sup>, and *R. A. Cain*<sup>2</sup>, <sup>1</sup>*Elanco Animal Health, Greenfield, IN,* <sup>2</sup>*New Fashion Pork, Jackson, MN*



- 287 S17 **Chromium yeast in diet for early finishing pigs.**  
*D. Baffa<sup>1</sup>, M. I. Hannas<sup>\*1</sup>, H. Rostagno<sup>1</sup>, L. Albino<sup>1</sup>, F. Rutz<sup>2</sup>, C. Pereira<sup>3</sup>, M. Almeida<sup>1</sup>, and L. Lopes<sup>1</sup>, <sup>1</sup>Universidade Federal de Viçosa, Viçosa, Brazil, <sup>2</sup>Universidade Federal de Pelotas, Pelotas, Brazil, <sup>3</sup>Universidade Estadual de Santa Cruz, Itabuna, Brazil*
- 288 S18 **Effect of probiotic on energy and nutrient digestibility in growing pigs.**  
*G. Silva<sup>1</sup>, A. Saraiva<sup>\*2</sup>, M. I. Hannas<sup>2</sup>, H. Rostagno<sup>2</sup>, S. Salgueiro<sup>2</sup>, G. Viana<sup>2</sup>, and M. Almeida<sup>2</sup>, <sup>1</sup>Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Brazil, <sup>2</sup>Universidade Federal de Viçosa, Viçosa, Brazil*
- 289 S19 **Effect of feeding encapsulated butyric acid (ButiPEARL) in nursery diets containing reduced lactose levels on the growth performance of weaning pigs.**  
*B. T. Kremer<sup>1</sup>, L. Ochoa<sup>\*2</sup>, and A. L. Wagner<sup>3</sup>, <sup>1</sup>Kemin Agrifoods North America, Madison, WI, <sup>2</sup>Kemin Industries, Inc., Des Moines, IA, <sup>3</sup>Cooperative Research Farms, Richmond, VA*
- 290 S20 **Chromium yeast and ractopamine in diets for finishing pigs.**  
*D. Baffa, M. I. Hannas<sup>\*</sup>, H. Rostagno, L. Albino, G. Viana, and M. Xavier Júnior, Universidade Federal de Viçosa, Viçosa, Brazil*
- 291 S21 **A standardized protected blend of phytochemicals improves performance of lactating sows.**  
*C. Oguey<sup>\*1</sup> and C. Bruneau<sup>2</sup>, <sup>1</sup>Pancosma, Geneva, Switzerland, <sup>2</sup>Pancosma, Saint-Hyacinthe, QC, Canada*
- 292 S22 **Effect of supplying a nucleotide product (NuPro) to sow diets on growth performance and immune response of the offspring in the nursery.**  
*I. F. Hung<sup>\*1</sup>, R. S. Samuel<sup>2</sup>, K. A. Dawson<sup>2</sup>, and M. D. Lindemann<sup>1</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>Center for Animal Nutrigenomics and Applied Animal Nutrition, Alltech Inc., Nicholasville, KY*
- 293 S23 **Enzyme supplementation to improve soy hull value in finishing diets.**  
*G. A. Apgar and O. Falomo<sup>\*</sup>, Southern Illinois University, Carbondale*
- 294 S24 **Effect of dietary betaine and ractopamine on growth and carcass characteristics in finishing pigs housed under high ambient temperatures.**  
*S. M. Mendoza<sup>\*1</sup>, E. van Heugten<sup>1</sup>, C. E. Zier-Rust<sup>2</sup>, and R. D. Boyd<sup>1,2</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>The Hanor Company, Inc., Franklin, KY*

- 295 S25 **Efficacy of xylanase and  $\beta$ -glucanase in sows fed wheat-barley-based diet.**  
*H. Manu<sup>1</sup>, A. Owusu-Asiedu<sup>2</sup>, and S. K. Baidoo<sup>1</sup>, <sup>1</sup>Southern Research and Outreach Center, University of Minnesota, Waseca, <sup>2</sup>DuPont Industrial Biosciences-Danisco Animal Nutrition, Waukesha, WI*
- 296 S26 **Impact of soybean meal level and  $\beta$ -mannanase in nursery diets on two genetic populations of pigs selected for soybean meal allergenic response.**  
*J. E. Ferrel<sup>1</sup>, E. R. Otto-Tice<sup>2</sup>, M. D. Asmus<sup>2</sup>, A. M. Jones<sup>2</sup>, A. P. Schinckel<sup>2</sup>, B. T. Richert<sup>2</sup>, J. S. Radcliffe<sup>2</sup>, and T. S. Stewart<sup>2</sup>, <sup>1</sup>Elanco Animal Health, Greenfield, IN, <sup>2</sup>Purdue University, West Lafayette, IN*

## POSTER PRESENTATIONS

Wednesday, March 18, 2015

### POSTER SESSION VI

Grand Ballroom

Presentation Time: 7:30 am – 8:15 am

#### NONRUMINANT NUTRITION: GROW-FINISH NUTRITION

- | Ab # | Screen # |  |
|------|----------|--|
| 310  | S01      | <b>Effects of vitamin D<sub>3</sub> injection or drinking water administration on serum 25-hydroxycholecalciferol status of nursery pigs.</b><br><i>Y. D. Jang<sup>*1</sup>, J. Y. Ma<sup>1</sup>, N. Lu<sup>1</sup>, J. Lim<sup>1</sup>, R. L. Stuart<sup>2</sup>, and M. D. Lindemann<sup>1</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>Stuart Products Inc, Bedford, TX</i> |
| 311  | S02      | <b>Effect of dietary level of spray dried plasma on performance of weaned pigs.</b><br><i>J. D. Crenshaw<sup>*</sup>, J. M. Campbell, and J. Polo, APC, Inc., Ankeny, IA</i>   |
| 312  | S03      | <b>Comparison of spray dried bovine plasma versus spray dried porcine plasma in diets for weaned pigs.</b><br><i>J. D. Crenshaw<sup>*</sup>, J. M. Campbell, and J. Polo, APC, Inc., Ankeny, IA</i>  |

- 313 S04 **Effect of different level of fiber and protein on growth performance and fecal characteristics of weaned pigs.**  
*H. L. Li<sup>1</sup>, M. K. Jung<sup>1</sup>, M. M. Hossain<sup>1</sup>, M. C. Nyachoti<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>University of Manitoba, Winnipeg, MB, Canada*
- 314 S05 **Evaluation of different zinc sources and levels on nursery pig performance.**  
*K. E. Jordan\*, M. A. Goncalves, S. Nitikanchana, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, and J. C. Woodworth, Kansas State University, Manhattan*
- 315 S06 **Response of weaned pigs to spray-dried porcine plasma and feed-grade antibiotics compared with antibiotic free vegetarian diet supplemented with 3 different levels of a source of phytonutrients.**  
*F. Sandberg<sup>1</sup>, J. Calderon<sup>2</sup>, J. England<sup>1</sup>, and D. Hall<sup>1</sup>, <sup>1</sup>Furst McNess Company, Freeport, IL, <sup>2</sup>Iowa State University, Ames*
- 316 S07 **Response of weaned pigs to spray-dried porcine plasma and feed-grade antibiotics compared with antibiotic free diets supplemented with polyclonal IgY antibodies (Wean Right) and plant extracts (Natures Fuel).**  
*F. Sandberg<sup>1</sup>, J. Calderon<sup>2</sup>, J. England<sup>1</sup>, D. Hall<sup>1</sup>, C. Phillips<sup>3</sup>, and B. Mitteness<sup>3</sup>, <sup>1</sup>Furst McNess Company, Freeport, IL, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>Camas Inc, Le Center, MN*
- 317 S08 **Can the effects of lactose on nursery pig performance and immune parameters be attributed to glucose, galactose, a combination of both, or sucrose?**  
*Y. S. Li\*, H. Tran, T. E. Burkey, and P. S. Miller, University of Nebraska-Lincoln*
- 318 S09 **Differential expression of PEPT1 and PEPT2 mRNA in small intestine of Chinese Dongchuan pigs.**  
*Z. Liu\*, Y. Huo, W. Fang, H. Xuan, L. Yu, W. Bao, and G. Zhao, Yangzhou University, Yangzhou, China*
- 319 S10 **Effect of a precision feeding strategy applied to groups of pigs in a commercial setting.**  
*L. Cloutier\*, J. Rivest, G. Berthiaume, and M. Morin, Centre de Développement du Porc du Québec inc., Québec, QC, Canada*
- 320 S11 **Apparent digestible energy content of commercial lipid sources fed to growing pigs.**  
*P. L. Chang<sup>1</sup>, D. S. Rosero<sup>1,2</sup>, O. Medina<sup>1</sup>, A. Terpening<sup>1</sup>, and E. van Heugten<sup>1</sup>, <sup>1</sup>Department of Animal Science, North Carolina State University, Raleigh, <sup>2</sup>The Hanor Company, Inc., Franklin, KY*

- 321 S12 **Effects of algae derived  $\beta$ -glucans on nursery pig growth performance and immune response under commercial conditions.**  
*M. A. Goncalves\**, *S. S. Dritz*, *J. M. DeRouchey*, *M. D. Tokach*, *R. D. Goodband*, and *J. C. Woodworth*, *Kansas State University, Manhattan*
- 322 S13 **The effects of tri-basic copper chloride on growth performance and carcass characteristics of finishing pigs.**  
*J. Cohen*<sup>1</sup>, *J. L. Usry*<sup>\*2</sup>, *N. R. Augspurger*<sup>3</sup>, and *C. R. Little*<sup>3</sup>,  
<sup>1</sup>*Micronutrients, Indianapolis, IN*, <sup>2</sup>*Micronutrients, Social Circle, GA*, <sup>3</sup>*JBS United, Inc., Sheridan, IN*
- 323 S14 **Effect of Zn sources and inclusion rate on growth performance and carcass composition in grower-finisher pigs.**  
*T. C. Tsai*<sup>\*1</sup>, *H. J. Kim*<sup>1</sup>, *J. L. Usry*<sup>2</sup>, *J. Cohen*<sup>3</sup>, *J. J. Chewning*<sup>4</sup>,  
*J. K. Apple*<sup>1</sup>, and *C. V. Maxwell*<sup>1</sup>, <sup>1</sup>*Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR*, <sup>2</sup>*Micronutrients, Social Circle, GA*, <sup>3</sup>*Micronutrients, Indianapolis, IN*, <sup>4</sup>*Swine Research Services, Inc., Springdale, AR*
- 324 S15 **Predicting disease-challenged pig performance and energy and nutrient requirements using the NRC 2012 modelling module.**  
*S. M. Curry*<sup>\*</sup>, *W. P. Schweer*, and *N. K. Gabler*, *Iowa State University, Ames*

## RUMINANT NUTRITION II

- Ab #      Screen #**
- 349 S16 **Effects of *Saccharomyces cerevisiae* fermentation product on rumen VFA concentrations.**  
*K. L. Dorton*<sup>\*</sup>, *T. Werner*, *J. Lin*, *A. Souder*, *A. M. Brainard*,  
*V. L. Nsereko*, *J. M. Butler*, and *I. Yoon*, *Diamond V, Cedar Rapids, IA*
- 350 S17 **The effects of Cysteamine on rumen fermentation, microbial protein synthesis, and bacterial abundance in lactating dairy cows.**  
*H. Liu*<sup>\*</sup>, *H. Yang*, *M. Lin*, *H. M. Babekir*, *G. Zhao*, *T. Ma*,  
and *Z. Chen*, *College of Animal Science and Technology, Yangzhou University, Yangzhou, China*

- 351 S18 **Effects of feeding stockpiled tall fescue versus tall fescue hay to late gestation beef cows on circulating plasma amino acid concentrations in neonatal calves.**  
*K. N. Niederecker<sup>1</sup>, B. L. Vander Ley<sup>2</sup>, M. C. Heller<sup>3</sup>, and A. M. Meyer<sup>1</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>Department of Veterinary Medicine and Epidemiology, University of California, Davis*
- 352 S19 **Effects of corn processing method and particle size on feedlot performance and carcass traits of yearling steers.**  
*C. L. Engel<sup>1</sup>, V. L. Anderson<sup>2</sup>, and C. S. Schauer<sup>3</sup>, <sup>1</sup>North Dakota State University, Carrington Research Extension Center, Carrington, <sup>2</sup>North Dakota State University, Carrington, <sup>3</sup>North Dakota State University, Hettinger Research Extension Center, Hettinger*
- 353 S20 **Effects of pennycress meal on rumen fermentation using a continuous culture system.**  
*M. M. Masiero\* and M. S. Kerley, University of Missouri, Columbia*
- 354 S21 **Performance by Katahdins grazing stockpiled toxic tall fescue, non-toxic tall fescue, or “Persist” orchardgrass: 1-year summary.**  
*T. N. Drane<sup>1</sup>, J. D. Caldwell<sup>1</sup>, A. L. Bax<sup>1</sup>, B. C. Shanks<sup>1</sup>, L. S. Wilbers<sup>1</sup>, A. J. Kempker<sup>1</sup>, J. D. Walker<sup>1</sup>, C. A. Clifford-Rathert<sup>1</sup>, and A. K. Busalacki<sup>2</sup>, <sup>1</sup>Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, <sup>2</sup>Department of Life and Physical Sciences, Lincoln University, Jefferson City, MO*
- 355 S22 **Ruminal degradability and intestinal digestibility of crude protein in sorghum distillers dried grains compared to soybean meal and corn co-products.**  
*B. J. Wild\*, J. L. Anderson, and A. D. Garcia, Dairy Science Department, South Dakota State University, Brookings*
- 356 S23 **Influence of conventional vs. natural feeding approaches, adaptation length, and direct-fed microbial inclusion on growth performance and feeding behavior in finishing steers.**  
*J. J. Gaspers\*, G. L. Stokka, J. M. Young, T. C. Gilbery, S. R. Underdahl, M. L. Bauer, G. P. Lardy, and K. C. Swanson, North Dakota State University, Fargo*

- 357 S24 **Treatment of mature switchgrass and cornstalks with calcium hydroxide and comparison of untreated mature switchgrass and cornstalks as roughage in beef cattle feedlot diets.**  
*C. A. Clark<sup>\*1</sup>, G. R. Dahlke<sup>2</sup>, D. L. Maxwell<sup>1</sup>, S. K. Clark<sup>2</sup>, M. L. Van Emon<sup>2</sup>, D. D. Loy<sup>2</sup>, and S. L. Hansen<sup>2</sup>, <sup>1</sup>Armstrong Memorial Research and Demonstration Farm, Iowa State University, Lewis, IA, <sup>2</sup>Iowa State University, Ames*
- 358 S25 **Effects of increasing supplementation of rumen undegradable protein on plasma essential amino acid concentrations in beef cows consuming low quality forage.**  
*T. C. Geppert<sup>\*1</sup>, A. M. Meyer<sup>2</sup>, and P. J. Gunn<sup>1</sup>, <sup>1</sup>Department of Animal Science, Iowa State University, Ames, <sup>2</sup>Division of Animal Sciences, University of Missouri, Columbia*
- 359 S26 **Effect of crude glycerin and soybean oil on intake and digestibility of Nellore bulls.**  
*A. José Neto<sup>\*1</sup>, E. Garbin Sgobi<sup>1</sup>, G. Fiorentini<sup>1</sup>, E. A. Oliveira<sup>1</sup>, L. F. Prados<sup>2</sup>, G. E. Erickson<sup>3</sup>, and T. T. Berchielli<sup>1</sup>, <sup>1</sup>São Paulo State University - UNESP, Jaboticabal, Brazil, <sup>2</sup>Universidade Federal de Viçosa, Viçosa, Brazil, <sup>3</sup>University of Nebraska-Lincoln*

## TEACHING

- | Ab # | Screen # |  |
|------|----------|--|
| 360  | S27      | <b>University of Nebraska-Lincoln feedyard management internship interest survey.</b><br><i>M. L. Bremer<sup>*</sup>, R. A. Oglesbee, K. L. Gillespie, G. E. Erickson, J. C. MacDonald, and T. J. Klopfenstein, University of Nebraska-Lincoln</i>   |
| 361  | S28      | <b>An assessment of the reproductive physiology course at North Dakota state university reveals students are aware of the practical applications of hormones despite hormones being an unpopular topic in the classroom.</b><br><i>L. A. Lekatz<sup>*1</sup> and K. A. Vonnahme<sup>2</sup>, <sup>1</sup>Illinois State University, Normal, <sup>2</sup>North Dakota State University, Fargo</i>   |
| 362  | S29      | <b>Conservation of livestock biodiversity: Improving awareness of the contribution of local breeds to food security and local economies.</b><br><i>M. Smith<sup>1</sup>, J. R. Levey<sup>1</sup>, N. Jackosky<sup>1</sup>, B. Tenold<sup>1</sup>, S. Taylor<sup>1</sup>, J. Colletti<sup>1</sup>, S. M. Lonergan<sup>*1</sup>, and P. Boettcher<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Food and Agriculture Organization of the United Nations, Rome, Italy</i> |

# MIDWEST SECTION ADSA/ASAS

## Committee Assignment

### PROGRAM COMMITTEES

#### **Animal Behavior, Housing and Well Being**

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

#### **Breeding and Genetics**

A. Lindholm-Perry, Chair  
J. Steibel  
J. Decker

#### **Extension - Beef/Small Ruminant**

J. W. Waggoner, Chair  
A. E. Radunz  
J. Held

#### **Extension - Dairy**

J. A. Salfer, Chair  
N. B. Litherland  
J. Anderson

#### **Extension - Equine**

K. L. Martinson, Chair  
P. Miller  
T. Douthit

#### **Extension - Swine**

B. T. Richert, Chair  
G. M. Hill  
R. Goodband

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

C. Stahl, Chair  
B. Wiegand

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## **Nonruminant Nutrition**

R. N. Dilger, Chair  
J. W. Frank  
T. Burkey  
C. Levesque

## **Odor and Nutrient Management**

J. DeRouchey, Chair  
R. Thaler  
M. Brouk

## **Physiology**

R. D. Geisert, Chair  
L. H. Baumgard  
T. Wilmoth

## **Ruminant Nutrition**

J. P. Schoonmaker, Chair  
S. L. Hansen  
P. Cardoso  
K. Hales

## **Teaching and Undergraduate Education**

J. M. Siegford, Chair

## **SPECIAL COMMITTEES**

### **ADSA Nominations**

M. J. Brouk  
D. B. Carlson

### **ASAS Nominations**

A. G. Matthew  
B. R. Wiegand



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## **Academic Quadrathlon**

P. M. Walker  
C. T. Jobsis  
T. E. Burkey  
M. E. Wilson  
S. I. Kehoe  
B. D. Banks  
A. Cobb  
A. J. Seykora  
K. E. Fike  
G. W. Onan  
S. L. Hansen  
K. Carlin  
M. E. Persia  
J. N. Tembei  
B. D. Whitaker  
A. Woodward  
T. J. Safranski  
P. S. Kuber  
J. S. Radcliffe  
J. S. Oftobre

## **AWARD COMMITTEES**

### **Outstanding Early Career Agribusiness**

C. R. Schwab  
D. H. Kleinschmit  
A. T. Brackenridge  
T. W. Loy  
A. M. Gaines

### **Innovation in Dairy Research Award**

M. J. Brouk  
D. B. Carlson  
T. D. Nennich  
D. M. Spurlock  
D. J. Illg

### **Outstanding Young Extension Specialist**

G. K. Rentfrow  
R. L. Weaber  
W. J. Sexten

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J. W. Waggoner  
W. J. Powers

**National Pork Board Award Swine Innovation**

C. Hostetler  
A. G. Mathew  
J. K. Apple  
P. S. Miller  
B. R. Wiegand

**Outstanding Young Researcher**

L. A. Kuehn  
J. P. Steibel  
J. DeRouchey  
G. A. Perry  
K. A. Vonnahme

**Tim. S. Stahly Award**

N. L. Horn  
J. S. Monegue  
C. A. Jones  
J. R. Bergstrom  
R. B. Hinson

**Outstanding Young Teacher**

T. Douthit  
J. M. Bormann  
T. A. Strauch  
S. A. Wagner  
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          |

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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   |

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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             |

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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                         |

## 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                                    |

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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**               |

\*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<br>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<br>B. O. Fleming, Mississippi State University |

### UNDERGRADUATE STUDENTS - POSTER

|      |  |
|------|--|
| 2009 | E. I. Ince, University of Wisconsin          |
| 2010 | D. P. Strassburg, University of Wisconsin    |
| 2011 | S. J. Morine, Iowa State University          |
| 2012 | E. J. Cretney, University of Wisconsin       |
| 2013 | Z. E. Carlson, North Dakota State University |
| 2014 | E. G. Goose, Lincoln University              |



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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**               |

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- 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\*\*

### 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\*\*

\*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

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## 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

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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

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## 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               |

## ASAS MIDWESTERN SECTION PRESIDENTS

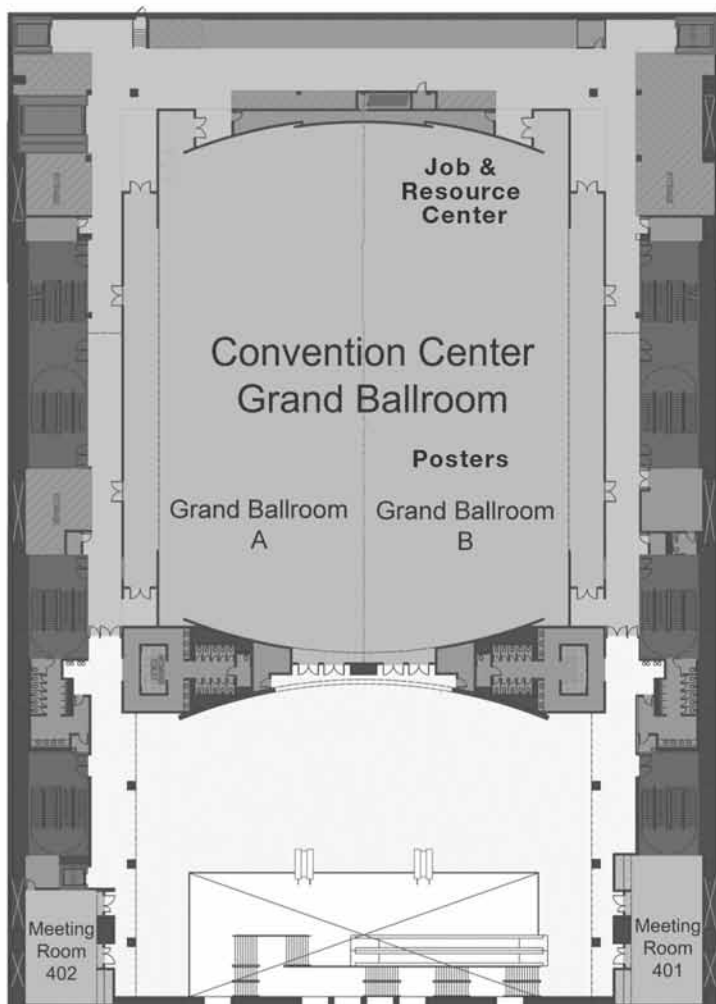
|         |   |
|---------|---|
| 1963    | O. G. Bentley, University of Illinois             |
| 1964-65 | R. H. Grummer, University of Wisconsin            |
| 1966-67 | G. R. Johnson, The Ohio State University          |
| 1968    | R. J. Meade, University of Minnesota              |
| 1969    | J. 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                 |

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|      |   |
|------|---|
| 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 | J. S. Radcliffe, Purdue University      |
| 2012 | J. F. Patience, Iowa State University   |
| 2013 | B. R. Wiegand, University of Missouri   |
| 2014 | A. G. Mathew, Purdue University         |

## ADSA MIDWEST BRANCH PRESIDENTS

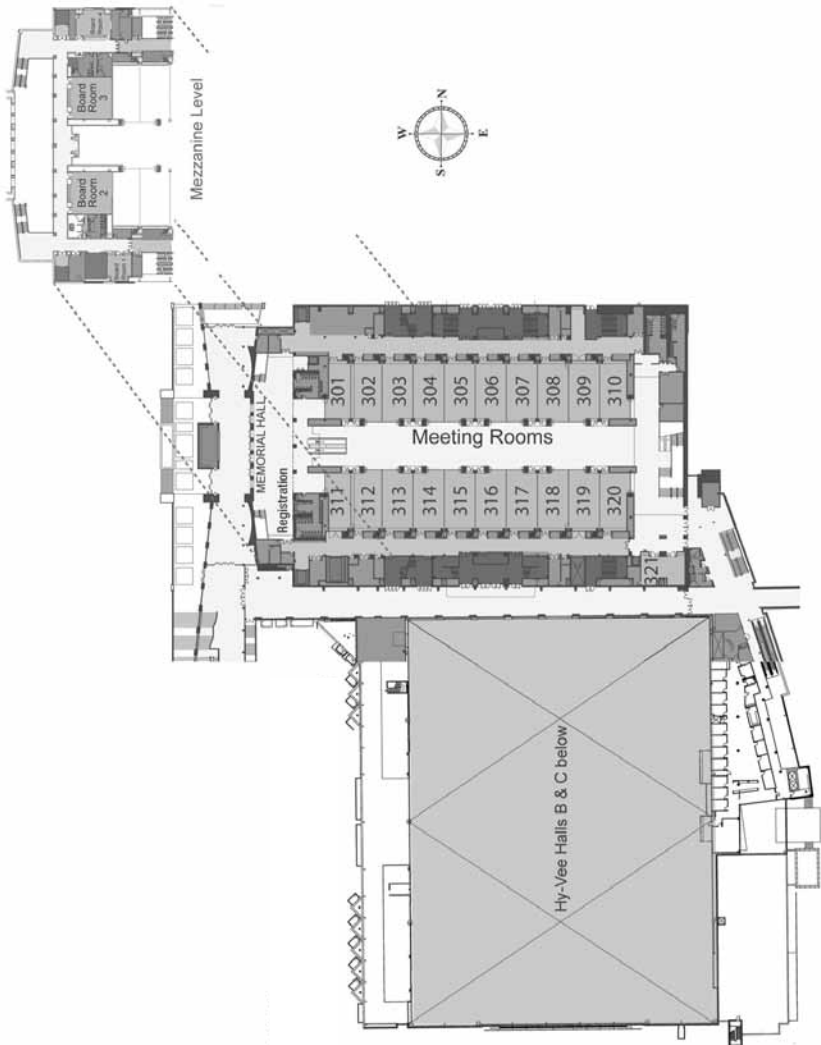
|      |  |
|------|--|
| 1992 | J. F. Keown, University of Nebraska              |
| 1993 | J. G. Linn, University of Minnesota              |
| 1994 | D. J. Schingoethe, South Dakota State University |
| 1995 | J. L. Morrill, Kansas State University           |
| 1996 | M. F. Hutjens, University of 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 | K. F. Kalscheur, South Dakota State University   |
| 2012 | L. H. Baumgard, Iowa State University            |
| 2013 | M. J. Brouk, Kansas State University             |
| 2014 | D. B. Carlson, Milk Products LLC                 |



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## LEVEL 3

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

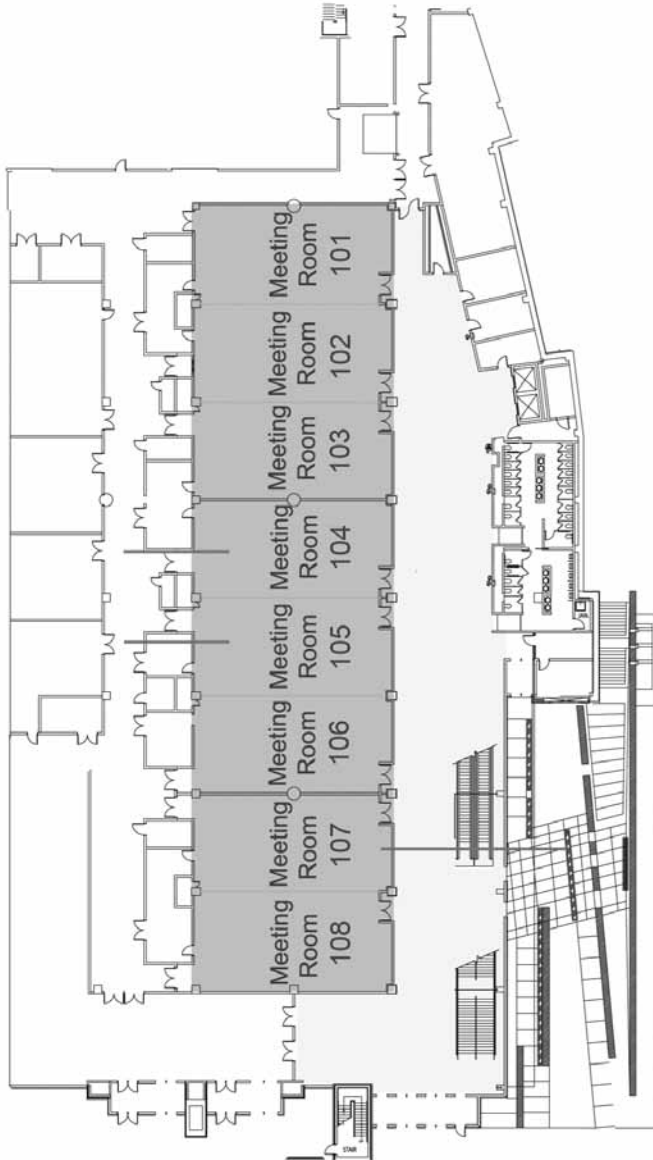




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## LEVEL 1

### Meeting Room Level Hy-Vee Hall



## NOTES

## NOTES

## NOTES



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