

# Forty-third MEETING

Midwestern Sectional  
Scientific Sessions  
and  
Business Meeting

March 15–17, 2010



Polk County Convention Complex  
501 Grand Avenue  
Des Moines, IA 50309

PLEASE BRING THIS PROGRAM WITH YOU

### **NOTICE:**

Registration and housing forms can be found on the Midwest Meeting Website. You can register on line at: <http://adsa.asas.org/midwest/2010.asp> You can print forms off the web site listed above. Information for faxing or mailing can be found on the appropriate form or you can call 217-356-9050 for a printed copy.

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## TABLE OF CONTENTS

2009–2010 Officers of ASAS and	
ASAS Midwestern Section .....	Page 1
2009–2010 Officers of ADSA and	
ADSA Midwest Branch .....	Page 2
Job Resource Center .....	Page 5
Schedule of Events.....	Page 6
Poster Schedule.....	Page 8
2010 Sponsors.....	Page 9
Oral Presentation Guidelines .....	Page 12
Scientific Session Program .....	Page 13
2009–2010 Committees .....	Page 65
Past Recipients of Awards for	
Young Animal Science Leaders.....	Page 69
Past Winners of Invitational	
Competitive Research Paper Awards .....	Page 71
Past Midwestern Section Presidents .....	Page 74
Floor Plans .....	Page 76

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Somehow, the ADSA-ASAS Midwest Section allowed the 30th anniversary of the Academic Quadrathlon to slip by without our taking the time to celebrate! Therefore, in 2010, the 32nd anniversary of the Quadrathlon will be celebrated at the 43rd ADSA-ASAS Midwest Section Meeting. To truly highlight the Academic Quadrathlon we are moving it from the Hotel Fort Des Moines to the Convention Center and we have asked Dr. Robert “Bob” Kauffman, Professor Emeritus from the University of Wisconsin–Madison to deliver a keynote address at the ADSA-ASAS Midwest Section meeting outlining the history and the milestones of the Academic Quadrathlon. Come listen to Dr. Kauffman’s address following the Opening Reception and stay to watch the final Quiz Bowl Round of the 2010 Academic Quadrathlon.

# REGISTRATION

Convention Center, Lobby

Monday, March 15, 8:30 am – 7:30 pm

Tuesday, March 16, 7:00 am – 4:00 pm

Wednesday, March 17, 9:00 am – 11:00 am

	<b>Before February 25</b>	<b>After February 25</b>
ASAS/ADSA Member	\$110	\$160
Undergraduate Student	\$10	\$10
Graduate Student Member	\$20	\$30
Postdoctoral Fellow Member	\$20	\$30
ASAS/ADSA Fellow	Free	Free
*Nonmember (ASAS Membership)	\$245	\$295
**Nonmember (ADSA Membership)	\$220	\$270
*Undergraduate Student Nonmember (ASAS)	\$10	\$10
**Undergraduate Student Nonmember (ADSA)	\$15	\$15
*Graduate Student Nonmember (ASAS)	\$40	\$50
**Graduate Student Nonmember (ADSA)	\$30	\$50
*Postdoctoral Fellow Nonmember (ASAS)	\$85	\$95
**Postdoctoral Fellow Nonmember (ADSA)	\$75	\$85

\*Includes membership into ASAS

\*\*Includes membership into ADSA®

**Cancellation Policy:** To be eligible for a 90% refund of meeting registration fees, requests must be received in writing before **February 25, 2010**. No refunds will be issued on ticketed events.

## IMPORTANT PHONE NUMBERS

Meeting Registration Desk: .....	515/242-2570
Renaissance Savery: .....	515/244-2151
Holiday Inn Downtown: .....	515/283-0151
Embassy Suites: .....	515/244-1700
Des Moines Marriott (Downtown): .....	515/245-5500

Registration and housing forms can be  
found on the web.

<http://adsa.asas.org/midwest/2010.asp>

## e-Career Tool and the Job Resource Center



The ASAS Midwestern Section and ADSA Midwest Branch are pleased to use the “E-Career Tool”. This tool facilitates communication between employers and potential employees prior to the 2010 ASAS/ADSA Midwest Meeting by making it easier to arrange contact in Des Moines. The tool will be available February 1 to April 15 and will be located at the following address: [http://www.asas.org/ecareer/index.asp?id\\_meeting=8](http://www.asas.org/ecareer/index.asp?id_meeting=8).

**If you are an employer** that needs to fill a graduate student position, or a position, in academics, research, industry, etc., simply use the “Employer Entrance” tab and enter all relevant information. The tool is free to use and very user friendly. Also, take advantage of the “search employee” function to identify potential candidates and see where/when they will be presenting their work.

**If you are a potential employee** looking for a position in the aforementioned fields, simply use the “Employee Entrance” tab and enter relevant information, upload your CV, cover letter, or anything else you feel will help you get the position you are seeking. Again, this tool is very user friendly and free to use. You can also browse and search positions that have been posted by employers. Be sure to enter the time(s) of your platform or poster presentation(s) so potential employers can see your work.

**Continuing in 2010:** The traditional Job Resource Center will be located in the Exhibit Hall, Room 206, at the Polk County Convention Complex. 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 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 in Des Moines beginning at noon on Monday, March 15, 2010.

# SCHEDULE OF EVENTS

## Monday, March 15

- 7:30 am 2010 Breakfast to kick off AQ Activities, Polk County Convention Complex, 205 D
- 8:00 am AQ Written Exams, Polk County Convention Complex
- 8:30 am ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
- 9:00 am AQ Quiz Bowl Preliminary Rounds, Polk County Convention Complex
- 1:00 pm David H. Baker Amino Acid Symposium, 204 FG
- 1:00 pm Graduate Student Competitive Research Papers, M.S. Oral Division, 142-144
- 1:00 pm Graduate Student Competitive Research Papers, Ph.D. Oral Division, 136-138
- 1:00 pm Nonruminant Nutrition I: Minerals, 204 AB
- 1:00 pm Undergraduate Student Competitive Research Papers, Oral Division, 146-148
- 2:30 pm Breeding and Genetics, 140
- 2:45 pm Nonruminant Nutrition II: Feed Ingredients and Additives, 204 AB
- 3:00 pm Odor and Nutrient Management, 134
- 4:30 pm Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
- 5:30 pm Reception, Convention Center Complex, Exhibit Hall, Room 206
- 7:00 pm Keynote Speaker: Dr. Robert Kauffman. "History and the Milestones of the Academic Quadrathlon", 204 FG
- 7:30 pm Final AQ Quiz Bowl Competition and Awards Presentation, Polk County Convention Complex, 204 FG

## Tuesday, March 16, morning

- 6:30 am Program Committee Meeting, Renaissance Savery Hotel
- 8:00 am Animal Behavior, Housing, & Well-Being, 136-138
- 8:00 am Billy N. Day Symposium: A Climate of Change in Swine Reproduction Performance, 204 FG
- 8:00 am Growth, Development, Muscle Biology, and Meat Science Symposium: The Use of Beta-Agonists in Livestock Production, 140
- 8:00 am Nonruminant Nutrition III: Amino Acids, 142-144
- 8:00 am Ruminant Nutrition I: Byproduct Utilization (Distiller's Grains), 204 AB
- 8:30 am Extension – Beef/Small Ruminant: Economic and Environmental Sustainability of Cow-Calf Operations NCERA-087: Beef Cow-Calf Nutrition and Management Committee, 134
- 8:30 am Ruminant Nutrition Symposium: Direct-Fed Microbials in Ruminants: Effects on Productivity, Health, and Food Safety, 146-148
- 8:30 am Teaching, 205 IJ
- 9:45 am Nonruminant Nutrition IV: Energy, 142-144
- 11:30 am Box Lunch, Convention Center Complex, Exhibit Hall
- A box lunch will be served in the Exhibit Hall for those individuals who ordered and paid for it on the registration form. (Ticket will be with badge.)



## **Tuesday, March 16, afternoon**

- 12:00 pm New Event: Lunch and Learn: This event is open to all undergraduate and graduate students. Bring lunch and enjoy an informal discussion with a diverse panel of industry and academic professionals about finding and attaining a career that fits you, your interests, and your skills. This will include deciding whether to continue your education, navigating the job search and application process, and successfully marketing yourself. Polk County Convention Center Complex, 205 D.
- 1:00 pm Equine – Management, Extension and Teaching, 146-148
- 1:00 pm Extension – Dairy Symposium: Feeding the Transition Cow – The Debate Continues, 134
- 1:00 pm Growth, Development, Muscle Biology, and Meat Science, 140
- 1:00 pm Nonruminant Nutrition V: Corn Co-Products, 136-138
- 1:00 pm Nonruminant Nutrition VI: Symposium: Current Understanding of Fiber Nutrition for Swine, 142-144
- 1:00 pm Ruminant Nutrition II, 204 FG
- 1:00 pm Ruminant Nutrition III, 204 AB
- 1:30 pm Physiology Symposium: Factors Influencing Placental Function, 205 IJ
- 4:30 pm Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
- 5:30 pm Reception, Convention Center Complex, Exhibit Hall, Room 206

## **Wednesday, March 17, morning**

- 6:45 am Breakfast, Business Meeting, Awards Program, Convention Center Complex, Exhibit Hall, Room 206
- 9:00 am Extension – Swine, 140
- 9:00 am Nonruminant Nutrition VII: Grow-Finish Nutrition and Management, 204 AB
- 9:00 am Nonruminant Nutrition VIII: Nursery Pig Nutrition, 205 IJ
- 9:00 am Nonruminant Nutrition IX: Enzymes and Feed Processing, 204 FG
- 9:00 am Physiology, 142-144
- 9:00 am Ruminant Nutrition IV: By-Product Utilization (Glycerin), 146-148
- 9:30 am Extension – Dairy, 134
- 10:45 am Nonruminant Nutrition X, 204 FG
- 12:00 pm ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel

### **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 Secretary.

## Poster Schedule

*All posters will be in the Exhibit Hall (Room 206) and will be in place from **Monday at 1:00 pm until Wednesday at noon**. Authors are to be present on their assigned day from 4:30 pm to 6:00 pm. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections. Judging of competition posters will take place on Monday afternoon.*

### **Monday, March 15**

All authors present from 4:30 pm – 6:00 pm

**Graduate Student Competitive Research Papers, M.S.**

**Graduate Student Competitive Research Papers, Ph.D.**

**Undergraduate Student Competitive Research Papers**

**Equine**

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

**Nonruminant Nutrition – Session I**

**Physiology**

**Ruminant Nutrition – Session I**

### **Tuesday, March 16**

All authors present from 4:30 pm – 6:00 pm

**Animal Behavior, Housing and Well Being**

**Breeding and Genetics**

**Extension – Dairy**

**Extension – Swine**

**Nonruminant Nutrition – Session II**

**Odor and Nutrient Management**

**Ruminant Nutrition – Session II**

**Teaching**

# **A SPECIAL THANK YOU**

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2010 meeting to the following companies:

## **Outstanding Young Scientist Awards**

Extension Award – Land O’Lakes Purina Feed LLC  
Research Award – DSM Nutritional Products Inc.  
Teaching Award – Archer Daniels Midland Company

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

Research – National Pork Board  
Research – National Pork Board  
Education – National Pork Board

## **Innovation in Dairy Research Award**

Land O’Lakes Purina Feed LLC

## **Agribusiness Award**

BASF Plant Science

## **Student Competition Paper Awards**

Graduate Oral, M.S. – DeKalb Feeds Inc.  
Graduate Oral, Ph.D. – Akey  
Graduate Poster, M.S. – Cargill Animal Nutrition  
Graduate Poster, Ph.D. – Cargill Animal Nutrition  
Undergraduate Oral – Ralco Nutrition Inc.  
Undergraduate Poster – ADSA ASAS MW Board

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

The Tim S. Stahly Memorial and Tribute Fund

## **Academic Quadrathlon**

ASAS Foundation  
Intervet Schering Plough Animal Health  
Iowa State University  
Pearson Prentice Hall  
John Wiley & Sons Inc.

## **Receptions (Monday and Tuesday)**

Alltech Inc.

## **Breakfast (Wednesday)**

Land O’Lakes Purina Feed LLC

## **Cyber Café & Job Resource Center**

Feedstuffs Newspaper

## **Abstract Book**

Danisco Animal Nutrition

**Program Book**  
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**Posters**

Zinpro Performance Minerals

**David H. Baker Amino Acid Symposium**

David H. Baker Appreciation Club

**Billy N. Day Symposium**

Billy N. Day Appreciation Club

**Extension – Dairy Symposium**

Agri-King Inc.

**Nonruminant Nutrition Symposium**

Archer Daniels Midland Company

Novus International

**Program Sponsors**

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**Nonruminant Nutrition VII**

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**Nonruminant Nutrition VIII**

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**General Meeting**

AB Vista

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## 2010 Midwest Meeting Sponsors

### Gold Level

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Ralco Nutrition Inc.  
Zinpro Performance Minerals

### Bronze Level

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John Wiley & Sons Inc.  
Lesaffre Feed Additives/Saf Agri  
Lucta USA Inc.  
Prince Agri Products Inc.

# PREPARATION GUIDELINES FOR ORAL PRESENTATIONS

Again this year each session room will be equipped with a laptop computer configured with Microsoft PowerPoint 2007; an LCD projector; a podium microphone; and a lavalier microphone. The use of personal laptop computers for presentations in the session rooms is not permitted.

Presenters can use one of two methods to submit presentation files:

## 1. PRE-MEETING UPLOAD

We will once again be offering presenters the ability to upload presentation files in advance of the meeting. Avoid the on-site rush and upload your presentation on your own schedule. The Web site is available 24 hours a day from now until **11:59 pm CDT on March 8, 2010** at:

<http://www.fass-abstracts.org/meetinginfo.asp?meetingcode=163>

If you are an invited speaker **AND** you did not upload an abstract, please upload your presentation here:

[http://www.fass-abstracts.org/invited\\_papers/?meetingcode=163](http://www.fass-abstracts.org/invited_papers/?meetingcode=163)

## 2. ON-SITE UPLOAD

Need more time to work on your presentation? To accommodate your needs, we have moved to on-site presentation upload! Files can be delivered to the Pre-load Room located in Office B Polk County Convention Complex the day prior to the scheduled presentation time. Deadlines for **on-site** uploads are:

All **Monday** presentations will need to be submitted by Monday at 10:00 am

All **Tuesday** presentations will need to be submitted by Monday at 5:00 pm

All **Wednesday** presentations will need to be submitted by Tuesday at 4:00 pm

Once all presentations have been collected, they will be electronically sent to the session room 30 minutes prior to the start of the session. Please note:

**All PowerPoint presentations must be loaded in advance of each session.**

**No presentations will be accepted or modified in the session rooms.**

**No presentations will be loaded while the session is in progress, between presentations, or during breaks.**

# Monday, March 15

## SYMPOSIA AND ORAL SESSIONS

### David H. Baker Amino Acid Symposium

Chair: Terri Parr, Prince Agri Products, Quincy, IL  
204 FG

Sponsored by: David H. Baker Appreciation Club

- 1:00 PM                    **Introduction.** Terri Parr.
- 1:05 PM                    **Impacting an Industry—A Tribute to David H. Baker.** Gary L. Allee, *University of Missouri, Columbia.*
- 1:20 PM                    38                    **(Invited) Do the gastrointestinal microflora of non-ruminants contribute to the amino acid needs of their host?** M. Fuller\*, *Stony Brook University, Stony Brook, NY.*
- 1:50 PM                    39                    **Does lysine level fed in one phase influence performance during another phase in nursery pigs?** J. E. Nemecek\*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, and J. L. Nelson, *Kansas State University, Manhattan.*
- 2:05 PM                    40                    **(Invited) Amino acid nutrition for efficient immune responses.** B.D. Humphrey\*, *California Polytechnic State University, San Luis Obispo.*
- 2:35 PM                    **Break**
- 2:50 PM                    41                    **(Invited ASAS Animal Science Young Scholar) Methionine sources in swine nutrition: Current knowledge and future directions.** J. A. Jendza\* and O. Adeola, *Purdue University, Department of Animal Sciences, West Lafayette, IN.*
- 3:20 PM                    42                    **(Invited) Developing low protein, amino acid supplemented diets for swine.** L. L. Southern\*<sup>1</sup>, M. L. Roux<sup>1</sup>, A. M. Waguespack<sup>1</sup>, S. Powell<sup>1</sup>, T. D. Bidner<sup>1</sup>, and R. L. Payne<sup>1</sup>, <sup>1</sup>*Louisiana State University Agricultural Center, Baton Rouge*, <sup>2</sup>*Evonik-Degussa Corp., Kennesaw, GA.*
- 3:50 PM                    43                    **Determining the optimum ratio of standardized ileal digestible (SID) isoleucine to lysine for growing pigs fed wheat-barley based diets.** M. D. Lindemann\*<sup>1</sup>, A. D. Quant<sup>1</sup>, J. H. Cho<sup>1</sup>, B. J. Kerr<sup>2</sup>, G. L. Cromwell<sup>1</sup>, and J. K. Htoo<sup>3</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*United States Department of Agriculture, Ames, IA*, <sup>3</sup>*Evonik Degussa GmbH, Hanau, Germany.*
- 4:05 PM                    44                    **(Invited) Practical amino acid formulation for sows and pigs.** J. Hedges\*, *Ralco Nutrition, Inc., Marshall, MN.*
- 4:35 PM                    **Concluding Remarks**

**Graduate Student Oral Competition-M.S.**  
**Chair: Alfredo DiCostanzo, University of Minnesota**  
**142-144**

**Sponsored by: DeKalb Feeds Inc.**

- 1:00 PM 75 **Relative efficiency of completely randomized and randomized complete block designs in swine growth trials.** N. W. Shelton\*, S. S. Dritz, M. D. Tokach, R. D. Goodband, J. L. Nelssen, J. M. DeRouchey, and L. W. Murray, *Kansas State University, Manhattan.*
- 1:15 PM 76 **Effects of feeding diets containing bacitracin methylene disalicylate (BMD) to heat stressed finishing pigs.** R. Song\*, D. N. Foster, and G. C. Shurson, *University of Minnesota, St. Paul.*
- 1:30 PM 77 **Effect of chronic exposure of low levels of aflatoxin and deoxynivalenol on growth and immune status of pigs.** A. C. Chaytor\*<sup>1</sup>, M. T. See<sup>1</sup>, J. A. Hansen<sup>2</sup>, A. L. De Souza<sup>2</sup>, T. Middleton<sup>3</sup>, and S. W. Kim<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Murphy-Brown LLC, Rose Hill, NC*, <sup>3</sup>*Ag ProVision LLC, Kenansville, NC.*
- 1:45 PM 78 **Estimates of energy utilization and maintenance requirements of pigs selected for residual feed intake.** N. Boddicker\*, N. Gabler, M. Spurlock, D. Nettleton, and J. C. M. Dekkers, *Iowa State University, Ames.*
- 2:00 PM 79 **Seasonal response to dried distillers grains on smooth bromegrass pastures.** A. K. Watson\*, W. A. Griffin, T. J. Klopfenstein, G. E. Erickson, V. R. Bremer, K. R. Brink, and W. H. Schacht, *University of Nebraska, Lincoln.*
- 2:15 PM 80 **Effect of cross-fostering on pre-weaning survival and weaning weight in swine.** J. A. Bishop\*<sup>1</sup>, J. P. Cassady<sup>1</sup>, J. W. Hol<sup>2</sup>, W. O. Herring<sup>2</sup>, M. S. Culbertson<sup>2</sup>, J. S. Fix<sup>1</sup>, and M. T. See<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Smithfield Premium Genetics Group, Rose Hill, NC.*
- 2:30 PM **Break**
- 2:45 PM 81 **Effects of glycerol and sire breed on growth and carcass traits of finishing wether lambs.** R. Beck\*, A. Wertz-Lutz, C. Wright, J. Held, R. Zelinsky, and C. Delvaux, *South Dakota State University, Brookings.*
- 3:00 PM 82 **Impact of maternal exercise on maternal body composition, fetal growth, and umbilical blood flow in the pig.** E. K. Harris\*, B. J. Bartling, T. L. Neville, J. D. Kirsch, J. D. Magolski, E. P. Berg, and K. A. Vonnahme, *North Dakota State University, Fargo.*
- 3:15 PM 83 **Fatty acid profiles of pork fat are altered when ractopamine (Paylean), CLA and DDGS are fed.** H. L. Evans\*<sup>1</sup>, R. B. Hinson<sup>1</sup>, G. D. Gerlemann<sup>1</sup>, D. Pompeu<sup>1</sup>, S. N. Carr<sup>2</sup>, M. J. Ritter<sup>2</sup>, B. R. Wiegand<sup>1</sup>, G. L. Allee<sup>1</sup>, and R. D. Boyd<sup>3</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*, <sup>3</sup>*The Hanor Company, Franklin, KY.*



- 3:30 PM 84 **Effects of dietary aflatoxin on performance and hepatic gene expression in swine.** S. M. Rustemeyer\*<sup>1</sup>, W. R. Lamberson<sup>2</sup>, D. R. Ledoux<sup>2</sup>, K. Wells<sup>2</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>*University of Wyoming, Laramie*, <sup>2</sup>*University of Missouri, Columbia*.
- 3:45 PM 85 **Supplement moisture and feeding site affect feed intake and waste by wintering beef cows.** J. P. Jaderborg\*<sup>1</sup>, S. L. Bird<sup>2</sup>, G. I. Crawford<sup>3</sup>, R. Walker<sup>4</sup>, B. J. Funnell<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*North Central Research and Outreach Center, Grand Rapids, MN*, <sup>3</sup>*Regional Extension Office, Hutchinson, MN*, <sup>4</sup>*Regional Extension Office, Andover, MN*.
- 4:00 PM 86 **Prediction of carcass traits and fat-free lean using ultrasound measures at the last rib and tenth rib in swine.** R. O. McKeith\*, B. K. Lowe, J. A. Safko, R. M. Pitzer, J. R. Segers, A. M. Stelzleni, M. J. Azain, and T. D. Pringle, *University of Georgia, Athens*.
- 4:10 PM 87 **Effects of formulating diets for weanling pigs on a standardized total tract digestibility (STTD) of P basis.** F. N. Almeida\* and H. H. Stein, *University of Illinois, Urbana*.

**Graduate Student Oral Competition-Ph.D.  
Chair: Matt Wilson, West Virginia University**

**136-138**

**Sponsored by: Akey**

- 1:00 PM 88 **Insoluble dietary fiber expedites recovery from colibacillosis diarrhea in pigs after weaning.** V. Perez\*<sup>1</sup>, C. Maddox<sup>1</sup>, G. Fahey, Jr.<sup>1</sup>, J. Pluske<sup>2</sup>, and J. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Murdoch University, Murdoch, Australia*.
- 1:15 PM 89 **Effect of selection for residual feed intake on sow reproductive performance and efficiency.** J. M. Young\*<sup>1</sup>, R. Bergsma<sup>2</sup>, E. Knol<sup>2</sup>, J. F. Patience<sup>1</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Institute for Pig Genetics, Beuningen, the Netherlands*.
- 1:30 PM 90 **Comparison of choice white grease and soybean oil for finishing pigs.** Y. Liu\*, D. Y. Kil, V. G. Perez-Mendoza, and J. E. Pettigrew, *University of Illinois, Urbana*.
- 1:45 PM 91 **Innate immune responses of bovine mammary epithelial cells triggered by toll-like receptor signaling are enhanced by 1,25-dihydroxyvitamin D3.** C. D. Nelson\*<sup>1,2</sup>, T. A. Reinhardt<sup>2</sup>, D. C. Beitz<sup>1</sup>, and J. D. Lippolis<sup>2</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*National Animal Disease Center, USDA, Ames, IA*.

- 2:00 PM 92 **Effects of creep diet complexity on individual consumption characteristics and growth performance of neonatal and weanling pigs.** R. C. Sulabo\*, M. D. Tokach, J. R. Bergstrom, J. M. DeRouchey, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 2:15 PM 93 **Effects of wet corn gluten feed and wet distillers grains plus solubles on ruminal pH, feed intake and ruminal hydrogen sulfide during grain adaptation.** J. O. Sarturi\*, J. T. Vasconcelos, G. E. Erickson, T. J. Kloppenstein, K. M. Rolfé, V. R. Bremer, M. G. Dib, and C. D. Buckner, *University of Nebraska, Lincoln.*
- 2:30 PM 94 **Metabolism characteristics of feedlot diets containing different by-product lipid sources.** V. R. Bremer\*, K. M. Rolfé, C. D. Buckner, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 2:45 PM 95 **Nutrient restriction from early to late pregnancy decreases circulating insulin like growth factor-1 concentrations in pregnant ewe lambs receiving maintenance or undernourishment.** T. A. Wilmoth\*<sup>1</sup>, A. M. Meyer<sup>2</sup>, M. E. Wilson<sup>1</sup>, J. S. Caton<sup>2</sup>, and K. A. Vonnahme<sup>2</sup>, <sup>1</sup>*West Virginia University, Morgantown,* <sup>2</sup>*North Dakota State University, Fargo.*
- 3:00 PM 96 **Effects of crude glycerin on ruminal metabolism and diet digestibility in flaked corn finishing diets.** G. L. Parsons\* and J. S. Drouillard, *Kansas State University, Manhattan.*
- 3:15 PM 97 **Effects of spaying and terminal implant strategy on performance and carcass characteristics of beef feedlot heifers.** J. M. Kelzer\*<sup>1</sup>, C. R. Dahlen<sup>2</sup>, G. I. Crawford<sup>3</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*University of Minnesota Northwest Research and Outreach Center, Crookston,* <sup>3</sup>*University of Minnesota Extension Regional Office, Hutchinson.*

**Nonruminant Nutrition**  
**Nonruminant I: Minerals**  
**Chair: Daniel Nelson, Alpharma**  
**204 AB**

- 1:00 PM 138 **Effect of chromium propionate supplementation on growth performance and carcass traits from wean to finish pigs.** L. Greiner\*<sup>1</sup>, R. Hinson<sup>2</sup>, G. Allee<sup>2</sup>, J. Connor<sup>1</sup>, A. Yersin<sup>3</sup>, A. Lamptey<sup>3</sup>, and B. Kremer<sup>3</sup>, <sup>1</sup>*Innovative Swine Solutions, LLC, Carthage, IL,* <sup>2</sup>*University of Missouri, Columbia,* <sup>3</sup>*Kemin Industries, Des Moines, IA.*
- 1:15 PM 340 **Effect of organic and inorganic zinc supplementation on expression of key antioxidant genes in weanling pigs.** R. L. Wangler\*<sup>1</sup>, P. S. D. Weber<sup>1</sup>, J. E. Link<sup>1</sup>, D. C. Mahan<sup>2</sup>, and G. M. Hill<sup>1</sup>, <sup>1</sup>*Michigan State University, East Lansing,* <sup>2</sup>*The Ohio State University, Columbus.*

- 1:30 PM 139 **Replacing inorganic minerals with organic forms at reduced levels in growing pigs.** J. Taylor-Pickard\*<sup>1</sup>, L. Nollet<sup>1</sup>, and R. Geers<sup>2</sup>, <sup>1</sup>*Alltech Biotechnology Centre, Dunboyne, Co. Meath, Ireland*, <sup>2</sup>*Katholieke Universiteit Leuven, Leuven, Belgium*.
- 1:45 PM 140 **Performance and carcass characteristic improvements of replacement of inorganic minerals by organic forms in growing pig diets.** J. Taylor-Pickard\*<sup>1</sup>, L. Nollet<sup>1</sup>, and R. Geers<sup>2</sup>, <sup>1</sup>*Alltech Biotechnology Centre, Dunboyne, Co. Meath, Ireland*, <sup>2</sup>*Katholieke Universiteit Leuven, Leuven, Belgium*.
- 2:00 PM 87 **Effects of formulating diets for weanling pigs on a standardized total tract digestibility (STTD) of P basis.** F. N. Almeida\* and H. H. Stein, *University of Illinois, Urbana*.
- 2:15 PM 141 **Dietary anionic mineral (CAD-MATE) additions affect apparent calcium retention in prepartum sows.** C. Darriet<sup>1</sup>, D. E. Axe<sup>2</sup>, and T. D. Crenshaw\*<sup>1</sup>, <sup>1</sup>*University of Wisconsin, Madison*, <sup>2</sup>*Granco Minerals, Petersburg, VA*.
- 2:30 PM 142 **Benefits of an organic copper source [Cu-(HMTBA)<sub>2</sub>] on growth performance and carcass traits in finisher pigs.** J. Zhao\*, R. Harrell, P. Fisher, C. Atwell, J. Richards, and M. Vazquez-Anon, *Novus International Inc., St. Charles, MO*.

**Undergraduate Student Oral Competition**  
**Chair: J. Ernest Minton, Kansas State University**  
**146-148**

**Sponsored by: Ralco Nutrition Inc.**

- 1:00 PM 334 **Late castration increases observed scrotal hernias and reduces the number of irreparable scrotal hernias.** K. L. Marcath\*<sup>1,2</sup>, E. J. Ehinger<sup>1</sup>, D. J. Mulder<sup>1</sup>, and T. M. Seals<sup>1</sup>, <sup>1</sup>*Sandy Ridge, Dykhuis Farms Inc., Holland, MI*, <sup>2</sup>*Michigan State University, Department of Animal Science, East Lansing*.
- 1:15 PM 335 **Postpartum feeding behavior of dairy cows fed ad libitum or restricted prepartum diets containing wheat straw or orchardgrass.** B. Weich\*, A. D. Kimcikewycz, M. I. Endres, and N. B. Litherland, *University of Minnesota, St Paul*.
- 1:30 PM 337 **Effects of maternal nutritional plane and selenium supply on jejunal crypt cell proliferation and villous morphology in offspring at 20 days of age.** S. I. Fry\*<sup>1</sup>, A. M. Meyer<sup>1</sup>, J. J. Reed<sup>1</sup>, T. L. Neville<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>*Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo*, <sup>2</sup>*USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID*.

- 1:45 PM 338 **Evaluation of single nucleotide polymorphism markers on pig chromosomes 3 and 6 for potential associations with meat quality traits.** M. J. Dawes\*, R. O. Bates, N. E. Raney, J. P. Steibel, and C. W. Ernst, *Michigan State University, East Lansing.*
- 2:00 PM 339 **Supranutritional selenium during pregnancy increases ovine mammary gland vascularity.** C. M. Jorgenson\*, P. P. Borowicz, J. S. Caton, D. A. Redmer, L. P. Reynolds, and K. A. Vonnahme, *Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo.*
- 2:15 PM 340 **Effect of organic and inorganic zinc supplementation on expression of key antioxidant genes in weaning pigs.** R. L. Wangler\*<sup>1</sup>, P. S. D. Weber<sup>1</sup>, J. E. Link<sup>1</sup>, D. C. Mahan<sup>2</sup>, and G. M. Hill<sup>1</sup>, <sup>1</sup>*Michigan State University, East Lansing*, <sup>2</sup>*The Ohio State University, Columbus.*
- 2:30 PM **Break**
- 2:45 PM 341 **Protein denaturing condition of beef inside semimembranosus muscle caused less protein degradation and  $\mu$ -calpain autolysis than outside semimembranosus.** A. N. Fritchen\*, Y. H. Kim, J. J. Hosch, S. M. Lonergan, and E. Huff-Lonergan, *Iowa State University, Ames.*
- 3:00 PM 342 **Environmental benefits from the use of ractopamine in feedlot cattle.** T. M. Hodge\*, D. R. Ames, S. L. Archibeque, and D. B. Anderson, *Colorado State University, Ft. Collins.*
- 3:15 PM 343 **Transcript profile of hexose transporters along the horse gastrointestinal tract.** N. P. Taylor\*<sup>1</sup>, A. D. Woodward<sup>1</sup>, R. Manjarin<sup>1</sup>, S. J. Holcombe<sup>2</sup>, and N. L. Trottier<sup>1</sup>, <sup>1</sup>*Michigan State University, Department of Animal Science, East Lansing*, <sup>2</sup>*Michigan State University, College of Veterinary Medicine, East Lansing.*
- 3:30 PM 344 **Effects of maternal exercise during gestation on blood oxygen levels and gilt behavior.** C. G. Jackson\*, E. K. Harris, K. A. Vonnahme, and E. P. Berg, *Department of Animal Sciences North Dakota State University, Fargo.*
- 3:45 PM 345 **Evaluation of storage covers when wet distillers by-products are mixed and stored with forages.** D. L. Christensen\*, K. M. Rolfe, T. J. Klopfenstein, G. E. Erickson, and C. D. Buckner, *University of Nebraska, Lincoln.*
- 4:00 PM 346 **Nutrient composition of spoiled and non-spoiled wet by-products mixed with straw after storage.** J. R. Yelden\*, C. D. Buckner, K. R. Rolfe, D. L. Christensen, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 4:15 PM 347 **Effects on ground or non-enzymatically browned flaxseed on apparent total tract digestion and plasma fatty acid profiles in steers.** J. Miller\*, C. Schneider, K. Miller, G. Parsons, L. Thompson, S. Uwituze, and J. Drouillard, *Kansas State University, Manhattan.*

- 4:30 PM 348 **Evaluation of prototype and commercial sodium chlorite (base/activator) pre- post milking teat dips on teat end and teat skin condition and health.** J. Juarez\* and L. L. Timms, *Iowa State University, Ames.*
- 4:45 PM 336 **Early finishing performance of pigs fed treatment of Denagard plus chlorotetracycline vs. oxytetracycline in grower diet.** J. Graham\*<sup>1</sup>, D. Dau<sup>2</sup>, and J. Waddell<sup>3</sup>, <sup>1</sup>*South Dakota State University, Brookings,* <sup>2</sup>*Novartis Animal Health, Greensboro, NC,* <sup>3</sup>*Sutton Veterinary Clinic, Sutton, NE.*

## Breeding and Genetics

**Chair: Jennifer Minick Bormann, Kansas State University**

**140**

- 2:30 PM 30 **Comparison of sire re-ranking from censored sow lifetime reproductive traits.** L. Engblom\*<sup>1</sup>, K. Stalder<sup>1</sup>, J. Holl<sup>2</sup>, W. Herring<sup>2</sup>, S. Tsurata<sup>3</sup>, M. Culbertson<sup>2</sup>, and J. Mabry<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Smithfield Premium Genetics Group, Rose Hill, NC,* <sup>3</sup>*University of Georgia, Athens.*
- 2:45 PM 31 **Lifetime reproductive traits in Landrace, Yorkshire and crossbred sows.** L. Engblom\*<sup>1</sup>, C. Schwab<sup>2</sup>, K. Stalder<sup>1</sup>, and J. Mabry<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*National Swine Registry, West Lafayette, IN.*
- 3:00 PM 32 **Associations of gilt leg soundness traits with sow lifetime reproduction.** M. Nikkil\*<sup>1</sup>, K. Stalder<sup>1</sup>, B. Mote<sup>1</sup>, J. Lampe<sup>2</sup>, B. Thorn<sup>3</sup>, M. Rothschild<sup>1</sup>, A. Johnson<sup>1</sup>, L. Karriker<sup>1</sup>, and T. Serenius<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Swine Graphics Enterprises, Webster City,* <sup>3</sup>*Newsham Choice Genetics, West Des Moines.*
- 3:15 PM 33 **Association of single nucleotide polymorphism (SNP) markers in candidate genes and QTL regions with pork quality in commercial pigs.** G. A. Rohrer\*<sup>1</sup>, D. J. Nonneman<sup>1</sup>, R. K. Miller<sup>2</sup>, H. Zerby<sup>3</sup>, and S. J. Moeller<sup>3</sup>, <sup>1</sup>*USDA ARS, Clay Center, NE,* <sup>2</sup>*Texas A&M University, College Station,* <sup>3</sup>*The Ohio State University, Columbus.*
- 3:30 PM 338 **Evaluation of single nucleotide polymorphism markers on pig chromosomes 3 and 6 for potential associations with meat quality traits.** M. J. Dawes\*, R. O. Bates, N. E. Raney, J. P. Steibel, and C. W. Ernst, *Michigan State University, East Lansing.*
- 3:45 PM 34 **Association of functional SNPs in pig calpastatin regulatory regions with tenderness.** D. J. Nonneman\*<sup>1</sup>, A. K. Lindholm-Perry<sup>1</sup>, S. D. Shackelford<sup>1</sup>, D. A. King<sup>1</sup>, T. L. Wheeler<sup>1</sup>, G. A. Rohrer<sup>1</sup>, C. D. Bierman<sup>2</sup>, R. K. Miller<sup>3</sup>, H. Zerby<sup>4</sup>, and S. J. Moeller<sup>4</sup>, <sup>1</sup>*USDA, ARS, Clay Center, NE,* <sup>2</sup>*Babcock Genetics Inc., Rochester, MN,* <sup>3</sup>*Texas A&M University, College Station,* <sup>4</sup>*The Ohio State University, Columbus.*

4:00 PM	35	<b>Estimates of genetic parameters of pig temperament scores during performance test.</b> C. L. Yoder* <sup>1</sup> , J. S. Fix <sup>1</sup> , C. Maltecca <sup>1</sup> , J. P. Cassady <sup>1</sup> , S. Price <sup>2</sup> , and M. T. See <sup>1</sup> , <sup>1</sup> <i>North Carolina State University, Raleigh, Ivey Spring Creek Farms, Goldsboro, NC.</i>
4:15 PM	89	<b>Effect of selection for residual feed intake on sow reproductive performance and efficiency.</b> J. M. Young* <sup>1</sup> , R. Bergsma <sup>2</sup> , E. Kno <sup>1</sup> , J. F. Patience <sup>1</sup> , and J. C. M. Dekkers <sup>1</sup> , <sup>1</sup> <i>Iowa State University, Ames,</i> <sup>2</sup> <i>Institute for Pig Genetics, Beuningen, the Netherlands.</i>
4:30 PM	78	<b>Estimates of energy utilization and maintenance requirements of pigs selected for residual feed intake.</b> N. Boddicker*, N. Gabler, M. Spurlock, D. Nettleton, and J. C. M. Dekkers, <i>Iowa State University, Ames.</i>
4:45 PM	36	<b>A robust whole-genome analysis using Student's-t distribution for residuals.</b> K. Kizilkaya* <sup>1,2</sup> , R. L. Fernando <sup>1</sup> , and D. Garrick <sup>1</sup> , <sup>1</sup> <i>Iowa State University, Ames,</i> <sup>2</sup> <i>Adnan Menderes University, Aydin, Turkey.</i>

**Nonruminant Nutrition**  
**Nonruminant II: Feed Ingredients and Additives**  
**Chair: Brad Lawrence, Novus International**  
**204 AB**

2:45 PM	143	<b>(Invited ASAS Animal Science Young Scholar) Benefits of yeast mannan oligosaccharides in diets for animals: Immune function and disease resistance.</b> T. M. Che* and J. E. Pettigrew, <i>University of Illinois, Department of Animal Sciences, Urbana.</i>
3:15 PM	144	<b>Phosphorus and energy digestibility in enzyme treated soybean meal.</b> K. P. Goebel* and H. H. Stein, <i>University of Illinois, Urbana.</i>
3:30 PM	145	<b>Energy concentration and phosphorus digestibility in yeast products, fish meal, and soybean meal fed to growing pigs.</b> B. G. Kim* and H. H. Stein, <i>University of Illinois, Urbana.</i>
3:45 PM	76	<b>Effects of feeding diets containing bacitracin methylene disalicylate (BMD) to heat stressed finishing pigs.</b> R. Song*, D. N. Foster, and G. C. Shurson, <i>University of Minnesota, St. Paul.</i>

**Odor and Nutrient Management**  
**Chair: Dustin Kendall, Murphy-Brown LLC**  
**134**

- 3:00 PM      237      **Feeding DDGS to swine and resulting impact on air emissions.** W. T. Li\*, W. J. Powers, and G. M. Hill, *Michigan State University, Department of Animal Science, East Lansing.*
- 3:15 PM      238      **Effects of utilizing dried distillers grains with solubles and phytase in finishing swine.** J. W. Bundy\*, P. S. Miller, R. Moreno, T. E. Burkey, H. Tran, and E. E. Hinkle, *University of Nebraska, Lincoln.*
- 3:30 PM      239      **Digestibility of inorganic phosphorus and efficacy of OptiPhos phytase in lactating sows.** N. L. Horn\*<sup>1</sup>, M. L. Roux<sup>1</sup>, N. R. Augspurger<sup>1</sup>, and B. W. Ratliff<sup>2</sup>, <sup>1</sup>*JBS United, INC., Sheridan, IN,* <sup>2</sup>*Enzyvia, LLC., Sheridan, IN.*
- 3:45 PM      240      **Stability of various commercial phytase sources.** C. K. Jones\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, D. R. Campbell<sup>2</sup>, B. W. Ratliff<sup>3</sup>, J. M. DeRouchey<sup>1</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan,* <sup>2</sup>*DSM Nutritional Products, Inc., Parsippany, NJ,* <sup>3</sup>*Enzyvia, LLC, Sheridan, IN.*
- 4:00 PM      241      **Dietary calcium and phosphorous and organic and inorganic minerals on mineral digestibility in swine.** J. S. Jolliff\* and D. C. Mahan, *The Ohio State University, Columbus.*

## POSTER PRESENTATIONS

All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 pm until Wednesday at noon. Authors are to be present on their assigned day from 4:30 to 6:00 pm. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections (Animal Behavior, Housing & Well-Being, AB; Breeding and Genetics, BG; Equine, E; Growth, Development, Muscle Biology, and Meat Science, GDM; Nonruminant Nutrition, NN; Physiology, PHY; Ruminant Nutrition, RN; Teaching, T). Judging of competition posters will take place on Monday afternoon.

### Graduate Student Poster Competition-M.S.

Chair: J. W. Schroder, North Dakota State University  
206

Sponsored by: Cargill Animal Nutrition

- 98     **AB**    **Water nipple placement, posture and directionality of gestating sows in turnaround stalls.** A. R. Hanson\*, P. M. Walker, and J. P. Holt, *Illinois State University, Normal.*
- 99     **RN**    **Comparison of finishing diets for steers containing 25%, 40%, or 70% wet distillers grains.** J. M. Carmack\*<sup>1</sup>, P. M. Walker<sup>1</sup>, and L. A. Forster<sup>2</sup>, <sup>1</sup>*Illinois State University, Department of Agriculture, Normal,* <sup>2</sup>*Archer Daniels Midland Co., Decatur, IL.*
- 100    **NR**    **Production of value-added pork by enrichment with omega-3 fatty acids.** C. Brown\*<sup>1</sup>, X. Lin<sup>1</sup>, E. van Heugten<sup>1</sup>, R. Harrell<sup>2</sup>, D. Hanson<sup>1</sup>, and J. Odle<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh,* <sup>2</sup>*Novus International, St. Charles, MO.*
- 101    **NR**    **The evaluation of the additive effect of zinc and copper supplementation from organic and inorganic sources on growth performance of nursery pigs.** M. R. Marchant\*, P. M. Cline, T. C. Tsai, M. J. Azain, and C. R. Dove, *University of Georgia, Athens.*
- 102    **NR**    **Interaction of *Bacillus* spp. and *Salmonella enterica* serovar Typhimurium in immune/inflammatory signaling from swine intestinal epithelial cells.** C. Aperce\*<sup>1</sup>, T. E. Burkey<sup>2</sup>, B. KuKanich<sup>3</sup>, B. A. Crozier-Dobson<sup>1</sup>, S. S. Dritiz<sup>4</sup>, and J. E. Minton<sup>1</sup>, <sup>1</sup>*Kansas State University, Animal Sciences and Industry, Manhattan,* <sup>2</sup>*University of Nebraska, Animal Sciences, Lincoln,* <sup>3</sup>*Kansas State University, Anatomy and Physiology, Manhattan,* <sup>4</sup>*Kansas State University, Diagnostic Medicine/Pathobiology, Manhattan.*
- 103    **GDM** **Acid marination for tenderness enhancement of the beef round.** J. Hinkle\*, C. Calkins, A. de Mello Jr., L. Senaratne, and S. Pokharel, *University of Nebraska, Lincoln.*
- 104    **NR**    **Effects of crystalline lactose on expression of sodium-dependent glucose transporter-1 mRNA and glucose transport in porcine jejunal epithelial cells.** H. Tran\*, P. S. Miller, and T. E. Burkey, *University of Nebraska, Lincoln.*



- 105     **RN**    **Effects of process pH and temperature on stability of wheat gluten films against ruminal fermentation.** K. Blaine\* and J. S. Drouillard, *Kansas State University, Manhattan.*
- 106     **RN**    **Effects of re-ensiling corn silage or haycrop silage with wet distillers grains with solubles on aerobic stability of feed mixtures.** N. S. Schmelz\*, M. M. Schutz, T. D. Nennich, R. P. Lemenager, D. Buckmaster, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- 107     **GDM** **Effect of feeding diets containing corn dried distillers grains with soluble (DDGS) and beef tallow to growing-finishing pigs on fresh and processed pork shelf life characteristics.** J. Popowski\*, R. Cox, J. Pomeranke, G. Shurson, and R. LaBerge, *University of Minnesota, Twin Cities.*
- 108     **RN**    **Effect of supplemental molybdenum on forage-fed steers receiving high-sulfur water.** K. L. Kessler\*<sup>1</sup>, K. C. Olson<sup>2</sup>, C. L. Wright<sup>2</sup>, K. J. Austin<sup>1</sup>, P. S. Johnson<sup>2</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>*University of Wyoming, Laramie,* <sup>2</sup>*South Dakota State University, Brookings.*

### **Graduate Student Poster Competition-Ph.D.**

**Chair: J. W. Schroder, North Dakota State University**

**206**

**Sponsored by: Cargill Animal Nutrition**

- 109     **NR**    **Effects of feeder design, gender, and dietary concentration of dried distillers grains with solubles on the growth and carcass characteristics of finishing pigs.** J. R. Bergstrom\*, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouche, and R. D. Goodband, *Kansas State University, Manhattan.*
- 110     **NR**    **Mannan oligosaccharides (MOS) modulate gene expression profile in pigs experimentally infected with porcine reproductive and respiratory syndrome virus (PRRSV).** T. M. Che\*<sup>1</sup>, R. W. Johnson<sup>1</sup>, K. W. Kelley<sup>1</sup>, W. G. Van Alstine<sup>2</sup>, K. A. Dawson<sup>3</sup>, and C. A. Moran<sup>3</sup>, <sup>1</sup>*University of Illinois, Department of Animal Sciences, Urbana,* <sup>2</sup>*Purdue University, Animal Disease and Diagnostic Laboratory, West Lafayette, IN,* <sup>3</sup>*Alltech North American Bioscience Center, Nicholasville, KY.*
- 111     **GDM** **Mapping of intramuscular tenderness and muscle fiber orientation of major muscles in the beef round.** L. Senaratne\*, C. Calkins, A. de Mello Jr., S. Pokharel, and J. Hinkle, *University of Nebraska, Lincoln.*
- 112     **GDM** **Feeding modified distillers grains plus solubles to cattle affects the fatty acid profile of beef.** A. de Mello Jr.\*, B. Jenschke, L. Senaratne, T. Carr, G. Erickson, and C. Calkins, *University of Nebraska, Lincoln.*
- 113     **GDM** **Regulation of matrix metalloproteases in macrophages by fatty acids is dependent on degree of saturation.** R. B. Potu\*, S. A. Adedokun, J. V. Adapala, M. Ward, and K. Ajuwon, *Purdue University, Department of Animal Sciences, West Lafayette, IN.*

- 114 **NR** **Effect of dietary clay on diarrhea of weaned pigs experimentally infected with a pathogenic *E. coli*.** M. Song\*<sup>1</sup>, J. A. Soares<sup>1</sup>, Y. Liu<sup>1</sup>, O. Osuna<sup>2</sup>, C. W. Maddox<sup>1</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Milwhite, Inc., Brownsville, TX.*
- 115 **PHY** **Supranutritional selenium and nutritional plane during gestation do not affect cortisol production in lambs.** L. A. Lekatz\*, T. L. Neville, D. A. Redmer, L. P. Reynolds, J. S. Caton, and K. A. Vonnahme, *North Dakota State University, Center for Nutrition and Pregnancy, Department of Animal Sciences, Fargo.*
- 116 **NR** **Effects of increased feed intake during the late gestation on the reproductive performance in multiparous sows.** W. S. Ju\*, Y. D. Jang, L. G. Piao, H. F. Long, and Y. Y. Kim, *Seoul National University, Seoul, South Korea.*

**Undergraduate Student Poster Competition  
Chair: Paul Walker, Illinois State University**

**206**

**Sponsored by: ADSA-ASAS Midwest Board**

- 349 **E** **Round bale feeder design affects hay waste during horse feeding: A preliminary study.** K. Cleary\*, K. Martinson, and J. Wilson, *University of Minnesota, St. Paul.*
- 350 **GDM** **Use of ultrasound technology for the prediction of carcass yield grade of light weight, short-fed stocker cattle.** S. J. Lawrence\*<sup>1</sup>, S. E. Kreider<sup>1</sup>, J. J. Higgins<sup>1</sup>, D. A. Blasi<sup>1</sup>, L. Allen<sup>1</sup>, M. E. Dikeman<sup>2</sup>, M. P. Epp<sup>1</sup>, and P. Ritter<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Cattle Performance Enhancement Company, Oakley, KS.*
- 351 **NR** **Dietary additions of Mn reduced femur strength in young pigs fed diets with supplemental vitamin D but increased strength in pigs fed diets with no supplemental vitamin D.** P. Strassburg\*, D. K. Schneider, and T. D. Crenshaw, *University of Wisconsin, Madison.*
- 352 **RN** **Effect of residual sward height after grazing on gastrointestinal nematode parasitism in meat goats.** L. M. Pezzanite\*<sup>1</sup>, M. K. Neary<sup>1</sup>, T. K. Hutchens<sup>2</sup>, K. Andries<sup>3</sup>, J. E. Tower<sup>1</sup>, L. Snyder<sup>1</sup>, and M. E. Einstein<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette*, <sup>2</sup>*University of Kentucky, Lexington*, <sup>3</sup>*Kentucky State University, Frankfort.*
- 353 **E** **Significant bone loss of the equine distal phalanges in a population of domestic horses.** T. J. Calvert-Jackson\* and R. M. Bowker, *Michigan State University, East Lansing.*
- 354 **PHY** **Effect of standing estrus prior to an injection of GnRH on steroidogenic enzyme expression in luteal tissue.** K. L. Gebhart\*, B. L. Perry, M. G. Gonda, C. L. Wright, R. C. Bott, and G. A. Perry, *South Dakota State University, Department of Animal and Range Sciences, Brookings.*

- 355 **GDM Fat quality in Holstein cows fed zilpaterol HCl.** J. A. Safko\*, B. K. Lowe, R. O. McKeith, R. M. Pitzer, J. R. Segers, L. Stewart, M. A. Froetschel, A. M. Stelzleni, and T. D. Pringle, *University of Georgia, Athens.*

**Growth, Development, Muscle Biology, and Meat Science Poster Session  
Chair: Eric Berg, North Dakota State University**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 350 **Use of ultrasound technology for the prediction of carcass yield grade of light weight, short-fed stocker cattle.** S. J. Lawrence\*<sup>1</sup>, S. E. Kreider<sup>1</sup>, J. J. Higgins<sup>1</sup>, D. A. Blasi<sup>1</sup>, L. Allen<sup>1</sup>, M. E. Dikeman<sup>2</sup>, M. P. Epp<sup>1</sup>, and P. Ritter<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Cattle Performance Enhancement Company, Oakley, KS.*
- 127 **Prediction of live weight of growing-finishing pigs from simple body measurements.** L. Ochoa\*<sup>1</sup>, M. Ellis<sup>1</sup>, C. L. Puls<sup>1</sup>, M. E. Mercedes<sup>1</sup>, and B. A. Peterson<sup>2</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschoffs, Carlyle, IL.*
- 128 **Evaluation of the prediction of alternative measures of pork carcass composition by three optical probes.** A. Schinckel\*, J. Wagner, J. Forrest, and M. Einstein, *Purdue University, West Lafayette, IN.*
- 129 **Evaluation of the impact of errors in the measurement of backfat depth on the prediction of fat-free lean percentage.** A. Schinckel\*, M. Einstein, K. Foster, and B. Craig, *Purdue University, West Lafayette, IN.*
- 130 **Effect of birth weight on subsequent pig performance.** J. O. Matthews\*, S. B. Jungst, C. A. Jones, B. Fields, and A. A. Sosnicki, *PIC North America, Hendersonville, TN.*
- 131 **Evaluation of post-harvest *Salmonella* isolation and contamination of carcasses in vaccinated and non-vaccinated pigs.** T. Frana\*<sup>1</sup>, L. McDeid<sup>1</sup>, L. Terry<sup>1</sup>, J. Kolb<sup>2</sup>, J. Husa<sup>2</sup>, and A. Oropeza-Munoz<sup>2</sup>, <sup>1</sup>*Iowa State University, Veterinary Diagnostics and Production Animal Medicine, Ames*, <sup>2</sup>*Boehringer Ingelheim Vetmedica, Inc., Ames, IA.*
- 113 **Regulation of matrix metalloproteases in macrophages by fatty acids is dependent on degree of saturation.** R. B. Potu\*, S. A. Adedokun, J. V. Adapala, M. Ward, and K. Ajuwon, *Purdue University, Department of Animal Sciences, West Lafayette, IN.*
- 132 **Meat quality and retail shelf-life of pork from pigs fed dried distillers grains with solubles (DDGS), conjugated linoleic acid (CLA) and a ractopamine (RAC) program.** D. Pompeu\*, J. W. Rickard, G. D. Gerlemann, R. B. Hinson, M. E. Briscoe, B. R. Wiegand, and G. L. Allee, *University of Missouri, Columbia.*
- 107 **Effect of feeding diets containing corn dried distillers grains with soluble (DDGS) and beef tallow to growing-finishing pigs on fresh and processed pork shelf life characteristics.** J. Popowski\*, R. Cox, J. Pomeranke, G. Shurson, and R. LaBerge, *University of Minnesota, Twin Cities.*

- 133 **Effects of feeding high levels of wet distillers grains and straw on lipid oxidation and color stability of beef.** S. Pokharel\*, C. Calkins, A. de Mello Jr., S. Senaratne, J. Hinkle, T. Carr, and G. Erickson, *University of Nebraska, Lincoln*.
- 112 **Feeding modified distillers grains plus solubles to cattle affects the fatty acid profile of beef.** A. de Mello Jr.\*, B. Jenschke, L. Senaratne, T. Carr, G. Erickson, and C. Calkins, *University of Nebraska, Lincoln*.
- 134 **Sequential feeding of  $\beta$ -agonist growth promotants in cull beef cows.** M. J. Daniel\*, M. E. Dikeman, J. Jaeger, J. A. Unruh, T. A. Houser, and B. L. Goehring, *Kansas State University, Manhattan*.
- 355 **Fat quality in Holstein cows fed zilpaterol HCl.** J. A. Safko\*, B. K. Lowe, R. O. McKeith, R. M. Pitzer, J. R. Segers, L. Stewart, M. A. Froetschel, A. M. Stelzleni, and T. D. Pringle, *University of Georgia, Athens*.
- 135 **There is little benefit of acid enhancement at a low injection rate on the fresh and cooked color of dark-cutting beef.** J. K. Apple\*<sup>1</sup>, J. T. Sawyer<sup>1</sup>, J.-F. Meullenet<sup>2</sup>, M. D. Wharton<sup>1</sup>, and J. W. S. Yancey<sup>1</sup>, <sup>1</sup>*University of Arkansas, Department of Animal Science, Fayetteville*, <sup>2</sup>*University of Arkansas, Department of Food Science, Fayetteville*.
- 136 **Lactic acid enhancement can improve the fresh and cooked beef color of dark-cutting beef.** J. K. Apple\*<sup>1</sup>, J. T. Sawyer<sup>1</sup>, J.-F. Meullenet<sup>2</sup>, M. D. Wharton<sup>1</sup>, and J. W. S. Yancey<sup>1</sup>, <sup>1</sup>*University of Arkansas, Department of Animal Science, Fayetteville*, <sup>2</sup>*University of Arkansas, Department of Food Science, Fayetteville*.
- 103 **Acid marination for tenderness enhancement of the beef round.** J. Hinkle\*, C. Calkins, A. de Mello Jr., L. Senaratne, and S. Pokharel, *University of Nebraska, Lincoln*.
- 137 **Color stability and tenderness variations within the gluteus medius from beef top sirloin butts.** J. B. Machete, J. K. Apple\*, R. J. Stackhouse, T. M. Johnson, C.A. Keys, and J. W. S. Yancey, *University of Arkansas, Department of Animal Science, Fayetteville*.
- 111 **Mapping of intramuscular tenderness and muscle fiber orientation of major muscles in the beef round.** L. Senaratne\*, C. Calkins, A. de Mello Jr., S. Pokharel, and J. Hinkle, *University of Nebraska, Lincoln*.

## Nonruminant Nutrition Poster Session

### Corn Co-Products

206

Sponsored by: Zinpro Performance Minerals

- 197 **Effect of graded levels of corn distiller's dried grain with solubles (DDGS) on growth performance of nursery pigs.** T.-C. Tsai\*<sup>1</sup>, R. Dove<sup>1</sup>, P. Cline<sup>1</sup>, A. Owusu-Asiedu<sup>2</sup>, and M. Azain<sup>1</sup>, <sup>1</sup>*University of Georgia, Athens, Georgia*, <sup>2</sup>*Danisco Animal Nutrition, Marlborough, UK*.

- 198 **Effects of corn DDGS and Allzyme SSF supplementation on performance and fat characteristics of grow-finish pigs.** G. Li<sup>1</sup>, W. Yao<sup>1</sup>, and K. Filer<sup>\*2</sup>, <sup>1</sup>*Nanjing Agricultural University, Nanjing, China*, <sup>2</sup>*Alltech Inc., Nicholasville, KY*.
- 109 **Effects of feeder design, gender, and dietary concentration of dried distillers grains with solubles on the growth and carcass characteristics of finishing pigs.** J. R. Bergstrom<sup>\*</sup>, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, and R. D. Goodband, *Kansas State University, Manhattan*.
- 199 **Effects of sulfur concentration in distillers dried grains with solubles on feed preference and pig performance.** B. G. Kim<sup>\*1</sup>, Y. Zhang<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*National Corn-to-Ethanol Research Center, Edwardsville, IL*.
- 200 **Concentrations of analyzed or reactive lysine, but not crude protein, may predict the concentration of digestible lysine in distillers dried grains with solubles fed to pigs.** B. G. Kim<sup>\*1</sup>, Y. Zhang<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*National Corn-to-Ethanol Research Center, Edwardsville, IL*.
- 201 **Effect of particle size of corn distillers dried grains with solubles (DDGS) on digestible and metabolizable energy content for growing pigs.** O. F. Mendoza<sup>\*1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, M. Kocher<sup>2</sup>, T. Sauber<sup>3</sup>, and D. Jones<sup>3</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschhoffs, Carlyle, IL*, <sup>3</sup>*Pioneer Hi-Bred, Johnston, IA*.
- 202 **Impact of dietary inclusion of distillers dried grains with solubles (DDGS) and conjugated linoleic acid (CLA) on pig growth performance, carcass characteristics, and meat and fat quality.** L. Ochoa<sup>\*1</sup>, M. Ellis<sup>1</sup>, J. Eggert<sup>2</sup>, B. Cousins<sup>3</sup>, A. M. Gaines<sup>4</sup>, and F. K. McKeith<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Newsham Choice Genetics, West Des Moines, IA*, <sup>3</sup>*BASF Co., Florham Park, NJ*, <sup>4</sup>*The Maschhoffs, Carlyle, IL*.
- 203 **Effects of a high protein distillers dried grain (HPDDG) product on growth performance and carcass and pork quality characteristics of wean-to-market pigs.** C. L. Puls<sup>\*1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. A. Peterson<sup>2</sup>, B. F. Wolter<sup>2</sup>, R. Bowman<sup>2</sup>, and M. Kocher<sup>2</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschhoffs, Carlyle, IL*.
- 204 **Dried distiller's grains with solubles (DDGS) at 20% dietary inclusion do not inhibit growth performance or carcass characteristics when fed with or without a Paylean program or CLA.** J. W. Rickard<sup>\*</sup>, D. Pompeu, B. R. Wiegand, G. D. Gerlemann, R. B. Hinson, and G. L. Allee, *University of Missouri, Columbia*.
- 205 **Assessment of protein quality in a corn co-product based on growth of young pigs.** J. R. Booth<sup>\*</sup>, J. L. Reichert, and T. D. Crenshaw, *University of Wisconsin, Madison*.
- 206 **Concentrations of  $\beta$ -glucans and mannan oligosaccharides in corn dried distillers grains with solubles (DDGS) and its relationship to fiber components.** J. M. Pomeroy<sup>\*</sup>, L. W. O. Souza, and G. C. Shurson, *University of Minnesota, St. Paul*.

**Nonruminant Nutrition Poster Session**  
**Enzymes and Feed Processing**  
**206**

**Sponsored by: Zinpro Performance Minerals**

- 207 **Effect of a commercial enzyme (Nutraze) on growth performance of growing pigs fed diets containing dried distillers grains with solubles (DDGS).** J. Y. Jacela\*, S. S. Dritz, J. M. DeRouche, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 208 **Solid-state fermentation-derived enzymes improve energy and nutrient digestibility in pigs under good management.** B. Bucher<sup>1</sup>, R. Messikommer<sup>1</sup>, K. Samarasinghe<sup>1</sup>, C. Wenk<sup>1</sup>, and K. Jacques\*<sup>2</sup>, <sup>1</sup>*Institute of Animal Sciences, Zurich, Switzerland,* <sup>2</sup>*Alltech Inc., Nicholasville, KY.*
- 209 **Alternative strategies in providing digestible protein to young piglets: yeast-derived protein (NuPro) plus enzymes from solid state fermentation (Allzyme SSF).** M. A. Naldo<sup>1</sup>, B. Quilat<sup>2</sup>, B. Catbagan<sup>2</sup>, D. Garcia<sup>3</sup>, and A. Frio\*<sup>3</sup>, <sup>1</sup>*Silliman University College of Agriculture, Dumaguete City, Philippines,* <sup>2</sup>*Camille Farm, Gen Santos City, Philippines,* <sup>3</sup>*Alltech Biotechnology Corp., Muntinlupa City, Philippines.*
- 210 **Effects of supplementation mannanase and xylanase of low energy density diet on growth performance, nutrient digestibility, blood profiles and meat quality in finishing pigs.** S. M. Hong\*<sup>1</sup>, S. H. Oh<sup>2</sup>, R. C. Noble<sup>2</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>*Department of Animal Resource & Science, Dankook University, Choeran, Choongnam, Korea,* <sup>2</sup>*Department of Animal Science, North Carolina A&T State University, Greensboro.*
- 211 **Allzyme SSF supplementation of cassava-based diets: Effects on performance and nutrient digestibility of weanling pigs.** U. Kanto<sup>1</sup>, S. Juttupornpong<sup>1</sup>, W. Jintanawich<sup>1</sup>, P. Sookpopet<sup>1</sup>, and K. Filer\*<sup>2</sup>, <sup>1</sup>*SARDI, Kasetsart University, Kampaengsaen, Nakhon Pathom, Thailand,* <sup>2</sup>*Alltech Asia-Pacific Biosciences Center, Bangkok, Thailand.*
- 212 **Effect of inclusion of two commercial carbohydrase enzymes in diets with a high level of distillers dried grains with solubles (DDGS) on the growth performance of nursery pigs.** M. E. Mercedes\*<sup>1</sup>, C. L. Puls<sup>1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. A. Peterson<sup>2</sup>, M. Kocher<sup>2</sup>, and B. F. Wolter<sup>2</sup>, <sup>1</sup>*University of Illinois, Urbana,* <sup>2</sup>*The Maschhoffs, Carlyle, IL.*

**Physiology Poster Session**  
**Chair: Jason Ross, Iowa State University**  
**206**  
**Sponsored by: Zinpro Performance Minerals**

- 115 **Supranutritional selenium and nutritional plane during gestation do not affect cortisol production in lambs.** L. A. Lekatz\*, T. L. Neville, D. A. Redmer, L. P. Reynolds, J. S. Caton, and K. A. Vonnahme, *North Dakota State University, Center for Nutrition and Pregnancy, Department of Animal Sciences, Fargo.*
- 256 **Effect of *Saccharomyces cerevisiae* fermentation products on growth of *Lactobacillus acidophilus* in vitro.** D. Severson\*, I. Yoon, J. Butler, and M. Scott, *Diamond V, Cedar Rapids, IA.*
- 257 ***Saccharomyces cerevisiae* fermentation product and a fermentation prototype stimulate bacterial production of butyrate in vitro with swine fecal inoculum.** D. Severson\*, I. Yoon, J. Butler, and M. Scott, *Diamond V, Cedar Rapids, IA.*
- 258 **Dietary n-3 fatty acids attenuate colon endotoxin transport in growing pigs.** V. Mani\*<sup>1</sup>, E. Kuntz<sup>1</sup>, N. Boddicker<sup>1</sup>, J. D. Spencer<sup>2</sup>, and N. K. Gabler<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*JBS United Inc., Sheridan, IN.*
- 259 **Dietary n-3 fatty acids differentially alter ileum nutrient transport in growing pigs under immune challenge.** A. Flinn\*<sup>1</sup>, V. Mani<sup>1</sup>, M. Jeffrey<sup>1</sup>, J. D. Spencer<sup>2</sup>, and N. K. Gabler<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*JBS United Inc., Sheridan, IN.*
- 354 **Effect of standing estrus prior to an injection of GnRH on steroidogenic enzyme expression in luteal tissue.** K. L. Gebhart\*, B. L. Perry, M. G. Gonda, C. L. Wright, R. C. Bott, and G. A. Perry, *South Dakota State University, Department of Animal and Range Sciences, Brookings.*

**Ruminant Nutrition I Poster Session**  
**206**  
**Sponsored by: Zinpro Performance Minerals**

- 302 **Lactation response to a ruminally-protected B-vitamin product (Vicomb P+).** H. Gencoglu<sup>1,2</sup>, L. Ferraretto\*<sup>1</sup>, M. Akins<sup>1</sup>, and R. Shaver<sup>1</sup>, <sup>1</sup>*Department of Dairy Science, University of Wisconsin Madison*, <sup>2</sup>*Department of Animal Nutrition and Nutritional Diseases, Faculty of Veterinary Medicine, University of Uludag, Bursa, Turkey.*
- 303 **Detection of yeast cells in omasal digesta of dairy cows consuming dried distillers grains and solubles.** E. Castillo-Lopez\*, P. J. Kononoff, and J. L. Miner, *University of Nebraska, Lincoln.*
- 105 **Effects of process pH and temperature on stability of wheat gluten films against ruminal fermentation.** K. Blaine\* and J. S. Drouillard, *Kansas State University, Manhattan.*

- 304 **Effects of round bale alfalfa processing type on heifer performance, forage wastage, and eating preference.** S. Q. Jones\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, J. W. Waggoner<sup>1</sup>, T. T. Marston<sup>1</sup>, R. M. Breiner<sup>1</sup>, and T. J. Kraus<sup>2</sup>, <sup>1</sup>*Kansas State University, <sup>2</sup>John Deere, Ottumwa, IA.*
- 305 **Comparison of feeding and mixing characteristics of precut, conventional and tub ground alfalfa or cornstalks in a TMR.** S. Q. Jones\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, J. W. Waggoner<sup>1</sup>, T. T. Marston<sup>1</sup>, R. M. Breiner<sup>1</sup>, and T. J. Kraus<sup>2</sup>, <sup>1</sup>*Kansas State University, <sup>2</sup>John Deere, Ottumwa, IA.*
- 306 **Comparison of mixing characteristics of precut and conventional alfalfa and cornstalk bales in a vertical mixer.** S. Q. Jones\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, J. W. Waggoner<sup>1</sup>, T. T. Marston<sup>1</sup>, R. M. Breiner<sup>1</sup>, and T. J. Kraus<sup>2</sup>, <sup>1</sup>*Kansas State University, <sup>2</sup>John Deere, Ottumwa, IA.*
- 106 **Effects of re-ensiling corn silage or haycrop silage with wet distillers grains with solubles on aerobic stability of feed mixtures.** N. S. Schmelz\*<sup>1</sup>, M. M. Schutz, T. D. Nennich, R. P. Lemenager, D. Buckmaster, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- 307 **Effect of advancing fermentation on cell wall monosaccharide composition of by-product feeds.** S. J. Harris\* and M. S. Kerley, *University of Missouri, Columbia.*
- 308 **Effect of milk-based by-products on forage in vitro fermentation.** M. H. Ramos\* and M. S. Kerley, *University of Missouri, Columbia.*
- 309 **A meta-analysis comparing nitrogen fertilization versus interseeded legume on performance of ruminants.** M. H. Ramos\*<sup>1</sup> and J. W. Lehmkuhler<sup>2</sup>, <sup>1</sup>*University of Missouri, Columbia, <sup>2</sup>University of Kentucky, Lexington.*
- 310 **(Dairy Innovation Award) Intestinal digestibility of amino acids in rumen undegraded corn silage using the mobile bag technique.** S. M. Fredin\*<sup>1</sup>, H. Lapierre<sup>2</sup>, N. L. Whitehouse<sup>1</sup>, and C. G. Schwab<sup>1</sup>, <sup>1</sup>*University of New Hampshire, Durham, <sup>2</sup>Agriculture and Agri-Food, Sherbrooke, QC, Canada.*
- 311 **Performance of post-weaned Holstein heifer calves fed grain mixes supplemented with essential oils at differing levels.** G. Golombeski\*<sup>1</sup>, B. Ziegler<sup>2</sup>, D. Schimek<sup>2</sup>, D. Ziegler<sup>3</sup>, H. Chester-Jones<sup>3</sup>, M. Raeth-Knight<sup>1</sup>, and J. Linn<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul, <sup>2</sup>Hubbard Feeds, Inc., Mankato, MN, <sup>3</sup>University of Minnesota, Southern Research and Outreach Center, Waseca.*
- 312 **Partial replacement of corn silage and alfalfa with Italian ryegrass silage in lactating cow diets.** J. Woolever\* and D. K. Combs, *University of Wisconsin, Madison.*
- 352 **Effect of residual sward height after grazing on gastrointestinal nematode parasitism in meat goats.** L. M. Pezzanite\*<sup>1</sup>, M. K. Neary<sup>1</sup>, T. K. Hutchens<sup>2</sup>, K. Andries<sup>3</sup>, J. E. Tower<sup>1</sup>, L. Snyder<sup>1</sup>, and M. E. Einstein<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, <sup>2</sup>University of Kentucky, Lexington, <sup>3</sup>Kentucky State University, Frankfort.*



# Tuesday, March 16

## SYMPOSIA AND ORAL SESSIONS

### Animal Behavior, Housing & Well-Being

Chair: J. Ernest Minton and Lily Edwards, Kansas State University  
136-138

Sponsored by: Pig Improvement Company Inc.

- 8:00 AM 1 **Pasture characteristics and microclimate effects on the temporal/spatial distribution of beef cows grazing Midwestern cool-season grass pastures.** D. A. Bear\*, J. R. Russell, and D. G. Morrical, *Iowa State University, Ames.*
- 8:15 AM 2 **Effect of disposition score on feedlot performance, carcass traits and profitability of beef calves fed in the Iowa Tri-County Steer Carcass Futurity.** G. D. Fike\*<sup>1</sup>, L. R. Corah<sup>1</sup>, M. E. King<sup>1</sup>, and W. D. Busby<sup>2</sup>, <sup>1</sup>*Certified Angus Beef LLC, Wooster, OH,* <sup>2</sup>*Iowa State University, Ames.*
- 8:30 AM 3 **The effect of selection for residual feed intake on general behavioral activity in Yorkshire gilts.** L. J. Sadler\*<sup>1</sup>, A. K. Johnson<sup>1</sup>, S. M. Lonergan<sup>1</sup>, D. Nettleton<sup>2</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Iowa State University, Ames.*
- 8:45 AM 4 **Association between claw lesion scores, lameness and sow gestation housing systems.** S. S. Anil\*<sup>1</sup>, L. Anil<sup>2</sup>, J. Deen<sup>1</sup>, S. K. Baidoo<sup>2</sup>, M. E. Wilson<sup>3</sup>, and T. L. Ward<sup>3</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*University of Minnesota, Waseca,* <sup>3</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 9:00 AM 5 **Effect of parity on pre-weaning mortality and growth performance of piglets in a bedded, group-farrowing system.** Y. Z. Li\*<sup>1</sup>, J. E. Anderson<sup>2</sup>, and L. J. Johnston<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*University of Minnesota, Morris.*
- 9:15 AM 6 **Effects of farrowing induction on sow and piglet performance.** C. C. Selby\*, H. M. Smith, T. J. Safranski, and W. R. Lamberson, *University of Missouri, Columbia.*
- 9:30 AM 7 **Measures of well-being in response to variation in ambient temperature and light intensity for mature gilts housed in crates during breeding and early gestation.** D. Canaday\*, A. Visconti, A. DeDecker, J. Salak-Johnson, and R. Knox, *University of Illinois, Urbana.*
- 9:45 AM 8 **Relationship between start and end weight variation in a group of pigs.** E. Magowan\*<sup>1</sup>, J. Allen<sup>1,2</sup>, V. E. Beattie<sup>2</sup>, and M. E. E. McCann<sup>1</sup>, <sup>1</sup>*Agri Food and Biosciences Institute, Hillsborough, Northern Ireland,* <sup>2</sup>*Devenish Nutrition Ltd., Belfast, Northern Ireland.*

- 10:00 AM 9 **Effects of farm management, gender and pig temperament on pork quality.** J. A. Brown\*, I. B. Mandell, P. P. Purslow, and T. M. Widowski, *University of Guelph, Ontario, Canada.*
- 10:15 AM 10 **Effects of floor space during transport and journey time on transport losses and physical indicators of stress in market-weight pigs.** C. M. Pilcher\*<sup>1</sup>, M. Ellis<sup>1</sup>, M. J. Ritter<sup>2</sup>, J. Brinkmann<sup>3</sup>, C. L. Puls<sup>1</sup>, O. F. Mendoza<sup>1</sup>, A. Rojo<sup>1</sup>, and B. A. Peterson<sup>3</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*, <sup>3</sup>*The Maschhoffs, Carlyle, IL.*
- 10:30 AM 11 **Effects of pre-sorting on the stress response of market weight pigs during loading and unloading.** L. M. Gesing\*<sup>1</sup>, A. K. Johnson<sup>1</sup>, K. J. Stalder<sup>1</sup>, H. Hill<sup>2</sup>, C. Feuerbach<sup>2</sup>, M. Faga<sup>2</sup>, R. Bailey<sup>3</sup>, and M. J. Ritter<sup>4</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Iowa Select Farms, Iowa Falls, IA*, <sup>3</sup>*JBS Swift and Co., Marshalltown, IA*, <sup>4</sup>*Elanco Animal Health, Greenfield, IN.*
- 10:45 AM 12 **Effects of Sirrah-Bios PRRSV-RS vaccine on mortality rate and finisher pig performance.** M. L. Potter\*<sup>1</sup>, S. S. Dritz<sup>1</sup>, S. C. Henry<sup>2</sup>, L. M. Tokach<sup>2</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Abilene Animal Hospital, P.A., Abilene, Kansas.*
- 11:00 AM 13 **Effects of porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (*M. hyo*) vaccine strategy and gender on commercial pig performance and carcass characteristics.** J. R. Bergstrom<sup>1</sup>, M. L. Potter\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. C. Henry<sup>2</sup>, S. S. Dritz<sup>1</sup>, J. L. Nelssen<sup>1</sup>, R. D. Goodband<sup>1</sup>, and J. M. DeRouchey<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Abilene Animal Hospital, P.A., Abilene, Kansas.*
- 11:15 AM 14 **Influence of halothane sensitivity on growth and meat quality in pigs.** R. O. Bates\*, M. E. Doumit, N. E. Raney, E. E. Helman, and C. W. Ernst, *Michigan State University, East Lansing.*
- 11:30 AM 15 **(Invited ASAS Animal Science Young Scholar) Effects of diet on behavioral and neurophysiological indicators of aggression in pigs.** R. Poletto\*<sup>1,2</sup>, B. T. Richert<sup>1</sup>, R. L. Meisel<sup>3</sup>, H. W. Cheng<sup>2</sup>, and J. N. Marchant-Forde<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*USDA Livestock Behavior Research Unit, West Lafayette, IN*, <sup>3</sup>*University of Minnesota, Minneapolis.*

**Billy N. Day Symposium**  
**A Climate of Change in Swine Reproduction Performance**  
**Chair: Rodney D. Geisert, University of Missouri**  
**204 FG**  
**Sponsored by: Billy N. Day Appreciation Club**

8:00 AM **Welcome.** Rodney D. Geisert.

8:10 AM	26	<b>(Invited) The physiologic response to stress and its effects on swine reproduction.</b> D. C. Lay Jr.*, <i>ARS-USDA, West Lafayette, IN.</i>
8:40 AM	27	<b>(Invited) Use of <i>Artemisia</i> sp. to alleviate heat stress induced male infertility.</b> W. R. Lamberson* <sup>1</sup> , H. Smith <sup>1</sup> , K. M. Cammack <sup>2</sup> , and T. J. Safranski <sup>1</sup> , <sup>1</sup> <i>University of Missouri, Columbia</i> , <sup>2</sup> <i>University of Wyoming, Laramie.</i>
9:00 AM	28	<b>(Invited) Seasonal effects on sow herds: Industry experience and management strategies.</b> D. S. Pollmann*, <i>Murphy-Brown LLC, Ames, IA.</i>
9:30 AM	29	<b>(Invited) Physiological and reproductive responses to periparturient heat stress in sows.</b> T. J. Safranski*, A. M. Williams, and M. C. Lucy, <i>University of Missouri, Columbia.</i>
10:00 AM		<b>Break</b>
10:20 AM		<b>(Invited) How society shaped Danish pork production systems.</b> N.-P. Nielsen, <i>Landbrug &amp; Fodevarer, Videncenter for Swine Production, Denmark.</i>
11:00 AM		<b>Industry perspective of housing and environmental effects on swine production (Introduction).</b> T. Safranski, <i>University of Missouri.</i>
11:05 AM		<b>(Invited) Impact of nutrition on sow physiology.</b> L. Greiner, <i>Ltd/ Innovative Swine Solutions, LLC.</i>
11:25 AM		<b>(Invited) Managing the conversion from crate to pen gestation.</b> R. Schmitt, <i>Seaboard.</i>
11:45 AM		<b>Discussion</b>

**Growth, Development, Muscle Biology, and Meat Science  
Symposium: The Use of Beta-Agonists in Livestock Production  
Chair: Terry A. Houser, Kansas State University**

**140**

8:00 AM		<b>(Invited) The mechanistic basis for beneficial effects of beta-agonists in food producing animals.</b> D. Beermann, <i>University of Nebraska-Lincoln.</i>
8:45 AM		<b>(Invited) Use of ractopamine in pork production systems.</b> S. Carr, <i>Elanco Animal Health, Greenfield, IN.</i>
9:30 AM		<b>Break</b>

9:45 AM **(Invited) Use of ractopamine in beef production.** J. Scanga, *Elanco Animal Health, Greenfield, IN.*

10:30 AM **(Invited) Use of zilpaterol in the U.S. beef system.** J. Hutcheson, *Intervet Schering Plough Animal Health.*

**Nonruminant Nutrition**  
**Nonruminant III: Amino Acids**  
**Chair: James Usry, Ajinomoto Heartland**  
**142-144**  
**Sponsored by: JBS United Inc.**

- 8:00 AM 146 **Effects of porcine circo virus type 2 (PCV2) vaccine and increasing standardized ileal digestible lysine:calorie ratio on growth performance of growing and finishing pigs.** N. W. Shelton\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. L. Nelssen<sup>1</sup>, J. M. DeRouche<sup>1</sup>, and J. L. Usry<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan,* <sup>2</sup>*Ajinomoto Heartland Inc., Chicago, IL.*
- 8:15 AM 147 **Lysine requirement for finishing barrows fed ractopamine.** J. W. Bundy\*, P. S. Miller, R. Moreno, T. E. Burkey, E. E. Hinkle, and H. Tran, *University of Nebraska, Lincoln.*
- 8:30 AM 148 **Effect of environment on the tryptophan:lysine ratio in nursery pigs.** J. W. Frank\*<sup>1</sup>, C. L. Bradley<sup>1</sup>, B. E. Bass<sup>1</sup>, C. V. Maxwell<sup>1</sup>, R. D. Boyd<sup>2</sup>, and J. L. Usry<sup>3</sup>, <sup>1</sup>*University of Arkansas, Fayetteville,* <sup>2</sup>*The Hanor Company Inc., Franklin, KY,* <sup>3</sup>*Ajinomoto Heartland LLC, Chicago, IL.*
- 8:45 AM 149 **Determination of SID Trp:Lys requirement in grow-finish pig fed diets containing 30% DDGS.** R. B. Hinson\*<sup>1</sup>, L. Ma<sup>1</sup>, G. D. Gerlemann<sup>1</sup>, G. L. Allee<sup>1</sup>, J. D. Less<sup>2</sup>, D. D. Hall<sup>3</sup>, H. Yang<sup>3</sup>, and D. Holzgraefe<sup>3</sup>, <sup>1</sup>*University of Missouri, Columbia,* <sup>2</sup>*ADM Specialty Feed Ingredients, Decatur, IL,* <sup>3</sup>*ADM Alliance Nutrition, Quincy, IL.*
- 9:00 AM 150 **Determination of standardized ileal digestible tryptophan requirements of growing-finishing pigs fed diets containing high protein distillers dried grains.** L. Ma\*<sup>1</sup>, Z. P. Zhu, R. B. Hinson, and G. L. Allee, *University of Missouri, Columbia.*
- 9:15 AM 151 **Determination of SID Trp:Lys ratio requirement of 11- to 22-kg pigs fed diets containing 30% DDGS.** L. Ma\*<sup>1</sup>, Z. P. Zhu<sup>1</sup>, R. B. Hinson<sup>1</sup>, G. L. Allee<sup>1</sup>, J. D. Less<sup>2</sup>, D. D. Hall<sup>3</sup>, H. Yang<sup>3</sup>, and D. P. Holzgraefe<sup>3</sup>, <sup>1</sup>*University of Missouri, Columbia,* <sup>2</sup>*ADM Specialty Feed Ingredients, Decatur, IL,* <sup>3</sup>*ADM Alliance Nutrition, Quincy, IL.*

**Ruminant Nutrition I: Byproduct Utilization (Distiller's Grains)**  
**Chair: Aimee Wertz-Lutz, South Dakota State University**  
**204 AB**

- 8:00 AM 264 **Effects of levels of roughage and corn wet distillers grains with solubles in steam-flaked corn-based substrates on IVDMD, hydrogen sulfide production, and in vitro gas production kinetics.** M. L. May\*, M. J. Quinn, N. DiLorenzo, and M. L. Galyean, *Texas Tech University, Lubbock.*
- 8:15 AM 265 **Effects of distillers grains and substrate steam-flaked corn concentration on IVDMD, gas production kinetics, and hydrogen sulfide production.** M. J. Quinn\*, M. L. May, N. DiLorenzo, D. R. Smith, and M. L. Galyean, *Texas Tech University, Lubbock.*
- 8:30 AM 266 **Effect of dehydrated yeast culture on in vitro gas and hydrogen sulfide production in cultures using low- or high-sulfur feedlot diets as substrate.** J. M. Kelzer\*<sup>1</sup>, M. V. Fossa<sup>1</sup>, M. Ruiz-Moreno<sup>1</sup>, G. I. Crawford<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*University of Minnesota Extension Regional Office, Hutchinson.*
- 8:45 AM 267 **Effect of manganese oxide on in vitro gas and hydrogen sulfide production in cultures using high-sulfur distillers grains-based substrate.** J. M. Kelzer\*<sup>1</sup>, M. Ruiz-Moreno<sup>1</sup>, A. DiCostanzo<sup>1</sup>, and G. I. Crawford<sup>2</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*University of Minnesota Extension Regional Office, Hutchinson.*
- 9:00 AM 93 **Effects of wet corn gluten feed and wet distillers grains plus solubles on ruminal pH, feed intake and ruminal hydrogen sulfide during grain adaptation.** J. O. Sarturi\*, J. T. Vasconcelos, G. E. Erickson, T. J. Klopfenstein, K. M. Rolfe, V. R. Bremer, M. G. Dib, and C. D. Buckner, *University of Nebraska, Lincoln.*
- 9:15 AM **Break**
- 9:30 AM 268 **Effects of limit feeding corn or dried distillers grains (DDGS) at two intakes during the growing phase on feedlot cattle performance.** T. L. Felix\* and S. C. Loerch, *The Ohio State University, Wooster.*
- 9:45 AM 79 **Seasonal response to dried distillers grains on smooth bromegrass pastures.** A. K. Watson\*, W. A. Griffin, T. J. Klopfenstein, G. E. Erickson, V. R. Bremer, K. R. Brink, and W. H. Schacht, *University of Nebraska, Lincoln.*
- 10:00 AM 269 **Ensiled or fresh mixed wet distillers grains with solubles and straw in growing diets.** C. D. Buckner\*<sup>1</sup>, W. A. Griffin<sup>1</sup>, J. R. Benton<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, G. E. Erickson<sup>1</sup>, and M. E. Corrigan<sup>2</sup>, <sup>1</sup>*University of Nebraska, Lincoln,* <sup>2</sup>*Lallemand Animal Nutrition North American, Milwaukee, WI.*
- 10:15 AM 270 **Effects of feeding high distillers grains and wheat straw on nutrient mass balance and performance of feedlot steers.** A. R. Rich\*, G. E. Erickson, T. J. Klopfenstein, M. K. Luebke, J. R. Benton, and W. A. Griffin, *University of Nebraska, Lincoln.*

10:30 AM	271	<b>Feeding increased amounts of wet distillers grains plus solubles on feedlot cattle performance.</b> A. R. Rich*, G. E. Erickson, T. J. Klopfenstein, M. K. Luebbe, J. R. Benton, and W. A. Griffin, <i>University of Nebraska, Lincoln.</i>
10:45 AM	272	<b>Meta analysis of feeding winter calf-feds or summer yearlings wet distillers grains with different corn processing types.</b> V. R. Bremer*, K. J. Hanford, G. E. Erickson, and T. J. Klopfenstein, <i>University of Nebraska, Lincoln.</i>
11:00 AM	273	<b>Metabolism by steers consuming wet corn gluten feed or wet distillers grains with solubles based finishing diets.</b> C. D. Buckner*, K. M. Rolfe, N. F. Meyer, T. J. Klopfenstein, and G. E. Erickson, <i>University of Nebraska, Lincoln.</i>
11:15 AM	94	<b>Metabolism characteristics of feedlot diets containing different by-product lipid sources.</b> V. R. Bremer*, K. M. Rolfe, C. D. Buckner, G. E. Erickson, and T. J. Klopfenstein, <i>University of Nebraska, Lincoln.</i>
11:30 AM	346	<b>Nutrient composition of spoiled and non-spoiled wet by-products mixed with straw after storage.</b> J. R. Yelden*, C. D. Buckner, K. R. Rolfe, D. L. Christensen, T. J. Klopfenstein, and G. E. Erickson, <i>University of Nebraska, Lincoln.</i>
11:45 AM	345	<b>Evaluation of storage covers when wet distillers by-products are mixed and stored with forages.</b> D. L. Christensen*, K. M. Rolfe, T. J. Klopfenstein, G. E. Erickson, and C. D. Buckner, <i>University of Nebraska, Lincoln.</i>

### Extension - Beef/Small Ruminant

#### Economic and Environmental Sustainability of Cow-Calf Operations

#### NCERA-087: Beef Cow-Calf Nutrition and Management Committee

**Chair: Daniel Buskirk, Michigan State University**

**134**

8:30 AM	50	<b>(Invited) Matching the cow to forage resources.</b> D. L. Lalman*, C. P. McMurphy, G. L. Mourer, A. J. Sexten, G. E. Selk, and D. R. Stein, <i>Oklahoma State University, Stillwater.</i>
9:00 AM	51	<b>(Invited) Potential to create carbon credits from beef production practices.</b> D. B. Faulkner*, <i>University of Illinois, Urbana.</i>
9:30 AM	52	<b>(Invited) Managing phosphorus supplementation to enhance the economic and environmental sustainability of beef cow-calf operations.</b> J. R. Russell* <sup>1</sup> , M. M. Haan <sup>2</sup> , and K. A. Schwarte <sup>1</sup> , <sup>1</sup> <i>Iowa State University, Ames,</i> <sup>2</sup> <i>Michigan State University-Kellogg Biological Station, Hickory Corners.</i>
10:00 AM		<b>Break</b>

- 10:15 AM 53 **(Invited) On-farm mortality composting of large animal carcasses.** J. Payne\*<sup>1</sup> and B. Pugh<sup>2</sup>, <sup>1</sup>*Oklahoma State University, Oklahoma Cooperative Extension Service, Muskogee*, <sup>2</sup>*Oklahoma State University, Oklahoma Cooperative Extension Service, Stigler*.
- 10:45 AM 54 **(Invited) Filling in the gaps in forage and feed needs.** G. P. Lardy\*, *North Dakota State University, Fargo*.
- 11:15 AM 55 **Extended storage of modified distillers grains.** D. D. Loy\*, D. R. Strohhahn, H. J. Sellers, and D. G. Morriscal, *Iowa State University, Ames*.
- 11:30 AM 56 **Extended storage of wet distillers grains mixed with ground hay.** D. D. Loy\*, D. R. Strohhahn, H. J. Sellers, and D. G. Morriscal, *Iowa State University, Ames*.

### Ruminant Nutrition

#### Symposium: Direct-Fed Microbials in Ruminants: Effects on Productivity, Health, and Food Safety

**Chairs: Barry Bradford, Kansas State University, and Amer AbuGhazaleh, Southern Illinois University**

**146-148**

- 8:30 AM 298 **(Invited) The challenges of delivering direct fed microbials to ruminants.** M. R. Garner\*, *MicroBios, Inc, Ithaca, NY*.
- 9:15 AM 299 **(Invited) Effects of direct-fed microbials on health and development of pre-ruminant dairy calves: An assessment.** A. F. Kertz\*, *ANDHIL LLC, St. Louis, MO*.
- 10:00 AM **Break**
- 10:15 AM 300 **(Invited) Direct-fed microbials for growing and finishing cattle: Impact on growth performance and health.** M. S. Brown\*<sup>1</sup> and C. R. Krehbiel<sup>2</sup>, <sup>1</sup>*West Texas A&M University, Canyon*, <sup>2</sup>*Oklahoma State University, Stillwater*.
- 11:00 AM 301 **(Invited) Direct-fed microbials and preharvest food safety in beef cattle.** T. G. Nagaraja\*, *Kansas State University, Manhattan*.

**Teaching**  
**Training Students to be Advocates for the Animal Industry**  
**Chair: Kelly Bruns, South Dakota State University**  
**205 IJ**

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| 8:30 AM  | 324 | <b>(Invited) New directions in agricultural education.</b> D. L. Boggs*, <i>Kansas State University, Manhattan.</i>  |
| 8:55 AM  | 325 | <b>(Invited) Creating industry advocates in the classroom: Media interview project.</b> J. A. Sterle*, <i>Texas A&amp;M University, College Station.</i>   |
| 9:20 AM  | 326 | <b>Pork industry Fellows program in animal science at Iowa State University.</b> T. J. Baas*, M. G. Hogberg, and A. E. Christian, <i>Iowa State University, Ames.</i>  |
| 9:35 AM  | 327 | <b>Training students to be advocates for the animal industry through the class—Current issues in animal and range sciences.</b> R. C. Thaler* and K. W. Bruns, <i>South Dakota State University, Brookings.</i>  |
| 9:50 AM  | 328 | <b>The Nebraska Beef Industry Scholars program.</b> M. L. Spangler*, M. K. Nielsen, D. Brink, G. E. Erickson, J. Ellis, D. Mark, D. Burson, D. Smith, and B. Lubben, <i>University of Nebraska, Lincoln.</i>   |
| 10:05 AM | 329 | <b>Equine issues and leadership: Preparing emerging leaders to be advocates for the equine industry.</b> R. C. Bott*, <i>South Dakota State University, Brookings.</i>   |
| 10:20 AM | 330 | <b>Beef leaders program at South Dakota State University.</b> S. J. Winterholler* and K. W. Bruns, <i>South Dakota State University, Brookings.</i>  |
| 10:35 AM | 331 | <b>Incorporation of a student response system into a large animal nutrition lecture course.</b> B. J. Bradford*, <i>Kansas State University, Manhattan.</i>  |
| 10:50 AM | 332 | <b>Swine science online.</b> T. J. Baas* <sup>1</sup> , M. T. See <sup>2</sup> , J. Sterle <sup>3</sup> , D. Meisinger <sup>1</sup> , and C. Masker <sup>1</sup> , <sup>1</sup> <i>Iowa State University, Ames</i> , <sup>2</sup> <i>North Carolina State University, Raleigh</i> , <sup>3</sup> <i>Texas A&amp;M University, College Station.</i> |



**Nonruminant Nutrition**  
**Nonruminant IV: Energy**  
**Chair: Nathan Augspurger, JBS United Inc.**  
**142-144**  
**Sponsored by: Kent Feeds**

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| 9:45 AM  | 152 | <b>(National Pork Board Research Award) Effect of genotype on heat production and the net energy (NE) value of a corn-soybean meal-based diet.</b> E. Kiarie* and C. M. Nyachoti, <i>University of Manitoba, Winnipeg, MB, Canada.</i>  |
| 10:00 AM | 153 | <b>Practical method for estimating productive energy (NE) of wheat midds for growing pigs.</b> R. D. Boyd <sup>1</sup> , C. E. Zier-Rush* <sup>1</sup> , and C. E. Fralick <sup>2</sup> , <sup>1</sup> <i>The Hanor Company, Franklin, KY</i> , <sup>2</sup> <i>Swine-Tek Research, Van Wert, OH.</i>   |
| 10:15 AM | 154 | <b>Comparative digestibility of energy and nutrients in fibrous feed ingredients by Meishan and Yorkshire pigs.</b> P. E. Urriola* and H. H. Stein, <i>University of Illinois, Urbana.</i>  |
| 10:30 AM | 155 | <b>Estimating the metabolizable energy contribution of Albac (zinc bacitracin) in growing and finishing swine diets.</b> D. A. Nelson*, <i>Alpharma Animal Health, Bridgewater, NJ.</i>   |
| 10:45 AM | 156 | <b>(Invited ASAS Animal Science Young Scholar) Viscosity and fermentability of purified non-starch polysaccharides (NSP) affect kinetics of digestion and hormone secretion in ileal-cannulated and porto-arterial catheterized pigs.</b> S. Hooda* <sup>1</sup> , B. U. Metzler-Zebeli <sup>1</sup> , J. J. Matte <sup>2</sup> , T. Vasanthan <sup>1</sup> , and R. T. Zijlstra <sup>1</sup> , <sup>1</sup> <i>University of Alberta, Edmonton, AB, Canada</i> , <sup>2</sup> <i>Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.</i> |
| 11:15 AM | 157 | <b>Energy concentration and phosphorus digestibility in milk products fed to weanling pigs.</b> B. G. Kim, J. W. Lee, and H. H. Stein*, <i>University of Illinois, Urbana.</i>  |

**Equine - Management, Extension and Teaching**  
**Chair: Krishona Martinson, University of Minnesota**  
**146-148**

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| 1:00 PM |    | <b>Introduction</b>  |
| 1:05 PM | 45 | <b>(Invited) Obesity-associated insulin resistance and its relationship to laminitis.</b> R. Carter*, <i>Department of Clinical Studies/New Bolton Center, University of Pennsylvania School of Veterinary Medicine, Kennett Square.</i> |

1:35 PM	46	<b>Lactic acid bacteria isolated from the equine stomach.</b> A. H. Smith* and T. G. Rehberger, <i>Danisco, Waukesha, WI.</i>
1:50 PM	47	<b>Relevant equine intensive nutrition software.</b> P. Auwerda* and G. Dahke, <i>Iowa State University, Ames.</i>
2:05 PM	343	<b>Transcript profile of hexose transporters along the horse gastrointestinal tract.</b> N. P. Taylor* <sup>1</sup> , A. D. Woodward <sup>1</sup> , R. Manjarin <sup>1</sup> , S. J. Holcombe <sup>2</sup> , and N. L. Trottier <sup>1</sup> , <sup>1</sup> <i>Michigan State University, Department of Animal Science, East Lansing</i> , <sup>2</sup> <i>Michigan State University, College of Veterinary Medicine, East Lansing.</i>
2:20 PM		<b>Break</b>
2:35 PM	48	<b>(Invited) An update on horse welfare, contrasting the issues between developed countries and developing countries.</b> C. R. Heleski*, <i>Michigan State University, East Lansing.</i>
3:05 PM	49	<b>The gelding project.</b> K. Martinson* <sup>1</sup> , J. Wilson <sup>1</sup> , T. Turner <sup>2</sup> , B. Colombo <sup>3</sup> , C. McKenzie <sup>4</sup> , and D. Fitzpatrick <sup>5</sup> , <sup>1</sup> <i>University of Minnesota, St. Paul</i> , <sup>2</sup> <i>Minnesota Horse Council, St. Paul</i> , <sup>3</sup> <i>Minnesota Animal Humane Society, Golden Valley</i> , <sup>4</sup> <i>Sundown Horse Shelter, Hugo, MN</i> , <sup>5</sup> <i>Minnesota Hooved Animal Rescue, Zimmerman.</i>
3:20 PM	329	<b>Equine issues and leadership: Preparing emerging leaders to be advocates for the equine industry.</b> R. C. Bott*, <i>South Dakota State University, Brookings.</i>
3:35 PM		<b>Discussion</b>

**Extension – Dairy Symposium**  
**Symposium: Feeding the Transition Cow—The Debate Continues**  
**Chair: Jim Paulson, University of Minnesota**  
**134**  
**Sponsored by: Agri-King Inc.**

1:00 PM		<b>Introduction.</b> J. Paulson.
1:15 PM	61	<b>(Invited) Getting the cow off to the best possible start: Should we focus on far-off dry, pre-fresh transition, or post-fresh transition period?</b> R. Grummer*, <i>University of Wisconsin, Madison.</i>
1:45 PM	62	<b>(Invited) Strategies for nutritional management during the dry period: Controlled energy diets.</b> J. K. Drackley*, <i>University of Illinois, Urbana.</i>
2:15 PM		<b>Discussion and Debate</b>
2:45 PM		<b>Break</b>

3:00 PM	63	<b>(Invited) Diet cation-anion difference (DCAD) as a means of controlling milk fever; factors important to implementing DCAD management.</b> J. Goff*, <i>Iowa State University, Ames.</i>
3:30 PM	64	<b>(Invited) Low calcium diets and milk fever.</b> J. D. Ferguson*, <i>University of Pennsylvania, Kennett Square.</i>
4:00 PM		<b>Discussion</b>

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

**Chair: Tara McDaneld, USDA-ARS**

**140**

1:00 PM	97	<b>Effects of spaying and terminal implant strategy on performance and carcass characteristics of beef feedlot heifers.</b> J. M. Kelzer* <sup>1</sup> , C. R. Dahlen <sup>2</sup> , G. I. Crawford <sup>3</sup> , and A. DiCostanzo <sup>1</sup> , <sup>1</sup> <i>University of Minnesota, St. Paul</i> , <sup>2</sup> <i>University of Minnesota Northwest Research and Outreach Center, Crookston</i> , <sup>3</sup> <i>University of Minnesota Extension Regional Office, Hutchinson.</i>
1:15 PM	117	<b>In pigs myofiber hyperplasia is reduced due to intrauterine crowding.</b> J. Bérard <sup>1,2</sup> , C. E. Pardo <sup>1,2</sup> , S. Béthaz <sup>1</sup> , M. Kreuzer <sup>2</sup> , and G. Bee* <sup>1</sup> , <sup>1</sup> <i>Agroscope Liebefeld Posieux, Research Station ALP, Posieux, Switzerland</i> , <sup>2</sup> <i>Department of Agricultural and Food Science, ETH-Zurich, Zurich, Switzerland.</i>
1:30 PM	118	<b>Effects of piglet birth weight and litter size on pre-weaning growth performance of pigs on a commercial farm.</b> J. R. Bergstrom* <sup>1</sup> , M. L. Potter <sup>1</sup> , M. D. Tokach <sup>1</sup> , S. C. Henry <sup>2</sup> , S. S. Dritz <sup>1</sup> , J. L. Nelssen <sup>1</sup> , R. D. Goodband <sup>1</sup> , and J. M. DeRouchey <sup>1</sup> , <sup>1</sup> <i>Kansas State University, Manhattan</i> , <sup>2</sup> <i>Abilene Animal Hospital, Abilene, KS.</i>
1:45 PM	119	<b>Effects of birth weight and gender on post-weaning performance of pigs in a commercial environment.</b> J. R. Bergstrom* <sup>1</sup> , M. L. Potter <sup>1</sup> , M. D. Tokach <sup>1</sup> , S. C. Henry <sup>2</sup> , S. S. Dritz <sup>1</sup> , J. L. Nelssen <sup>1</sup> , R. D. Goodband <sup>1</sup> , and J. M. DeRouchey <sup>1</sup> , <sup>1</sup> <i>Kansas State University, Manhattan</i> , <sup>2</sup> <i>Abilene Animal Hospital, Abilene, KS.</i>
2:00 PM	120	<b>Effects of birth weight and dietary Paylean inclusion level on the growth performance and carcass composition of pigs.</b> C. L. Puls* <sup>1</sup> , M. Ellis <sup>1</sup> , L. Kutzler <sup>1</sup> , J. Killefer <sup>1</sup> , F. K. McKeith <sup>1</sup> , N. Williams <sup>2</sup> , B. A. Peterson <sup>3</sup> , B. F. Wolter <sup>3</sup> , and S. N. Carr <sup>4</sup> , <sup>1</sup> <i>University of Illinois, Urbana</i> , <sup>2</sup> <i>PIC USA, Hendersonville, TN</i> , <sup>3</sup> <i>The Maschhoffs, Carlyle, IL</i> , <sup>4</sup> <i>Elanco Animal Health, Greenfield, IN.</i>

- 2:15 PM 121 **Impact of feeding diets containing extruded flaxseed meal and vitamin E in finishing swine.** A. D. Beaulieu\*<sup>1</sup>, J. F. Patience<sup>1</sup>, R. T. Zijlstra<sup>2</sup>, J. L. Aalhus<sup>3</sup>, and M. E. R. Dugan<sup>3</sup>, <sup>1</sup>*Prairie Swine Centre, Inc., Saskatoon, SK, Canada*, <sup>2</sup>*University of Alberta, Edmonton, AB, Canada*, <sup>3</sup>*Agriculture and Agri-Food Canada Lacombe Research Centre, Lacombe, AB, Canada.*
- 2:30 PM 83 **Fatty acid profiles of pork fat are altered when ractopamine (Paylean), CLA and DDGS are fed.** H. L. Evans\*<sup>1</sup>, R. B. Hinson<sup>1</sup>, G. D. Gerlemann<sup>1</sup>, D. Pompeu<sup>1</sup>, S. N. Carr<sup>2</sup>, M. J. Ritter<sup>2</sup>, B. R. Wiegand<sup>1</sup>, G. L. Allee<sup>1</sup>, and R. D. Boyd<sup>3</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*, <sup>3</sup>*The Hanor Company, Franklin, KY.*
- 2:45 PM 86 **Prediction of carcass traits and-free lean using ultrasound measures at the last rib and tenth rib in swine.** R. O. McKeith\*, B. K. Lowe, J. A. Safko, R. M. Pitzer, J. R. Severs, A. M. Stelzleni, M. J. Azain, and T. D. Pringle, *University of Georgia, Athens.*
- 3:00 PM 122 **Non-invasive prediction of pork loin tenderness.** S. D. Shackelford\*, D. A. King, and T. L. Wheeler, *U.S. Meat Animal Research Center, Clay Center, Lincoln, NE.*
- 3:15 PM **Break**
- 3:30 PM 123 **Effects of forage finishing level on sensory characteristics of Jersey beef.** E. J. Arnett\*, P. S. Kuber, F. L. Fluharty, S. J. Moeller, H. N. Zerby, and S. C. Loerch, *The Ohio State University, Columbus.*
- 3:45 PM 124 **Determination of fat percentage using CEM and folch fat extraction methods within marbling scores on beef *Longissimus* muscle.** D. L. Dow\*, B. R. Wiegand, M. R. Ellerseick, and C. L. Lorenzen, *University of Missouri, Columbia.*
- 4:00 PM 125 **Lactate/phosphate injection enhancement improved oxidation stability and tenderness of postmortem beef cuts packaged in high oxygen modified atmosphere.** Y. H. Kim\*, E. Huff-Loneragan, and S. M. Lonergan, *Iowa State University, Ames.*
- 4:15 PM 126 **Control of *Listeria monocytogenes* on uncured, no-nitrate-or-nitrite-added frankfurters.** K. D. Schrader\*, J. G. Sebranek, J. C. Cordray, J. D. Dickson, and A. F. Mendonca, *Iowa State University, Ames.*

**Nonruminant Nutrition**  
**Nonruminant V: Corn Co-Products**  
**Chair: Dave Holzgraefe, Archer Daniels Midland**  
**136-138**

- 1:00 PM 158 **Effects of corn distillers dried grains with solubles (DDGS) on quality traits of pork.** K. M. McClelland\*<sup>1</sup>, G. Rentfrow<sup>1</sup>, G. L. Cromwell<sup>1</sup>, M. D. Lindemann<sup>1</sup>, and M. J. Azain<sup>2</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*University of Georgia, Athens*.
- 1:15 PM 159 **Attempts to improve belly firmness in finishing pigs fed a high level of DDGS.** M. C. Ulery\*<sup>1</sup>, G. L. Cromwell<sup>1</sup>, G. K. Rentfrow<sup>1</sup>, M. D. Lindemann<sup>1</sup>, and M. J. Azain<sup>2</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*University of Georgia, Athens*.
- 1:30 PM 160 **(Invited ASAS Animal Science Young Scholar) Dietary fiber and distillers dried grains with solubles as modulators of pig health.** V. Perez\* and J. Pettigrew, *University of Illinois, Urbana*.
- 2:00 PM 161 **Effect of dried distillers grains with solubles (DDGS) withdrawal regimens on finishing pig performance and carcass traits.** J. Y. Jacela\*<sup>1</sup>, J. M. Benz<sup>1</sup>, S. S. Dritz<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. L. Nelssen<sup>1</sup>, and K. J. Prusa<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Iowa State University, Ames*.
- 2:15 PM 162 **Effects of distillers dried grains with solubles and lactose on growth performance of nursery pigs.** H. Tran\*, R. Moreno, J. W. Bundy, E. Hinkle, T. E. Burkey, and P. S. Miller, *University of Nebraska, Lincoln*.
- 2:30 PM 163 **Development of equations to predict the metabolizable energy content of distillers dried grains with solubles (DDGS) samples from a wide variety of sources.** O. F. Mendoza\*<sup>1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, M. Kocher<sup>2</sup>, T. Sauber<sup>3</sup>, and D. Jones<sup>3</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschhoffs, Carlyle, IL*, <sup>3</sup>*Pioneer Hi-Bred, Johnston, IA*.
- 2:45 PM 164 **Impact of CLA and ractopamine (Paylean) on growth performance and carcass characteristics in finishing pigs fed either corn distillers dried grains with solubles (DDGS) or corn-soy diets.** G. D. Gerlemann\*<sup>1</sup>, R. B. Hinson<sup>1</sup>, D. Pompeu<sup>1</sup>, S. N. Carr<sup>2</sup>, M. J. Ritter<sup>2</sup>, B. R. Wiegand<sup>1</sup>, G. L. Allee<sup>1</sup>, and R. D. Boyd<sup>3</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*, <sup>3</sup>*The Hanor Company, Franklin, KY*.
- 3:00 PM 165 **Effects of dried distiller grains with solubles (DDGS) and ractopamine on growth performance and carcass characteristics of swine.** A. Schinckel, M. Latour, and B. Richert\*, *Purdue University, West Lafayette, IN*.
- 3:15 PM 166 **Effects of excess dietary protein from soybean meal and dried distillers grains with soluble in nursery pigs.** S. M. Willaims\*, J. D. Hancock, S. Issa, and T. L. Gugle, *Kansas State University, Manhattan*.

**Nonruminant Nutrition**  
**Nonruminant VI: Symposium:**  
**Current Understanding of Fiber Nutrition for Swine**  
**Chair: Aaron Gaines, The Maschhoffs, LLC**  
**142-144**

**Sponsored by: Archer Daniels Midland and Novus International**

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|---------|-----|--|
| 1:00 PM | 167 | <b>(Invited) Measurement and quantification of fiber components in dietary ingredients.</b> G. C. Fahey*, <i>University of Illinois, Urbana.</i>   |
| 1:45 PM |     | <b>(Invited) Differences in analytical composition and energy digestibility of select fiber sources.</b> B. J. Kerr, <i>USDA-ARS-SOMMRU, Ames, IA.</i>   |
| 2:30 PM |     | <b>Break</b>   |
| 2:45 PM | 168 | <b>(Invited) Digestibility of dietary fiber in distillers co-products fed to growing pigs.</b> H. H. Stein*, <i>University of Illinois, Urbana.</i>  |
| 3:30 PM | 169 | <b>(Invited) Digestion of carbohydrates and utilization of energy in pigs and sows fed diets with contrasting levels and physiochemical properties of dietary fiber.</b> K. E. B. Knudsen* and H. Jørgensen, <i>Aarhus University, Department of Animal Health and Bioscience, Tjele, Denmark.</i> |
| 4:15 PM | 170 | <b>(Invited) Factors to consider when using higher levels of fiber in diet formulation.</b> J. F. Patience*, <i>Iowa State University, Ames.</i>   |

**Ruminant Nutrition II**  
**Chair: Barry Bradford, Kansas State University**  
**204 FG**

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|---------|-----|---|
| 1:00 PM | 274 | <b>(Invited ASAS Animal Science Young Scholar) Plasma leptin and ghrelin concentrations and abundance of the growth hormone secretaagogue receptor in beef cattle exhibiting differences in composition of gain.</b> J. S. Jennings* <sup>1</sup> , R. H. Pritchard <sup>1</sup> , D. H. Keisler <sup>2</sup> , A. D. Weaver <sup>1</sup> , J. A. Clapper <sup>1</sup> , and A. E. Wertz-Lutz <sup>1</sup> , <sup>1</sup> <i>South Dakota State University, Brookings</i> , <sup>2</sup> <i>University of Missouri, Columbia.</i>   |
| 1:30 PM | 275 | <b>The value of feeding lactic acid cultures (Bovamine) on digestive tract morphology of neo-natal/transition Holstein bull calves and performance and carcass characteristics of long-fed Holstein steers.</b> K. J. Dick <sup>1</sup> , G. C. Duff* <sup>1</sup> , S. W. Limesand <sup>1</sup> , S. P. Cuneo <sup>1</sup> , D. K. Knudson <sup>1</sup> , C. P. McMurphy <sup>1</sup> , L. W. Hall <sup>1</sup> , J. C. Bernal-Rigoli <sup>1</sup> , J. A. Marchello <sup>1</sup> , and W. Kreikemeier <sup>2</sup> , <sup>1</sup> <i>University of Arizona, Tucson</i> , <sup>2</sup> <i>Nutrition Physiology Company, LLC, Guymon, OK.</i> |

1:45 PM	276	<b>Bovine intestinal mucus as a substrate for growth of <i>E. coli</i> O157:H7.</b> C. Aperce*, J. Heidenreich, and J. Drouillard, <i>Kansas State University, Animal Sciences and Industry, Manhattan.</i>
2:00 PM	277	<b>Effect of health treatments on feedlot performance, carcass traits and profitability of beef calves fed in the Iowa Tri-County Steer Carcass Futurity.</b> G. D. Fike* <sup>1</sup> , L. R. Corah <sup>1</sup> , M. E. King <sup>1</sup> , and W. D. Busby <sup>2</sup> , <sup>1</sup> <i>Certified Angus Beef LLC, Wooster, OH,</i> <sup>2</sup> <i>Iowa State University, Ames.</i>
2:15 PM	278	<b>Effect of lung adhesions on feedlot performance, carcass traits and profitability of beef calves fed in the Iowa Tri-County Steer Carcass Futurity.</b> G. D. Fike <sup>1</sup> , L. R. Corah <sup>1</sup> , M. E. King <sup>1</sup> , and W. D. Busby* <sup>2</sup> , <sup>1</sup> <i>Certified Angus Beef LLC, Wooster, OH,</i> <sup>2</sup> <i>Iowa State University, Ames.</i>
2:30 PM	279	<b>Effects of a dietary antioxidant on performance and carcass characteristics of feedlot cattle fed WDGS or high grain diets.</b> J. P. Moore* <sup>1</sup> , J. T. Vasconcelos <sup>1,2</sup> , G. E. Erickson <sup>1</sup> , S. A. Furman <sup>2</sup> , M. Andersen <sup>3</sup> , and C. N. Macken <sup>4</sup> , <sup>1</sup> <i>University of Nebraska, Lincoln,</i> <sup>2</sup> <i>University of Nebraska, Panhandle Research and Extension Center, Scottsbluff,</i> <sup>3</sup> <i>Novus International, Inc., St. Louis, MO,</i> <sup>4</sup> <i>Performance Plus Liquid, Palmer, NE.</i>
2:45 PM	280	<b>Beta acid extracts of hops: Effects on ruminal metabolism and apparent total tract digestibility of high-concentrate diets.</b> S. Uwituze* <sup>1</sup> , J. M. Heidenreich <sup>1</sup> , J. J. Higgins <sup>1</sup> , S. Garden <sup>2</sup> , and J. S. Drouillard <sup>1</sup> , <sup>1</sup> <i>Kansas State University, Manhattan,</i> <sup>2</sup> <i>John I. Haas, Inc., Washington, DC.</i>
3:00 PM		<b>Break</b>
3:15 PM	281	<b>Effect of feeding corn modified to contain amylase on performance and carcass characteristics of feedlot steers.</b> J. P. Schoonmaker* <sup>1</sup> , M. E. Persia <sup>2</sup> , and D. C. Beitz <sup>1</sup> , <sup>1</sup> <i>Iowa State University, Ames,</i> <sup>2</sup> <i>Syngenta Biotechnology, Research Triangle Park, NC.</i>
3:30 PM	282	<b>Effects of supplemental energy and protein on forage digestion and urea kinetics.</b> E. A. Bailey*, E. C. Titgemeyer, K. C. Olson, D. W. Brake, D. E. Anderson, and M. L. Jones, <i>Kansas State University, Manhattan.</i>
3:45 PM	283	<b>Effect of nitrogen supplementation and zilpaterol-HCl on urea kinetics in steers consuming corn-based diets.</b> D. W. Brake*, E. C. Titgemeyer, and M. L. Jones, <i>Kansas State University, Manhattan.</i>
4:00 PM	284	<b>Effects of initial body composition on carcass weight and compositional changes in heifers fed Zilmax.</b> L. Thompson*, C. Schneider, G. Parsons, K. Miller, C. Reinhardt, and J. Drouillard, <i>Kansas State University, Manhattan.</i>

- 4:15 PM 285 **Performance of finishing beef steers in response to anabolic implant dose and zilpaterol hydrochloride.** S. L. Parr<sup>\*1</sup>, K. Y. Chung<sup>1</sup>, M. L. Galyean<sup>1</sup>, J. P. Hutcheson<sup>2</sup>, N. DiLorenzo<sup>1</sup>, K. E. Hales<sup>1</sup>, M. L. May<sup>1</sup>, M. J. Quinn<sup>1</sup>, D. R. Smith<sup>1</sup>, and B. J. Johnson<sup>1</sup>, <sup>1</sup>*Texas Tech University, Lubbock*, <sup>2</sup>*Intervet / Schering-Plough Animal Health, De Soto, KS*.
- 4:30 PM 286 **Comparison of a single Revalor XS implant with a Synovex Choice-Synovex Plus implant combination on feedlot steer performance and carcass characteristics.** G. I. Crawford<sup>\*1</sup>, R. Gilland<sup>2</sup>, C. G. Campbell<sup>3</sup>, and D. Fedders<sup>3</sup>, <sup>1</sup>*University of Minnesota Extension, Hutchinson*, <sup>2</sup>*Gilland Feedlot, Morgan, MN*, <sup>3</sup>*Fort Dodge Animal Health, Overland Park, KS*.
- 4:45 PM 287 **Effect of hide color and percentage Angus on feedlot performance and carcass traits in beef calves.** L. R. Corah<sup>\*1</sup>, G. D. Fike<sup>1</sup>, M. E. King<sup>1</sup>, and W. D. Busby<sup>2</sup>, <sup>1</sup>*Certified Angus Beef LLC, Wooster, OH*, <sup>2</sup>*Iowa State University, Ames*.

### Ruminant Nutrition III

Chair: Amer AbuGhazaleh, Southern Illinois University

204 AB

- 1:00 PM 288 **(Invited ADSA Young Dairy Scholar) Amino acid utilization in dried distillers grains with solubles based diets for dairy cows.** K. Mjoun<sup>\*</sup> and K. F. Kalscheur, *South Dakota State University, Brookings*.
- 1:30 PM 289 **Ensiling wet distillers grains mixed with corn stalks and its feeding value for Holstein heifers.** J. L. Anderson<sup>\*1</sup>, K. F. Kalscheur<sup>1</sup>, A. D. Garcia<sup>1</sup>, A. R. Hippen<sup>1</sup>, D. J. Schingoethe<sup>1</sup>, D. H. Kleinschmit<sup>2</sup>, and D. P. Casper<sup>2</sup>, <sup>1</sup>*South Dakota State University, Brookings*, <sup>2</sup>*Agri-King Inc., Fulton, IL*.
- 1:45 PM 290 **(Invited ADSA Young Dairy Scholar) Effects of rumen undegradable protein and forage composition on milk production of dairy ewes.** C. Mikolayunas<sup>\*</sup>, D. L. Thomas, L. E. Armentano, and Y. M. Berger, *University of Wisconsin, Madison*.
- 2:15 PM 291 **Effects of supplementing dairy cows with chromium propionate on milk and tissue chromium concentrations.** K. E. Lloyd<sup>1</sup>, J. W. Spears<sup>\*1</sup>, S. McLeod<sup>1</sup>, R. S. Fry<sup>1</sup>, K. Krafka<sup>2</sup>, A. Lamptey<sup>2</sup>, and V. Fellner<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Kemin AgriFoods North America, Inc, Des Moines, IA*.
- 2:30 PM 335 **Postpartum feeding behavior of dairy cows fed ad libitum or restricted prepartum diets containing wheat straw or orchardgrass.** B. Weich<sup>\*</sup>, A. D. Kimicikewycz, M. I. Endres, and N. B. Litherland, *University of Minnesota, St Paul*.



- 2:45 PM 292 **Ames assay, mouse lymphoma assay, and mouse micronucleus assay confirm chromium methionine to be nongenotoxic.** T. L. Ward\*, M. Hansen, and P. A. Stark, *Zinpro Corporation, Eden Prairie, MN.*
- 3:00 PM 293 **Effects of nutritional plane and selenium supply during gestation on circulating non-esterified fatty acid and thyroid hormone concentrations in first-parity ewe lambs.** A. M. Meyer\*, D. R. Montonye, J. J. Reed, L. P. Reynolds, D. A. Redmer, J. S. Caton, and K. A. Vonnahme, *Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo.*
- 3:15 PM 294 **Effects of feeding site and hay processing on dry matter intake and hay waste by wintering beef cows.** J. P. Jaderborg\*<sup>1</sup>, S. L. Bird<sup>2</sup>, G. I. Crawford<sup>3</sup>, R. Walker<sup>4</sup>, B. J. Funnell<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*North Central Research and Outreach Center, Grand Rapids, MN*, <sup>3</sup>*Regional Extension Office, Hutchinson, MN*, <sup>4</sup>*Regional Extension Office, Andover, MN.*
- 3:30 PM 85 **Supplement moisture and feeding site affect feed intake and waste by wintering beef cows.** J. P. Jaderborg\*<sup>1</sup>, S. L. Bird<sup>2</sup>, G. I. Crawford<sup>3</sup>, R. Walker<sup>4</sup>, B. J. Funnell<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*North Central Research and Outreach Center, Grand Rapids, MN*, <sup>3</sup>*Regional Extension Office, Hutchinson, MN*, <sup>4</sup>*Regional Extension Office, Andover, MN.*
- 3:45 PM 295 **Effects of pasture management and off-stream water on temporal/spatial distribution of cattle in cool-season grass pastures.** K. A. Schwarte\*, J. R. Russell, and D. G. Morrical, *Iowa State University, Ames.*
- 4:00 PM 296 **Forage quality and grazing performance of beef cattle grazing brown mid-rib grain sorghum residue.** A. K. Watson\*<sup>1</sup>, J. R. Geis<sup>1</sup>, W.A. Griffin<sup>1</sup>, G. E. Erickson<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, R. B. Mitchell<sup>2</sup>, and J. F. Pedersen<sup>2</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*USDA, ARS, Lincoln, NE.*
- 4:15 PM 342 **Environmental benefits from the use of ractopamine in feedlot cattle.** T. M. Hodge\*, D. R. Ames, S. L. Archibeque, and D. B. Anderson, *Colorado State University, Ft. Collins.*
- 4:30 PM 297 **Post-weaning performance by spring and fall-born steers weaned from full access, limited access, or no access to endophyte-infected tall fescue—2-year summary.** J. Caldwell\*<sup>1</sup>, K. Coffey<sup>1</sup>, D. Philipp<sup>1</sup>, C. Kreibiel<sup>2</sup>, B. Holland<sup>3</sup>, J. Jennings<sup>4</sup>, D. Hubbell, II<sup>1</sup>, J. Tucker<sup>1</sup>, A. Young<sup>1</sup>, T. Hess<sup>1</sup>, D. Kreider<sup>1</sup>, M. Looper<sup>5</sup>, M. Popp<sup>1</sup>, M. Savin<sup>1</sup>, E. Kegley<sup>1</sup>, C. Rosenkranz, Jr.<sup>1</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*Oklahoma State University, Stillwater*, <sup>3</sup>*South Dakota State University, Brookings*, <sup>4</sup>*Cooperative Extension Service, Little Rock, AR*, <sup>5</sup>*USDA-ARS Booneville, Booneville, AR.*

**Physiology Symposium: Factors Influencing Placental Function**  
**Chair: Kimberly Vonnahme, North Dakota State University**  
**205 IJ**

- 1:30 PM      253      **(Invited) Factors affecting the formation of the maternal:placental interface in the pig.** J. W. Ross\*<sup>1</sup>, M. D. Ashworth<sup>2</sup>, R. D. Geisert<sup>3</sup>, and F. J. White<sup>4</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Yale University, New Haven, CT*, <sup>3</sup>*University of Missouri, Columbia*, <sup>4</sup>*Cameron University, Lawton, OK*.
- 2:15 PM      254      **(Invited) Modification of the early gestational environment can have long-term consequences on conceptus growth and development.** M. E. Wilson\*, T. A. Wilmoth, and J. M. Koch, *West Virginia University, Division of Animal and Nutritional Sciences, Morgantown*.
- 3:00 PM      255      **(Invited) The role of placental programming in life-long health and productivity.** L. P. Reynolds\*, P. P. Borowicz, J. S. Luther, C. J. Hammer, K. R. Maddock Carlin, A. T. Grazul-Bilska, J. S. Caton, D. A. Redmer, and K. A. Vonnahme, *North Dakota State University, Fargo*.

## POSTER PRESENTATIONS

All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 pm until Wednesday at noon. Authors are to be present on their assigned day from 4:30 to 6:00 pm.

### Animal Behavior, Housing, & Well-Being Poster Session 206

**Sponsored by: Zinpro Performance Minerals**

- 16      **A comparative study of lateral toe growth for sows housed in individual gestation stalls.** A. K. Johnson\*<sup>1</sup>, A. M. Meiszberg<sup>1</sup>, L. I. Engblom<sup>1</sup>, K. J. Stalder<sup>1</sup>, and L. A. Karriker<sup>2</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Iowa State University, Ames*.
- 17      **Controlling aggression among gestating sows.** Y. Z. Li, C. E. Phillips\*, S. K. Baidoo, and L. J. Johnston, *University of Minnesota, St. Paul*.
- 18      **Effects of increased hutch ventilation on dairy calf performance.** L. M. Pezzanite\*<sup>1</sup>, T. S. Dennis<sup>1</sup>, R. C. Schroer<sup>1</sup>, M. M. Schutz<sup>1</sup>, S. D. Eicher<sup>2</sup>, and T. D. Nennich<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*USDA-ARS, West Lafayette, IN*.
- 19      **Effect of lactation housing on growth performance of pigs.** Y. Z. Li\*<sup>1</sup>, L. J. Johnston<sup>1</sup>, and J. E. Anderson<sup>2</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*University of Minnesota, Morris*.

- 20 **Association between sow longevity and gestation housing systems.** L. Anil\*<sup>1</sup>, S. S. Anil<sup>2</sup>, S. K. Baidoo<sup>1</sup>, and R. B. A. Dahlen<sup>1</sup>, <sup>1</sup>*University of Minnesota, Waseca*, <sup>2</sup>*University of Minnesota, St. Paul.*
- 21 **Analysis of the association between the number of lesions in different claw areas in sows.** S. S. Anil\*<sup>1</sup>, L. Anil<sup>2</sup>, J. Deen<sup>1</sup>, S. K. Baidoo<sup>2</sup>, M. E. Wilson<sup>3</sup>, and T. L. Ward<sup>3</sup>, <sup>1</sup>*University of Minnesota, St Paul*, <sup>2</sup>*University of Minnesota, Waseca, MN*, <sup>3</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 22 **Analysis of the association of environmental temperature and relative humidity with the severity of claw lesions in sows.** S. S. Anil\*<sup>1</sup>, L. Anil<sup>2</sup>, J. Deen<sup>1</sup>, S. K. Baidoo<sup>2</sup>, M. E. Wilson<sup>3</sup>, and T. L. Ward<sup>3</sup>, <sup>1</sup>*University of Minnesota, St Paul*, <sup>2</sup>*University of Minnesota, Waseca*, <sup>3</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 98 **Water nipple placement, posture and directionality of gestating sows in turnaround stalls.** A. R. Hanson\*, P. M. Walker, and J. P. Holt, *Illinois State University, Normal.*
- 23 **Survey of the incidence and causes of pre-weaning mortality (PWM) and evaluation of the effect of colostrum supplementation on pre-weaning survival.** J. W. Charal\*<sup>1</sup>, M. Ellis<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. A. Peterson<sup>2</sup>, B.F. Wolter<sup>2</sup>, and R. Bowman<sup>2</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschoffs, Carlyle, IL.*
- 24 **Grazing behavior of heifers measured by handheld GPS.** F. Lopes\*<sup>1</sup>, D. K. Combs<sup>1</sup>, P. C. Hoffman<sup>1</sup>, N. M. Esser<sup>1</sup>, and W. Coblenz<sup>2</sup>, <sup>1</sup>*University of Wisconsin, Madison*, <sup>2</sup>*USDA/ARS, Marshfield, WI.*
- 25 **Predictors of thermal status during critical periods of gestation, lactation, and post-weaning in primiparous sows.** E. A. Coate\*, M. C. Lucy, T. J. Safranski, P. A. Eichen, A. M. Williams, and D. E. Spiers, *University of Missouri, Columbia.*

### **Breeding and Genetics Poster Session**

**Chair: Matt Spangler, University of Nebraska-Lincoln**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 37 **Environmental and genetic factors affecting bull sperm shape using Fourier harmonic analysis.** M. F. Grunwald\*, J. J. Parrish, and A. I. Saravia, *University of Wisconsin, Madison.*

## Equine Poster Session

206

Sponsored by: Zinpro Performance Minerals

- 349 **Round bale feeder design affects hay waste during horse feeding: A preliminary study.** K. Cleary\*, K. Martinson, and J. Wilson, *University of Minnesota, St. Paul.*
- 353 **Significant bone loss of the equine distal phalanges in a population of domestic horses.** T. J. Calvert-Jackson\* and R. M. Bowker, *Michigan State University, East Lansing.*

## Extension – Dairy Poster Session

206

Sponsored by: Zinpro Performance Minerals

- 65 **Evaluation of dripping and drying characteristics, teat coverage persistency, and teat health for two prototype and one commercial dry period persistent barrier teat dips.** J. Peters\* and L. L. Timms, *Iowa State University, Ames.*
- 348 **Evaluation of prototype and commercial sodium chlorite (base/activator) pre- post milking teat dips on teat end and teat skin condition and health.** J. Juarez\* and L. L. Timms, *Iowa State University, Ames.*

## Extension – Swine Poster Session

Chair: Chad Hastad, Swine Nutrition Services

206

Sponsored by: Zinpro Performance Minerals

- 71 **Evaluation of alternative methods to analyze pig body weight data from animal sorting technologies**1. A. Schinckel\*<sup>1</sup>, M. Wastell<sup>2</sup>, M. Einstein<sup>1</sup>, J. Hubbs<sup>1</sup>, and P. Preckel<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*Gro-Master Inc., Omaha, NE*.
- 72 **Analyses of lactation feed and energy intakes for three breeds of sows.** A. Schinckel\*<sup>1</sup>, C. Schwab<sup>2</sup>, V. Duttlinger<sup>3</sup>, and M. Einstein<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*National Swine Registry, West Lafayette, IN*, <sup>3</sup>*Tempel Genetics, Gentryville, IN*.
- 73 **Development of a stochastic model of pig growth to evaluate the impact of birth and twenty-one day body weight on pig compositional growth.** A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, T. Stewart<sup>1</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN*.
- 74 **Role of small livestock in poverty reduction and livelihood improvement: Rural Ugandan farmers' experience.** A. Ampaire\* and M. F. Rothschild, *Iowa State University, Ames.*

## Nonruminant Nutrition Poster Session

### Amino Acids

206

Sponsored by: Zinpro Performance Minerals

- 192 **Evaluation of potential sorting strategies on the lysine requirements of pigs.** A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, T. Stewart<sup>1</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN*.
- 193 **Effects of increasing standardized ileal digestible lysine:calorie ratio on growth performance of growing-finishing pigs.** J. R. Bergstrom\*, N. W. Shelton, M. L. Potter, J. Y. Jacela, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan*.
- 194 **Efficacy of methionine hydroxy analogue-calcium salt and DL-methionine to support nitrogen retention in growing pigs.** F. O. Opapeju\*<sup>1</sup>, J. K. Htoo<sup>2</sup>, and C. M. Nyachoti<sup>1</sup>, <sup>1</sup>*University of Manitoba, Winnipeg, MB, Canada*, <sup>2</sup>*Evonik Degussa GmbH, Hanau, Germany*.
- 195 **Interaction of dietary energy and protein on growth performance, carcass characteristics and feed digestibility in individually penned finishing barrows when fed at a constant lysine to calorie ratio.** P. M. Cline\*, T. C. Tsai, C. R. Dove, and M. J. Azain, *University of Georgia, Athens*.
- 196 **Effects of diet complexity and dietary fermented soy protein on growth performance and amino acids digestibility in weanling pigs.** H. J. Kim\*, X. Ao, J. P. Wang, J. H. Lee, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choognam, Korea*.

## Nonruminant Nutrition Poster Session

### Ingredients and Feed Additives

206

Sponsored by: Zinpro Performance Minerals

- 213 **Evaluation of the interaction between lysine level, OptiPak efficiency, and ractopamine hydrochloride (Paylean) on growth performance of late finishing pigs.** R. Howdyshell\*<sup>1</sup>, S. A. Hansen<sup>1</sup>, R. E. Musser<sup>2</sup>, and E. L. Hansen<sup>3</sup>, <sup>1</sup>*Hubbard Feeds, Mankato, MN*, <sup>2</sup>*SODA Feed Ingredients LLC, Mankato, MN*, <sup>3</sup>*New Fashion Pork, Jackson, MN*.
- 214 **The effects of deoxynivalenol on growth performance in nursery pigs.** S. L. Johnston<sup>1</sup>, J. F. Patience<sup>2</sup>, D. Gillis<sup>2</sup>, M. De La Lata\*<sup>1</sup>, S. A. Hansen<sup>1</sup>, and A. D. Beaulieu<sup>2</sup>, <sup>1</sup>*Hubbard Feeds, Mankato, MN*, <sup>2</sup>*Prairie Swine Centre, Inc., Saskatoon, SK, Canada*.
- 114 **Effect of dietary clay on diarrhea of weaned pigs experimentally infected with a pathogenic *E. coli*.** M. Song\*<sup>1</sup>, J. A. Soares<sup>1</sup>, Y. Liu<sup>1</sup>, O. Osuna<sup>2</sup>, C. W. Maddox<sup>1</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Milwhite, Inc., Brownsville, TX*.

- 215 **Effects of mycotoxin binders and a liquid immunity enhancer on the growth performance of wean-to-finish pigs.** J. Y. Jacela\*, S. S. Dritz, J. M. DeRouche, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 216 **Effects of increasing hominy feed in diets on finishing pig performance.** M. L. Potter\*, J. Y. Jacela, S. S. Dritz, M. D. Tokach, J. M. DeRouche, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 100 **Production of value-added pork by enrichment with omega-3 fatty acids.** C. Brown\*<sup>1</sup>, X. Lin<sup>1</sup>, E. van Heugten<sup>1</sup>, R. Harrell<sup>2</sup>, D. Hanson<sup>1</sup>, and J. Odle<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Novus International, St. Charles, MO.*
- 217 **Effects of feeding ractopamine HCl (Paylean) for various durations on finishing pig performance and carcass characteristics.** M. L. Potter\*, S. S. Dritz, M. D. Tokach, J. M. DeRouche, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 218 **Evaluation of a fortified nutrient pack (FNP) and graded levels of Lys on growth performance and total tract apparent digestibility of nutrients in 100-kilogram pigs.** V. D. Naranjo\*<sup>1</sup>, S. L. Johnston<sup>2</sup>, T. D. Bidner<sup>1</sup>, R. Musser<sup>3</sup>, and L. L. Southern<sup>1</sup>, <sup>1</sup>*LSU Agricultural Center, Baton Rouge, LA*, <sup>2</sup>*Hubbard Feeds Inc., Mankato, MN*, <sup>3</sup>*Soda Feed Ingredients, Mankato, MN.*
- 104 **Effects of crystalline lactose on expression of sodium-dependent glucose transporter-1 mRNA and glucose transport in porcine jejunal epithelial cells.** H. Tran\*, P. S. Miller, and T. E. Burkey, *University of Nebraska, Lincoln.*
- 219 **Effects of diets containing various concentrations of fumonisin (FB<sub>1</sub>) supplied by naturally contaminated corn on performance, blood, and liver chemistry of nursery pigs.** S. Turner\*, D. R. Ledoux, G. E. Rottinghaus, and M. C. Shannon, *University of Missouri-Columbia, Columbia.*
- 220 **Effect of two adsorbents on performance, blood, and liver chemistry of nursery pigs fed diets containing fumonisin (FB<sub>1</sub>) supplied by naturally contaminated corn.** S. Turner\*<sup>1</sup>, D. R. Ledoux<sup>1</sup>, G. E. Rottinghaus<sup>1</sup>, J. Broomhead<sup>2</sup>, and M. C. Shannon<sup>1</sup>, <sup>1</sup>*University of Missouri-Columbia, Columbia*, <sup>2</sup>*Amlan International, Vernon Hills, IL.*
- 221 **Ractopamine (Paylean) response in heavy weight finishing pigs.** L. W. Kutzler\*<sup>1</sup>, C. M. Peterson<sup>1</sup>, M. Ellis<sup>1</sup>, S.N. Carr<sup>2</sup>, M.J. Ritter<sup>2</sup>, T.A. Armstrong<sup>2</sup>, F.K. McKeith<sup>1</sup>, and J. Killefer<sup>1</sup>, <sup>1</sup>*University of Illinois at Urbana-Champaign, Urbana, IL, USA*, <sup>2</sup>*ELANCO Animal Health, Greenfield, IN.*
- 222 **Starch and energy digestibility of field peas (*Pisum sativum*).** C. A. Montoya, A. D. Beaulieu\*, and P. Leterme, *Prairie Swine Centre, Inc., Saskatoon, SK, Canada.*
- 223 **Standardized ileal amino acid digestibility of field peas (*Pisum sativum*) in adult pigs.** C. A. Montoya, A. D. Beaulieu\*, and P. Leterme, *Prairie Swine Centre, Inc., Saskatoon, SK, Canada.*

- 110 **Mannan oligosaccharides (MOS) modulate gene expression profile in pigs experimentally infected with porcine reproductive and respiratory syndrome virus (PRRSV).** T. M. Che\*<sup>1</sup>, R. W. Johnson<sup>1</sup>, K. W. Kelley<sup>1</sup>, W. G. Van Alstine<sup>2</sup>, K. A. Dawson<sup>3</sup>, and C. A. Moran<sup>3</sup>, <sup>1</sup>*University of Illinois, Department of Animal Sciences, Urbana*, <sup>2</sup>*Purdue University, Animal Disease and Diagnostic Laboratory, West Lafayette, IN*, <sup>3</sup>*Alltech North American Bioscience Center, Nicholasville, KY*.

**Nonruminant Nutrition Poster Session  
Minerals**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 351 **Dietary additions of Mn reduced femur strength in young pigs fed diets with supplemental vitamin D but increased strength in pigs fed diets with no supplemental vitamin D.** P. Strassburg\*, D. K. Schneider, and T. D. Crenshaw, *University of Wisconsin, Madison*.
- 224 **Effects of added copper sulfate and zinc oxide on weaning pig growth and plasma mineral levels.** N. W. Shelton\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. L. Nelssen<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, G. M. Hill<sup>2</sup>, R. G. Amachawadi<sup>1</sup>, and T. G. Nagaraja<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Michigan State University, East Lansing*.
- 225 **Effect of feeding organic and inorganic zinc on growth performance, zinc absorption and immune response of weaning pigs.** T. S. Jeong\*, S. W. Lee, Y. D. Jang, L. G. Piao, and Y. Y. Kim, *Seoul National University, Seoul, Korea*.
- 101 **The evaluation of the additive effect of zinc and copper supplementation from organic and inorganic sources on growth performance of nursery pigs.** M. R. Marchant\*, P. M. Cline, T. C. Tsai, M. J. Azain, and C. R. Dove, *University of Georgia, Athens*.

**Nonruminant Nutrition Poster Session  
Nursery and Grow-Finish Pig Nutrition**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 226 **Evaluation of feed budgeting, complete diet blending, and corn-supplement blending on finishing pig performance.** R. C. Sulabo\*<sup>1</sup>, G. Papadopoulos<sup>1</sup>, J. R. Bergstrom<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, D. Ryder<sup>2</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, R. D. Goodband<sup>1</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Feedlogic Corp., Willmar, MN*.
- 227 **Effects of lactose and milk-yeast on growth performance, fecal microbiota, and immune responses of nursery pigs.** H. Tran\*, J. W. Bundy, E. Hinkle, R. Moreno, J. Walter, T. E. Burkey, and P. S. Miller, *University of Nebraska, Lincoln*.

- 102 **Interaction of *Bacillus* spp. and *Salmonella enterica* serovar Typhimurium in immune/inflammatory signaling from swine intestinal epithelial cells.** C. Aperce\*<sup>1</sup>, T. E. Burkey<sup>2</sup>, B. KuKanich<sup>3</sup>, B. A. Crozier-Dobson<sup>1</sup>, S. S. Dritz<sup>4</sup>, and J. E. Minton<sup>1</sup>, <sup>1</sup>*Kansas State University, Animal Sciences and Industry, Manhattan*, <sup>2</sup>*University of Nebraska, Animal Sciences, Lincoln*, <sup>3</sup>*Kansas State University, Anatomy and Physiology, Manhattan*, <sup>4</sup>*Kansas State University, Diagnostic Medicine/Pathobiology, Manhattan*.
- 228 **Effects of a yeast-derived protein source (NuPro) with and without whey powder on piglet performance post-weaning.** D. Henman<sup>1</sup>, A. Murphy<sup>1</sup>, and K. Jacques\*<sup>2</sup>, <sup>1</sup>*Rivalea Australia, Corowa, NSW, Australia*, <sup>2</sup>*Alltech Inc., Nicholasville, KY*.
- 229 **Effect of replacing fish meal with synthetic amino acids or soy protein concentrate in nursery diets containing distillers dried grains with solubles.** C. L. Bradley\*<sup>1</sup>, C. V. Maxwell<sup>1</sup>, Z. B. Johnson<sup>1</sup>, J. L. Usry<sup>2</sup>, and J. W. Frank<sup>1</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*Ajinomoto Heartland LLC, Chicago, IL*.

**Nonruminant Nutrition Poster Session**  
**Sow Nutrition**  
**206**

**Sponsored by: Zinpro Performance Minerals**

- 230 **Dietary supplementation of bacitracin methylene disalicylate (BMD) on sow and piglet performance, immunoglobulin status, and milk composition.** S. K. Baidoo\*<sup>1</sup>, R. B. A. Dahlen<sup>1</sup>, L. Anil<sup>1</sup>, D. A. Nelson<sup>2</sup>, and J. E. Wheaton<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*Alpharma Animal Health, Bridgewater, NJ*.
- 231 **Impact of pollock fish oil supplementation to breeding females on reproductive performance and on growth, carcass, and meat quality characteristics of the progeny.** O. F. Mendoza\*<sup>1</sup>, W. Xiao<sup>1</sup>, A. Rojo<sup>1</sup>, F. K. McKeith<sup>1</sup>, M. Ellis<sup>1</sup>, S. Webel<sup>2</sup>, J. Spencer<sup>2</sup>, A. M. Gaines<sup>3</sup>, and P. J. Bechtel<sup>4</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*JBS United, Sheridan, IN*, <sup>3</sup>*The Maschhoffs, Carlyle, IL*, <sup>4</sup>*USDA/ARS/SARU, Fairbanks, AL*.
- 232 **Effect of fat supplementation in gestation on sow reproductive and lactation performance.** S. K. Jang\*<sup>1</sup>, P. S. Heo<sup>1</sup>, L. G. Piao<sup>1</sup>, H. F. Long<sup>1</sup>, and Y. Y. Kim<sup>1</sup>, *Seoul National University, Seoul, Korea*.
- 116 **Effects of increased feed intake during the late gestation on the reproductive performance in multiparous sows.** W. S. Ju\*<sup>1</sup>, Y. D. Jang<sup>1</sup>, L. G. Piao<sup>1</sup>, H. F. Long<sup>1</sup>, and Y. Y. Kim<sup>1</sup>, *Seoul National University, Seoul, South Korea*.
- 233 **Effect of live yeast supplementation on reproductive performance, immune function and performance of their progeny.** Y. D. Jang\*<sup>1</sup>, G. Y. Lee<sup>1</sup>, D. H. Kim<sup>1</sup>, S. K. Jang<sup>1</sup>, and Y. Y. Kim<sup>1</sup>, *Seoul National University, Seoul, Korea*.
- 234 **Mannan oligosaccharides (Bio-Mos) in diets for sows: Piglet performance and immunity.** J. Le Dividich<sup>1</sup>, Y. Martel-Kennes<sup>2</sup>, A. Coupel<sup>3</sup>, and K. Jacques\*<sup>4</sup>, <sup>1</sup>*INRA, UMR-SENAH, St. Gilles, France*, <sup>2</sup>*Cooperative Research Farms, Richmond, VA*, <sup>3</sup>*Calcialiment, Pleudihen-sur-Rance, France*, <sup>4</sup>*Alltech Inc., Nicholasville, KY*.



- 235 **Comparison of estimated body composition of pregnant sows using isotope dilution technique or using live weight and backfat thickness.** P. J. L. Ramaekers\*<sup>1</sup>, M. G. H. Veldhorst<sup>2</sup>, P. K. Theil<sup>3</sup>, and W. J. J. Gerrits<sup>2</sup>, <sup>1</sup>*Nutreco Netherlands BV, Boxmeer, the Netherlands*, <sup>2</sup>*Wageningen University and Research Centre, Wageningen, the Netherlands*, <sup>3</sup>*Danish Institute of Agriculture Sciences, Tjele, Denmark*.
- 236 **Effects of increasing feeding level during late gestation on sow and litter performance.** N. W. Shelton\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, C. R. Neill<sup>2</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, R. D. Goodband<sup>1</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*PIC, Hendersonville, TN*.

## **Odor and Nutrient Management Poster Session**

**Chair: Dustin Kendall, Murphy-Brown LLC**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 242 **Effects of dietary biotite supplementation and stocking density on growth performance, nutrient digestibility, blood characteristics and fecal odor emission in growing pigs.** H. J. Kim\*, J. H. Lee, Q. W. Meng, B. W. Yang, and I. H. Kim, *Dankook University, Department of Animal Resource and Science, Cheonan, Choongnam, Korea*.
- 243 **The effects of fly ash supplementation on growth performance, nutrient digestibility, meat quality and fecal concentration of gases in finishing pigs.** L. Yan\*, D. L. Han, Q. W. Meng, T. X. Zhou, and I. H. Kim, *Dankook University, Department of Animal Resource and Science, Cheonan, Choongnam, Korea*.
- 244 **Effects of cattle presence on sediment, phosphorus, and pathogen loading of streams in cool-season grass pastures.** K. A. Schwarte\*, J. R. Russell, S. Ensley, K. J. Yoon, and D. G. Morrical, *Iowa State University, Ames*.

## **Ruminant Nutrition II Poster Session**

**206**

**Sponsored by: Zinpro Performance Minerals**

- 313 **Pro-vitamin A carotenoids in feedstuffs.** C. L. Pickworth\*<sup>1</sup>, S. C. Loerch<sup>1</sup>, F. L. Fluharty<sup>1</sup>, R. E. Kopec<sup>2</sup>, and S. J. Schwartz<sup>2</sup>, <sup>1</sup>*The Ohio State University, Wooster*, <sup>2</sup>*The Ohio State University, Columbus*.
- 314 **Effect of housing on sustainability of beef cattle production.** H. Koknaroglu<sup>1</sup> and M. P. Hoffman\*<sup>2</sup>, <sup>1</sup>*Suleyman Demirel University, Isparta, Turkey*, <sup>2</sup>*Iowa State University, Ames*.
- 315 **Season affects energy input/output ratio in beef cattle production.** H. Koknaroglu<sup>1</sup> and M. P. Hoffman\*<sup>2</sup>, <sup>1</sup>*Suleyman Demirel University, Isparta, Turkey*, <sup>2</sup>*Iowa State University, Ames*.

- 316 **The effect of LAB on in vitro ruminal fermentation.** R. M. Harvey\*<sup>1</sup>, N. F. Johnson<sup>1</sup>, M. A. Brooks<sup>1</sup>, M. S. Kerley<sup>1</sup>, and D. E. Diaz<sup>2</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Novus International, Inc., St. Louis, MO*.
- 317 **Comparing feed efficiency of F1 heifers from dams and sires phenotyped for residual feed intake (RFI).** N. O. Minton\*, R. Kallenbach, M. S. Kerley, and R. L. Weaber, *University of Missouri, Columbia*.
- 318 **Feeding MSE direct-fed microbials to finishing cattle decreases the fecal shedding of *Escherichia coli* O157:H7.** M. E. Jacob\*<sup>1</sup>, K. Lechtenberg<sup>2</sup>, L. L. Burnham<sup>3</sup>, D. Haverkamp<sup>3</sup>, and T. G. Nagaraja<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Midwest Veterinary Services, Oakland, NE*, <sup>3</sup>*Nature's Way, Inc., Horton, KS*.
- 319 **Evaluation of intake prediction by the Cornell Value Discovery System model (CVDS), effective energy (EE) and net energy equations (NE).** Y. Liang\*, J. Sexten, and M. S. Kerley, *University of Missouri, Columbia*.
- 99 **Comparison of finishing diets for steers containing 25%, 40%, or 70% wet distillers grains.** J. M. Carmack\*<sup>1</sup>, P. M. Walker<sup>1</sup>, and L. A. Forster<sup>2</sup>, <sup>1</sup>*Illinois State University, Department of Agriculture, Normal*, <sup>2</sup>*Archer Daniels Midland Co., Decatur, IL*.
- 320 **Feeding dried or wet distillers grains at varying inclusion levels to feedlot cattle affects the fecal prevalence of *Escherichia coli* O157:H7.** M. E. Jacob\*<sup>1</sup>, D. G. Renter<sup>1</sup>, Z. D. Paddock<sup>1</sup>, K. Lechtenberg<sup>2</sup>, and T. G. Nagaraja<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Midwest Veterinary Services, Oakland, NE*.
- 321 **Effects of a *Bacillus*-based direct-fed microbial on calf performance.** C. A. Wehnes\*<sup>1</sup>, A. H. Smith<sup>1</sup>, T. G. Rehberger<sup>1</sup>, and D. Shields<sup>2</sup>, <sup>1</sup>*Danisco USA, Inc., Waukesha, WI*, <sup>2</sup>*Merrick's, Inc., Union Center, WI*.
- 322 **Influence of supplemental calcium and feeding fish oil on growth performance and fatty acid composition of muscle of grazing calves.** J. T. Richeson\*<sup>1</sup>, E. B. Kegley<sup>1</sup>, and T. J. Wistuba<sup>2</sup>, <sup>1</sup>*University of Arkansas, Division of Agriculture, Fayetteville*, <sup>2</sup>*Morehead State University, Morehead, KY*.
- 108 **Effect of supplemental molybdenum on forage-fed steers receiving high-sulfur water.** K. L. Kessler\*<sup>1</sup>, K. C. Olson<sup>2</sup>, C. L. Wright<sup>2</sup>, K. J. Austin<sup>1</sup>, P. S. Johnson<sup>2</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>*University of Wyoming, Laramie*, <sup>2</sup>*South Dakota State University, Brookings*.
- 323 **Nutrient concentration as affected by supplement form (liquid vs dry) in a high moisture finishing ration.** J. P. Jaderborg\*<sup>1</sup>, G. I. Crawford<sup>3</sup>, C. Lahr<sup>2</sup>, H. Blalock<sup>2</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*Quality Liquid Feeds, Dodgeville, WI*, <sup>3</sup>*Regional Extension Office, Hutchinson, MN*.

**Teaching Poster Session**  
**Chair: Kelly Bruns, South Dakota State University**  
**206**  
**Sponsored by: Zinpro Performance Minerals**

333 **Outcome/assessment activities for the animal sciences curriculum at Purdue University.** M. Diekman\*, *Purdue University, West Lafayette, IN.*

## Wednesday, March 17

### SYMPOSIA AND ORAL SESSIONS

**Extension Swine**  
**Chair: Janet Snow, BASF Plant Sciences**  
**140**  
**Sponsored by: Pig Improvement Company Inc.**

- 9:00 AM 66 **(National Pork Board Education Award) Pork Information Gateway serves as online clearinghouse for pork production information.** M. T. See\*<sup>1</sup>, K. Beeler<sup>2</sup>, M. Whitney<sup>3</sup>, G. Thome<sup>4</sup>, M. Swan<sup>5</sup>, M. Morrow<sup>1</sup>, Y. Li<sup>3</sup>, T. Baas<sup>6</sup>, B. Richert<sup>7</sup>, R. Knox<sup>8</sup>, S. Pohl<sup>9</sup>, A. Sutton<sup>7</sup>, S. Moeller<sup>10</sup>, J. Sterle<sup>11</sup>, P. Holden<sup>8</sup>, M. Hardin<sup>11</sup>, K. Leedom-Larson<sup>12</sup>, D. Newman<sup>13</sup>, D. Meisinger<sup>2</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*U.S. Pork Center of Excellence, Ames, IA*, <sup>3</sup>*University of Minnesota, Mankato*, <sup>4</sup>*Riverland College, Austin, MN*, <sup>5</sup>*Washington State University, Pullman*, <sup>6</sup>*Iowa State University, Ames*, <sup>7</sup>*Purdue University, West Lafayette, IN*, <sup>8</sup>*University of Illinois, Urbana*, <sup>9</sup>*South Dakota State University, Brookings*, <sup>10</sup>*Ohio State University, Columbus*, <sup>11</sup>*Texas A&M University, College Station*, <sup>12</sup>*National Pork Board, Des Moines, IA*, <sup>13</sup>*North Dakota State University, Fargo.*
- 9:15 AM 67 **Development of a swine nutrient recommendations estimator and diet formulator software to support the National Swine Nutrition Guide.** M. H. Whitney\*<sup>1</sup>, M. S. Carlson<sup>2</sup>, S. D. Carter<sup>3</sup>, G. R. Dahlke<sup>4</sup>, J. M. DeRouchey<sup>5</sup>, D. Meisinger<sup>6</sup>, D. E. Reese<sup>7</sup>, B. T. Richert<sup>8</sup>, J. F. Patience<sup>4</sup>, R. C. Thaler<sup>9</sup>, and E. van Heugten<sup>10</sup>, <sup>1</sup>*University of Minnesota, Mankato*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Oklahoma State University, Stillwater*, <sup>4</sup>*Iowa State University, Ames*, <sup>5</sup>*Kansas State University, Manhattan*, <sup>6</sup>*U.S. Pork Center of Excellence, Ames, IA*, <sup>7</sup>*University of Nebraska, Lincoln*, <sup>8</sup>*Purdue University, West Lafayette, IN*, <sup>9</sup>*South Dakota State University, Brookings*, <sup>10</sup>*North Carolina State University, Raleigh.*

- 9:30 AM 68 **Determining optimal culling parity in commercial swine breeding herds.** C. E. Abell<sup>\*1</sup>, K. J. Stalder<sup>1</sup>, G. F. Jones<sup>2</sup>, L. A. Karriker<sup>1</sup>, A. K. Johnson<sup>1</sup>, and J. W. Mabry<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Western Kentucky University, Bowling Green*.
- 9:45 AM 80 **Prediction of carcass traits and fat-free lean using ultrasound measures at the last rib and tenth rib in swine.** R. O. McKeith<sup>\*</sup>, B. K. Lowe, J. A. Saffko, R. M. Pitzer, J. R. Segers, A. M. Stelzleni, M. J. Azain, and T. D. Pringle, *University of Georgia, Athens*.
- 10:00 AM 69 **Birth weight impacts the likelihood of pigs being full value prior to finishing barn closeout.** J. S. Fix<sup>\*1</sup>, J. P. Cassady<sup>1</sup>, J. W. Holl<sup>2</sup>, W. O. Herring<sup>2</sup>, M. S. Culbertson<sup>2</sup>, and M. T. See<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Smithfield Premium Genetics Group, Rose Hill, NC*.
- 10:15 AM 70 **Energy use in pig production: An examination of Iowa systems.** P. J. Lammers<sup>\*</sup>, M. D. Kenealy, J. B. Kliebenstein, J. D. Harmon, M. J. Helmers, and M. S. Honeyman, *Iowa State University, Ames*.
- 10:30 AM 334 **Late castration increases observed scrotal hernias and reduces the number of irreparable scrotal hernias.** K. L. Marcatch<sup>\*1,2</sup>, E. J. Ehinger<sup>1</sup>, D. J. Mulder<sup>1</sup>, and T. M. Seals<sup>1</sup>, <sup>1</sup>*Sandy Ridge, Dykhuus Farms Inc., Holland, MI*, <sup>2</sup>*Michigan State University, Department of Animal Science, East Lansing*.

## Nonruminant Nutrition

### Nonruminant VII: Grow-Finish Nutrition and Management

Chair: Bradley Wolter, The Maschhoffs, LLC

204 AB

Sponsored by: Kent Feeds

- 9:00 AM 171 **Effects of dietary astaxanthin on the growth and carcass characteristics of finishing pigs.** J. R. Bergstrom<sup>\*</sup>, J. L. Nelssen, T. A. Houser, J. A. Gunderson, A. N. Gipe, J. Y. Jacela, J. M. Benz, R. C. Sulabo, M. D. Tokach, R. D. Goodband, J. M. DeRouchey, and S. S. Dritz, *Kansas State University, Manhattan*.
- 9:15 AM 172 **Effects of feeder design and changing the availability of water from a wet-dry feeder at 4 and 8 weeks prior to market on growth and carcass characteristics of finishing pigs.** J. R. Bergstrom<sup>\*</sup>, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, and R. D. Goodband, *Kansas State University, Manhattan*.
- 9:30 AM 173 **Comparison of several dietary fats for finishing pigs.** Y. Liu<sup>\*</sup>, D. Y. Kil, V. G. Perez-Mendoza, and J. E. Pettigrew, *University of Illinois, Urbana*.
- 9:45 AM 90 **Comparison of choice white grease and soybean oil for finishing pigs.** Y. Liu<sup>\*</sup>, D. Y. Kil, V. G. Perez-Mendoza, and J. E. Pettigrew, *University of Illinois, Urbana*.

- 10:00 AM 174 **(National Pork Board Research Award) Soybean meal level modifies the impact of high immune stress on growth and feed efficiency in pigs.** M. E. Johnston<sup>1</sup>, R. D. Boyd\*<sup>1</sup>, C. E. Zier-Rush<sup>1</sup>, and C. E. Fralick<sup>2</sup>, <sup>1</sup>*The Hanor Company, Franklin, KY*, <sup>2</sup>*Swine-Tek Research, Van Wert, OH*.
- 10:15 AM 336 **Early finishing performance of pigs fed treatment of Denagard plus chlorotetracycline vs. oxytetracycline in grower diet.** J. Graham\*<sup>1</sup>, D. Dau<sup>2</sup>, and J. Waddell<sup>3</sup>, <sup>1</sup>*South Dakota State University, Brookings*, <sup>2</sup>*Novartis Animal Health, Greensboro, NC*, <sup>3</sup>*Sutton Veterinary Clinic, Sutton, NE*.
- 10:30 AM 75 **Relative efficiency of completely randomized and randomized complete block designs in swine growth trials.** N. W. Shelton\*, S. S. Dritz, M. D. Tokach, R. D. Goodband, J. L. Nelssen, J. M. DeRouchey, and L. W. Murray, *Kansas State University, Manhattan*.
- 10:45 AM 175 **Effect of ractopamine HCl (Paylean) feeding programs on growth performance and carcass characteristics of finishing pigs.** J. Y. Jacela\*, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan*.

**Nonruminant Nutrition**  
**Nonruminant VIII: Nursery Pig Nutrition**  
**Chair: Brent Ratliff, TechMix, LLC**  
**205 IJ**  
**Sponsored by: JBS United Inc.**

- 9:00 AM 88 **Insoluble dietary fiber expedites recovery from colibacillosis diarrhea in pigs after weaning.** V. Perez\*<sup>1</sup>, C. Maddox<sup>1</sup>, G. Fahey, Jr.<sup>1</sup>, J. Pluske<sup>2</sup>, and J. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Murdoch University, Murdoch, Australia*.
- 9:15 AM 92 **Effects of creep diet complexity on individual consumption characteristics and growth performance of neonatal and weanling pigs.** R. C. Sulabo\*, M. D. Tokach, J. R. Bergstrom, J. M. DeRouchey, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan*.
- 9:30 AM 176 **Evaluation of PEP2 in nursery pig diets.** A. J. Myers\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, N. W. Shelton<sup>1</sup>, G. Papadopoulos<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, J. L. Nelssen<sup>1</sup>, and D. McKilligan<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Protein Resources, West Bend, IA*.

- 9:45 AM 177 **Growth performance, nutrient digestibility, intestine morphology, blood profiles, and microbiota in weanling pigs fed single cell protein.** J. P. Wang\*<sup>1</sup>, J. D. Kim<sup>2</sup>, J. I. Kim<sup>2</sup>, J. H. Lee<sup>1</sup>, T. X. Zhou<sup>1</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>*Dankook University, Department of Animal Resource & Science, Choengan, Choongnam, Korea*, <sup>2</sup>*CheilJedang. Corp. Bio Business, Seoul, Korea*.
- 10:00 AM 178 **Effect of low oligosaccharide soybean meal in diets of early weaned pigs.** S. K. Baidoo<sup>1</sup>, R. B. A. Dahlen\*<sup>1</sup>, L. Anil<sup>1</sup>, and A. Doering<sup>2</sup>, <sup>1</sup>*Southern Research and Outreach Center, University of Minnesota, Waseca, MN*, <sup>2</sup>*Agricultural Utilization and Research Institute, Waseca, MN*.
- 10:15 AM 179 **Effect of milk chocolate product (MCP) on week-one feed intake and growth performance of weanling pigs.** V. D. Naranjo\*, T. D. Bidner, and L. L. Southern, *Louisiana State University, Agricultural Center, Baton Rouge*.
- 10:30 AM 180 **Application of a blend of dietary antioxidants in nursery pigs fed either fresh or oxidized corn oil or DDGS.** R. J. Harrell\*, J. Zhao, G. Reznik, D. Macaraeg, T. Wineman, and J. Richards, *Novus International Inc., St. Charles, MO*.
- 10:45 AM 77 **Effect of chronic exposure of low levels of aflatoxin and deoxynivalenol on growth and immune status of pigs.** A. C. Chaytor\*<sup>1</sup>, M. T. See<sup>1</sup>, J. A. Hansen<sup>2</sup>, A. L. De Souza<sup>2</sup>, T. Middleton<sup>3</sup>, and S. W. Kim<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Murphy-Brown LLC, Rose Hill, NC*, <sup>3</sup>*Ag ProVision LLC, Kenansville, NC*.

**Nonruminant Nutrition**  
**Nonruminant IX: Enzymes and Feed Processing**  
**Chair: Matt Kocher, The Maschhoffs, LLC**  
**204 FG**

- 9:00 AM 181 **Effects of meal or pellet diet form on finishing pig performance and carcass characteristics.** M. L. Potter, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, J. L. Nelssen, and J. A. Barnes\*, *Kansas State University, Manhattan*.
- 9:15 AM 182 **Processing conditions affect nutrient digestibility of cold-pressed canola cake for grower pigs.** R. W. Seneviratne<sup>1</sup>, E. Beltranena<sup>1,2</sup>, L. A. Goonewardene<sup>1,2</sup>, R. W. Newkirk<sup>3</sup>, and R. T. Zijlstra\*<sup>1</sup>, <sup>1</sup>*University of Alberta, Edmonton, AB, Canada*, <sup>2</sup>*Alberta Agriculture and Rural Development, Edmonton, AB, Canada*, <sup>3</sup>*Canadian International Grains Institute, Winnipeg, MB, Canada*.
- 9:30 AM 183 **Effect of dietary mannanase supplementation on pig growth performance.** B. E. Bass\*<sup>1</sup>, J. W. Frank<sup>1</sup>, Z. B. Johnson<sup>1</sup>, J. H. Lee<sup>2</sup>, and C. V. Maxwell<sup>1</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*CTC BIO Inc., Seoul, Korea*.

- 9:45 AM 184 **Evaluation of crude glycerol in feed processing of swine diets.** M. Shields\*, E. van Heugten, J. Odle, and C. Stark, *North Carolina State University, Raleigh.*
- 10:00 AM 185 **Effects of mix time on diet uniformity and growth performance of nursery pigs.** C. B. Paulk\*, S.M. Williams, J. D. Hancock, S. Issa, E. F. Mader, S.M. Rogers, A. C. Fahrenholz, L. J. McKinny, and K. C. Behnke, *Kansas State University, Manhattan.*
- 10:15 AM 186 **Effect of a novel  $\beta$ -mannanase and  $\beta$ -glucanase in corn-soybean meal-distillers dried grains with solubles diets on grower pig growth and feed efficiency.** J. Ferrel\*<sup>1</sup>, B. Richert<sup>2</sup>, D. Anderson<sup>1</sup>, and D. Kelly<sup>2</sup>, <sup>1</sup>*ChemGen Corp, Gaithersburg, MD*, <sup>2</sup>*Purdue University, West Lafayette, IN.*
- 10:30 AM 187 **Metabolizable energy of various ingredients affected by carbohydrases.** S. W. Kim\*, C. M. Ballou, and Y. Zhao, *North Carolina State University, Raleigh.*

## Physiology

Chair: Jeremy Miles, USDA-ARS MARC  
142-144

- 9:00 AM 245 **(Invited ADSA Young Dairy Scholar) Progesterone clearance in dairy cows fed an insulin stimulating diet.** C. O. Lemley\*<sup>1</sup>, L. R. Tager<sup>1</sup>, T. A. Wilmoth<sup>1</sup>, K. M. Krause<sup>1</sup>, K. A. Vonnahme<sup>2</sup>, and M. E. Wilson<sup>1</sup>, <sup>1</sup>*West Virginia University, Morgantown*, <sup>2</sup>*North Dakota State University, Fargo.*
- 9:30 AM 246 **(Invited ASAS Animal Science Young Scholar) Factors affecting ovulatory follicle size, embryo quality and pregnancy in suckled beef cows.** J. A. Atkins\*<sup>1</sup>, M. F. Smith<sup>1</sup>, and T. W. Geary<sup>2</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT.*
- 10:00 AM 91 **Innate immune responses of bovine mammary epithelial cells triggered by toll-like receptor signaling are enhanced by 1,25-dihydroxyvitamin D3.** C. D. Nelson\*<sup>1,2</sup>, T. A. Reinhardt<sup>2</sup>, D. C. Beitz<sup>1</sup>, and J. D. Lippolis<sup>2</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*National Animal Disease Center, USDA, Ames, IA.*
- 10:15 AM 247 **Effects of nutritional plane and dietary selenium during gestation on serum prolactin and estradiol-17 $\beta$  (E<sub>2</sub>) in ewe lambs during pregnancy and lactation.** L. E. Camacho\*<sup>1</sup>, A. M. Meyer<sup>1</sup>, D. M. Hallford<sup>2</sup>, G. Perry<sup>3</sup>, L. P. Reynolds<sup>1</sup>, J. S. Caton<sup>1</sup>, and K. A. Vonnahme<sup>1</sup>, <sup>1</sup>*Center for Nutrition and Pregnancy, Dept. of Animal Sciences, North Dakota State University, Fargo*, <sup>2</sup>*Department of Animal & Range Sciences, New Mexico State University, Las Cruces*, <sup>3</sup>*Department of Animal & Range Sciences, South Dakota State University, Brookings.*

10:30 AM	95	<b>Nutrient restriction from early to late pregnancy decreases circulating insulin like growth factor-1 concentrations in pregnant ewe lambs receiving maintenance or undernourishment.</b> T. A. Wilmoth* <sup>1</sup> , A. M. Meyer <sup>2</sup> , M. E. Wilson <sup>1</sup> , J. S. Caton <sup>2</sup> , and K. A. Vonnahme <sup>2</sup> , <sup>1</sup> <i>West Virginia University, Morgantown</i> , <sup>2</sup> <i>North Dakota State University, Fargo</i> .
	248	<b>Withdrawn</b>
10:45 AM	249	<b>Myelination is decreased in the brain stem of small piglets compared to larger littermates during late gestation.</b> J. L. Vallet* and J. R. Miles, <i>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE</i> .
11:00 AM	82	<b>Impact of maternal exercise on maternal body composition, fetal growth, and umbilical blood flow in the pig.</b> E. K. Harris*, B. J. Bartling, T. L. Neville, J. D. Kirsch, J. D. Magolski, E. P. Berg, and K. A. Vonnahme, <i>North Dakota State University, Fargo</i> .
11:15 AM	250	<b>Timed insemination following GnRH agonist administration in weaned sows.</b> M. E. Johnston* <sup>1</sup> , A. M. Gaines <sup>2</sup> , M. E. Swanson <sup>1</sup> , and S. K. Webel <sup>1</sup> , <sup>1</sup> <i>JBS United Inc., Sheridan, IN</i> , <sup>2</sup> <i>The Maschhoffs, Carlyle, IL</i> .
11:30 AM	251	<b>Effect of gonadotropin treatment on estrus, ovulation and litter size in weaned sows.</b> R. Manjarin* <sup>1</sup> , J. C. Garcia <sup>4</sup> , J. C. Dominguez <sup>4</sup> , M. J. Castro <sup>4</sup> , B. Alegre <sup>4</sup> , J. D. Munoz <sup>3</sup> , N. Trottier <sup>1</sup> , and R. N. Kirkwood <sup>2</sup> , <sup>1</sup> <i>Michigan State University, Departments of Animal Science, East Lansing</i> , <sup>2</sup> <i>Michigan State University, Large Animal Clinical Sciences, East Lansing</i> , <sup>3</sup> <i>Michigan State University, Crop and Soil Science, East Lansing</i> , <sup>4</sup> <i>University of Leon, Medicine, Surgery and Veterinary Anatomy, Campus de Vegazana, Spain</i> .
11:45 PM	252	<b>Retrospective analysis of factors affecting sperm production/quality measures in a boar stud.</b> T. J. Safranski and A. T. Desaulniers*, <i>University of Missouri, Columbia</i> .

**Ruminant Nutrition IV: By-Product Utilization (Glycerin)**  
**Chair: Aimee Wertz-Lutz, South Dakota State University**  
**146-148**

9:00 AM		<b>Introduction</b>
9:05 AM	81	<b>Effects of glycerol and sire breed on growth and carcass traits of finishing whether lambs.</b> R. Beck*, A. Wertz-Lutz, C. Wright, J. Held, R. Zelinsky, and C. Delvaux, <i>South Dakota State University, Brookings</i> .
9:20 AM	260	<b>Effect of increasing level of glycerol in a feedlot diet on continuous culture fermentation characteristics.</b> M. H. Ramos* and M. S. Kerley, <i>University of Missouri, Columbia</i> .



- 9:35 AM 261 **Effects of different levels of glycerin in feedlot diets containing steam-flaked corn.** J. P. Moore\*<sup>1</sup>, J. T. Vasconcelos<sup>1,2</sup>, G. E. Erickson<sup>1</sup>, S. A. Furman<sup>2</sup>, W. A. Griffin<sup>1</sup>, and C. T. Milton<sup>3</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*University of Nebraska, Panhandle Research and Extension Center, Scottsbluff*, <sup>3</sup>*Midwest PMS, Firestone, CO.*
- 9:50 AM 96 **Effects of crude glycerin on ruminal metabolism and diet digestibility in flaked corn finishing diets.** G. L. Parsons\* and J. S. Drouillard, *Kansas State University, Manhattan.*
- 10:05 AM 262 **Effects of low levels of crude glycerin with or without coproducts on performance and carcass characteristics of feedlot heifers.** C. J. Schneider\*, G. L. Parsons, K. A. Miller, L. K. Thompson, and J. S. Drouillard, *Kansas State University, Manhattan.*
- 10:20 AM 263 **Method for lipid and NDF analysis of ethanol byproduct feedstuffs.** V. R. Bremer\*, C. D. Buckner, A. W. Brown, T. P. Carr, R. M. Diedrichsen, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*

**Extension – Dairy**  
**Chair: Jim Paulson, University of Minnesota**  
**134**

- 9:30 AM 57 **Effect of bedding material on performance, health, and hide contamination of calves reared in hutches.** K. D. Gay\*<sup>1</sup>, S. D. Eicher<sup>2</sup>, C. S. Wilcox<sup>1,2</sup>, J. A. Bridges<sup>1</sup>, M. H. Rastagno<sup>2</sup>, S. E. Charley<sup>1</sup>, and M. M. Schutz<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN.*
- 9:45 AM 58 **An economic decision-making model for comparing reproductive management programs in dairy herds.** J. O. Giordano\*, P. M. Fricke, M. C. Wiltbank, and V. E. Cabrera, *University of Wisconsin, Madison.*
- 10:00 AM 59 **(Invited ADSA Young Dairy Scholar) Jersey × Holstein crossbred cows compared to pure Holstein cows for calving traits, production, fertility, survival, and udder measurements during the first three lactations.** B. J. Heins\*, L. B. Hansen, A. R. Hazel, A. J. Seykora, D. G. Johnson, and J. G. Linn, *University of Minnesota, St. Paul.*
- 10:30 AM 60 **Water quality and nutrient composition from livestock operations in the United States.** D. P. Casper\*, F. Talbot, D. Schauff, D. Jones, D. Kleinschmit, E. Lanka, P. Brown, and G. Gengelbach, *Agri-King, Inc., Fulton, IL.*

**Nonruminant Nutrition**  
**Nonruminant X: Sow Nutrition**  
**Chair: Joel Spencer, JBS United, Inc.**  
**204 FG**

- 10:45 AM 188 **Sow and litter response to supplemental dietary fat in lactation diets during high ambient temperatures.** D. S. Rosero\*<sup>1</sup>, E. van Heugten<sup>1</sup>, J. Odle<sup>1</sup>, R. Cabrera<sup>1</sup>, and R. D. Boyd<sup>2</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Hanor Company, Inc., Franklin, KY.*
- 11:00 AM 189 **Effect of supplying an enzymatically hydrolyzed yeast and yeast culture product (EHY) containing mannan oligosaccharides to sow diets on reproductive responses.** I. F. Hung\*<sup>1</sup>, M. D. Lindemann<sup>1</sup>, G. L. Cromwell<sup>1</sup>, and M. G. Holt<sup>2</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*ViCOR, Mason City, IA.*
- 11:15 AM 190 **The effect of feeding sow colostrum on IgG absorption, intestinal morphology and expression of IgG receptor (FcRn) and  $\beta_2$ -microglobulin in neonatal piglets.** R. Cabrera\*, X. Lin, A. Taro, M. Ashwell, A. Moeser, and J. Odle, *North Carolina State University, Raleigh.*
- 11:30 AM 191 **Changes in fetal and maternal tissues of gilts during gestation.** Y. L. Ma\*<sup>1</sup>, M. D. Lindemann<sup>1</sup>, G. C. Cromwell<sup>1</sup>, and J. L. Pierce<sup>2</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*Alltech Inc., Nicholasville, KY.*

# **MIDWEST SECTION ADSA/ASAS**

## **Committee Assignment**

### **2009–2010**

#### **Program Committees**

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

Ernest Minton, Chair  
Suzanne Millman  
Sylvia Kehoe

##### **Breeding and Genetics**

Jennifer Minick-Bormann, Chair  
Justin Holl  
Matt Spangler

##### **Extension – Beef / Small Ruminant**

Daniel Buskirk, Chair  
Kent Tjardes  
Justin Sexten

##### **Extension – Dairy**

Jim Paulson, Chair  
Mike Socha  
Tamilee Nennich  
Hugh Chester-Jones

##### **Extension – Swine**

Janet Snow, Chair  
Chad Hastad  
Steve Moeller

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

Terry Houser, Chair  
Tara McDanel  
Eric Berg

##### **Nonruminant Nutrition**

Aaron Gaines, Chair  
Nathan Augsburger  
Joel Spencer

**Odor and Nutrient Management**

Dustin Kendall, Chair  
Joel DeRouchey  
Mike Brouk

**Physiology**

Kim Vonnahme, Chair  
Jeremy Miles  
Jason Ross

**Ruminant Nutrition**

Barry Bradford, Chair  
Amer AbuGhazaleh  
Aimee Wertz

**Teaching**

Kelly Bruns, Chair  
Sylvia Kehoe  
Elizabeth Karcher

**David H. Baker Symposium**

Terri Parr, Chair  
Ryan Dilger  
Brian Kerr

**Billy Day Symposium**

Rod Geisert, Chair  
Duane Davis  
Steve Terlouw  
Stephen K. Webel  
Ronald Christenson

**Equine**

Krisona Martinson, Chair  
Peggy Miller  
Rebecca Bott

## **Special Committees**

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Merlyn Nielsen  
Ronny L. Moser

### **ADSA Nominations**

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Richard Pursley  
Michael Schutz

### **Academic Quadrathlon**

Paul Kuber, Chair  
Julie Moore  
Terri Jobsis  
Tom Burkey  
Matt Wilson  
Aimee Wertz  
Sylvia Kehoe  
Phil Spike  
Tim Safranski  
Dennis Banks  
Richard Cobb

## **Competitive Research Paper Committees**

### **Graduate Student**

A. DiCostanzo, Chair	Chris Forcherio
J. W. Schroder	Ken Purser
Scott Radcliffe	Tom Johnson
Gerry Shurson	Mercedes Vazquez-Anon
Ron Bates	Matt Wilson
Jess Miner	Kim Vonnahme
Betsey Newton	Allan Bridges

### **Undergraduate Student**

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Paul Walker	Tom Crenshaw
Ed Stepnas	Janice Rumph
Terry Faidley	Kim Vonnahme

# **Young Animal/Dairy Science Leader Awards Committees**

## **Extension**

Ken Kalscheur, Chair  
Cody Wright  
Joel DeRouchey  
Bill Miller  
Paul Kuber

## **Research**

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Jamie Matthews  
John Killefer  
James Reecy  
Galen Erickson

## **Teaching**

Paul Kononoff, Chair  
Kelly Bruns  
Katherine Lee  
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## **Outstanding Early Career Agribusiness**

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Jason Woodworth  
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## **National Pork Board Swine Innovation**

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Nathan R. Augspurger  
Randy Walker

## **Innovation in Dairy Research**

Cindie Luhman, Chair  
David Carlson  
A. Bettegowda  
R. Natikov

## **Tim S. Stahly Award**

Tom Crenshaw, Chair  
Gary Cromwell  
Jerry Weigel

# PAST RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

## OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vathauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. 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

## 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. Koochmariae, 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

### **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

### **OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD**

1995	P. L. Houghton, Heartland Cattle Co., McCook, Nebraska
1996	J. A. Barmore, Vita Plus Corp., Madison, Wisconsin
1997	D. E. Dill, Dairy Strategies, Mendota Heights, MN
1998	C. M. Luhman, Land O'lakes Research Farm, Webster City, IA
1999	Not Given
2000	D. L. Hancock, Elanco Animal Health, Greenfield, IN
2001	J. M. Lynch, Heartland Cattle Co., McCook, NE
2002	Not Given
2003	J. M. Campbell, APC, Inc., IA
2004	D. M. Webel, United Feeds, IN
2005	T. A. Rathje, Danbred North America, Columbus, NE
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

## **PAST WINNERS OF INVITATIONAL COMPETITIVE RESEARCH PAPER AWARDS**

### **UNDERGRADUATE STUDENTS - ORAL**

1987	R. E. Raw, University of Missouri
1988	J. A. Ragains, University of Missouri
1989	G. L. Ambrose, South Dakota State University
1990	C. N. Kemper, University of Missouri
1991	T. R. Eberle, North Dakota State University
1992	B. J. MacDonald, North Dakota State University
1993	B. L. Dunn, Kansas State University
1994	S. M. Nelson, University of Nebraska
1995	L. J. Trinity, Iowa State University
1996	M. E. Cunningham, Oklahoma State University
1997	C. E. Sorenson, South Dakota State University
1998	J. L. Strickland, University of Nebraska

1999 B. A. DeMontigny, North Dakota State University  
 2000 K. S. Freise, University of Illinois  
 2001 K. R. Nollette, University of Nebraska  
 2002 B. Meyer, University of Nebraska  
 2003 A. Harvey, South Dakota State University  
 2004 L. H. Bach, Michigan State University  
 2005 A. M. Meyer, Michigan State University  
 2006 L. D. Holmes, Southern Illinois University  
 R. Schnobrich, University of Minnesota  
 2007 B. H. Godsey, Kansas State University  
 2008 B. L. Varnes, Michigan State University  
 2009 H. L. Frobose, Kansas State University

### UNDERGRADUATE STUDENTS - POSTER

2009 E. I. Ince, University of Wisconsin

### GRADUATE STUDENTS - ORAL

1976 D. G. Haught, Iowa State University  
 1977 L. L. Berger, University of Nebraska  
 1978 G. F. Collings, Michigan State University  
 1979 R. D. Boyd, University of Nebraska  
 1980 D. G. Cieslak, University of Wisconsin  
 1981 W. F. Pope, University of Nebraska  
 1982 P. F. Saenger, Purdue University  
 1983 D. A. Redmer, University of Missouri  
 1984 W. F. Brown, University of Nebraska  
 1985 J. H. Brendemuhl, University of Nebraska  
 1986 P. L. Houghton, Purdue University  
 1987 M. H. Wilde, The Ohio State University  
 1988 T. R. Radke, University of Nebraska  
 1989 K. K. Kreikemeier, Kansas State University  
 1990 R. A. Nold, Kansas State University  
 1991 M. D. Tokach, University of Minnesota  
 1992 G. F. Louis, University of Nebraska  
 1993 B. T. Larson, University of Missouri  
 1994 L. H. Anderson, The Ohio State University  
 1995 M. L. Augenstein, University of Minnesota  
 1996 D. D. Koehler, University of Minnesota  
 1997 R. A. Nold, South Dakota State University  
 1998 K. J. Rozeboom, University of Minnesota  
 1999 L. A. Averette, North Carolina State University  
 2000 T. A. Armstrong, North Carolina State University  
 2001 T. G. 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\*\*

### **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\*\*

\*M.S. Division

\*\*Ph.D. Division

## **PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION**

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

## **YOUNG DAIRY SCHOLARS**

- 2006 B. J. Bradford, Michigan State University  
N. Litherland, University of Illinois  
W. Miller, Kansas State University  
R. Rastani, University of Wisconsin
- 2007 M. Abdelqader, South Dakota State University  
D. B. Carlson, University of Illinois  
M. Carrquiry, University of Minnesota  
M. Geha, University of Nebraska  
N. A. Janovick-Guretzky, University of Illinois  
D. H. Kleinschmit, South Dakota State University  
E. D. Reid, University of Illinois  
P. J. Ross, Michigan State University
- 2008 A. Bettegowda, Michigan State University  
J. M. Bewley, Purdue University  
E. L. Karcher, Iowa State University  
K. M. Moyes, University of Illinois  
B. W. Pamp, South Dakota State University  
M. L. Raeth-Knight, University of Minnesota
- 2009 A. Nafikov, Iowa State University

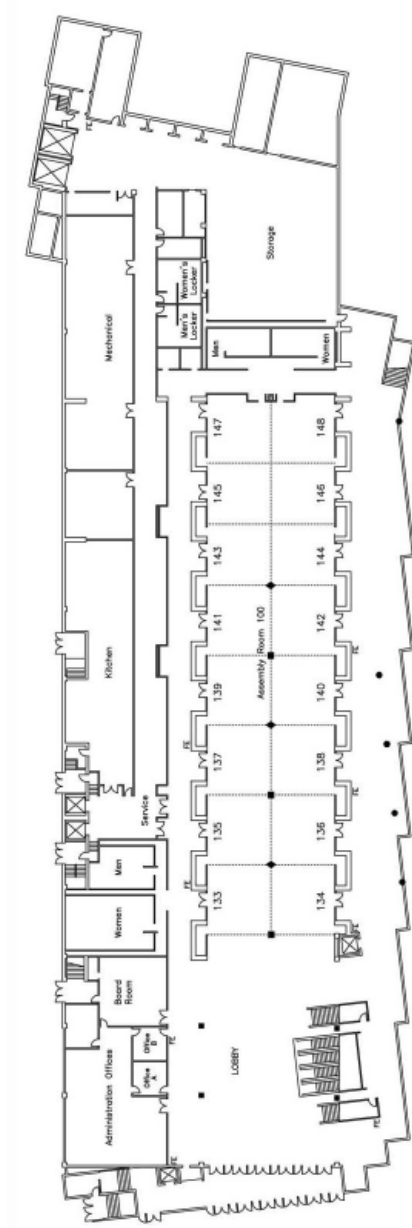
## ASAS MIDWESTERN SECTION PRESIDENTS

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

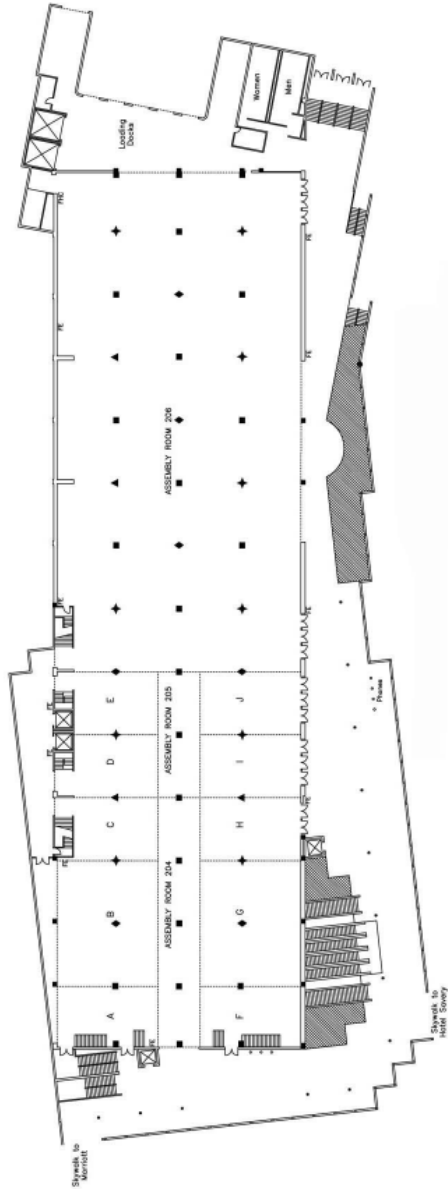
## **ADSA MIDWEST BRANCH PRESIDENTS**

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

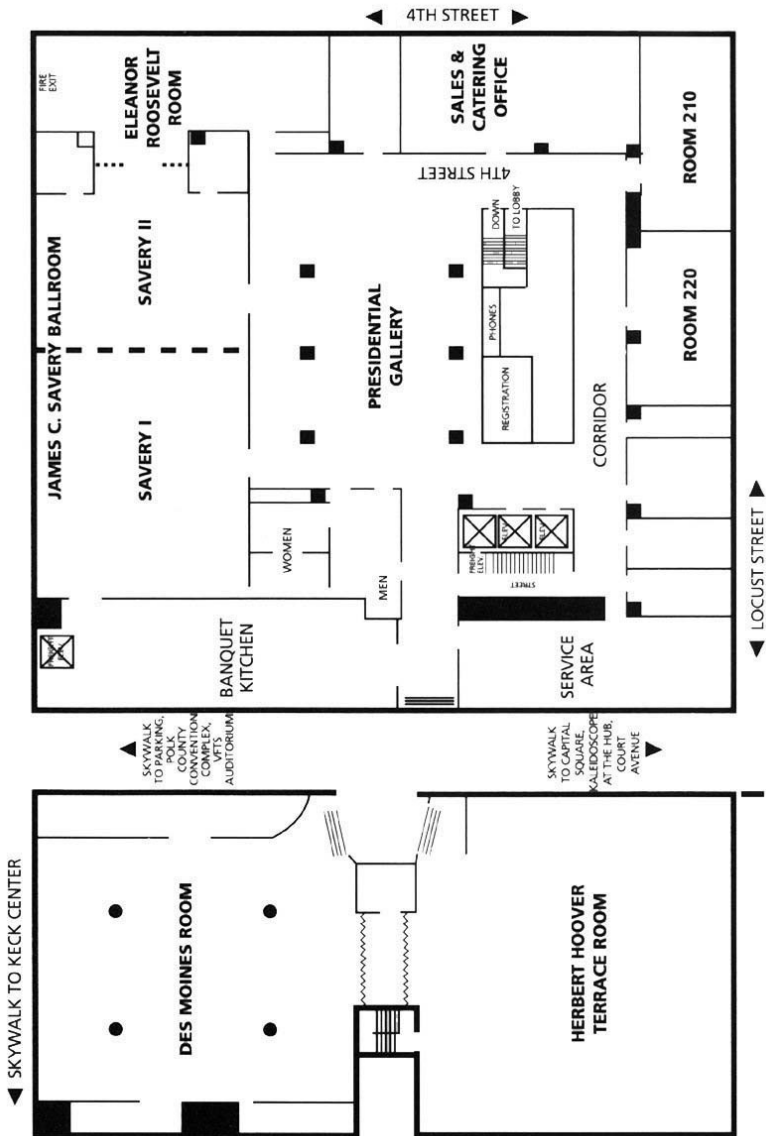
# POLK COUNTY CONVENTION COMPLEX Lower Level



# POLK COUNTY CONVENTION COMPLEX Upper Level



# THE SAVERY HOTEL SECOND FLOOR





## NOTES

## NOTES

## **FUTURE MEETINGS**

2011 March 14–16

2012 March 19–21

2013 March 18–20



**INSPIRED MOLECULAR SOLUTIONS™**

