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 online 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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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

Before
February 25

After
February 25

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.

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.

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

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**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
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Posters
Zinpro Performance Minerals

David H. Baker Amino Acid Symposium
David H. Baker Appreciation Club

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Nonruminant Nutrition VIII
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General Meeting

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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 lavaliere 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:


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

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.


1:20 PM  (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.


2:05 PM  (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  (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  (Invited) Developing low protein, amino acid supplemented diets for swine. L. L. Southern*, M. L. Roux1, A. M. Waguespack1, S. Powell1, T. D. Bidner1, and R. L. Payne1, 1Louisiana State University Agricultural Center, Baton Rouge, 2Evonik-Degussa Corp., Kennesaw, GA.

3:50 PM  Determining the optimum ratio of standardized ileal digestible (SID) isoleucine to lysine for growing pigs fed wheat-barley based diets. M. D. Lindemann*, A. D. Quant1, J. H. Cho1, B. J. Kerr2, G. L. Cromwell1, and J. K. Htoo3, 1University of Kentucky, Lexington, 2United States Department of Agriculture, Ames, IA, 3Evonik Degussa GmbH, Hanau, Germany.


4:35 PM  Concluding Remarks

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.

Effect of chronic exposure of low levels of aflatoxin and deoxynivalenol on growth and immune status of pigs. A. C. Chaytor*, M. T. See¹, J. A. Hansen², A. L. De Souza³, T. Middleton³, and S. W. Kim¹, ¹North Carolina State University, Raleigh, ²Murphy-Brown LLC, Rose Hill, NC, ³Ag ProVision LLC, Kenansville, NC.


Effect of cross-fostering on pre-weaning survival and weaning weight in swine. J. A. Bishop*, J. P. Cassady¹, J. W. Holl¹, W. O. Herring², M. S. Culbertson², J. S. Fix¹, and M. T. See¹, ¹North Carolina State University, Raleigh, ²Smithfield Premium Genetics Group, Rose Hill, NC.


Fatty acid profiles of pork fat are altered when ractopamine (Paylean), CLA and DDGS are fed. H. L. Evans*, R. B. Hinson¹, G. D. Gerlemann¹, D. Pompeu¹, S. N. Carr², M. J. Ritter², B. R. Wiegand¹, G. L. Alle¹, and R. D. Boyd¹, ¹University of Missouri, Columbia, ²Elanco Animal Health, Greenfield, IN, ³The Hanor Company, Franklin, KY.

3:45 PM  85  Supplement moisture and feeding site affect feed intake and waste by wintering beef cows. J. P. Jaderborg*, S. L. Bird, G. I. Crawford, R. Walker, B. J. Funnell, and A. DiCostanzo, University of Minnesota, St. Paul, North Central Research and Outreach Center, Grand Rapids, MN, Regional Extension Office, Hutchinson, MN, Regional Extension Office, Andover, MN.


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*, C. Maddox, G. Fahey, Jr., J. Pluske, and J. Pettigrew, University of Illinois, Urbana, Murdoch University, Murdoch, Australia.


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*, T. A. Reinhardt, D. C. Beitz, and J. D. Lippolis, Iowa State University, Ames, National Animal Disease Center, USDA, Ames, IA.


Metabolism characteristics of feedlot diets containing different by-product lipid sources. V. R. Bremer*, K. M. Rolfe, C. D. Buckner, G. E. Erickson, and T. J. Kloppenstein, University of Nebraska, Lincoln.

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*1, A. M. Meyer2, M. E. Wilson1, J. S. Caton2, and K. A. Vonnahme2, 1West Virginia University, Morgantown, 2North Dakota State University, Fargo.

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.

Effects of spaying and terminal implant strategy on performance and carcass characteristics of beef feedlot heifers. J. M. Kelzer*1, C. R. Dahlen2, G. I. Crawford3, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2University of Minnesota Northwest Research and Outreach Center, Crookston, 3University of Minnesota Extension Regional Office, Hutchinson.

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

Effect of chromium propionate supplementation on growth performance and carcass traits from wean to finish pigs. L. Greiner*1, R. Hinson2, G. Allee2, J. Connor1, A. Yersin3, A. Lamptey3, and B. Kremer3, 1Innovative Swine Solutions, LLC, Carthage, IL, 2University of Missouri, Columbia, 3Kemin Industries, Des Moines, IA.

Effect of organic and inorganic zinc supplementation on expression of key antioxidant genes in weanling pigs. R. L. Wangler*1, P. S. D. Weber1, J. E. Link1, D. C. Mahan2, and G. M. Hill1, 1Michigan State University, East Lansing, 2The Ohio State University, Columbus.
Replacing inorganic minerals with organic forms at reduced levels in growing pigs. J. Taylor-Pickard*1, L. Nollet1, and R. Geers2, 1Alltech Biotechnology Centre, Dunboyne, Co. Meath, Ireland, 2Katholieke Universiteit Leuven, Leuven, Belgium.

Performance and carcass characteristic improvements of replacement of inorganic minerals by organic forms in growing pig diets. J. Taylor-Pickard*1, L. Nollet1, and R. Geers2, 1Alltech Biotechnology Centre, Dunboyne, Co. Meath, Ireland, 2Katholieke Universiteit Leuven, Leuven, Belgium.

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.

Dietary anionic mineral (CAD-MATE) additions affect apparent calcium retention in prepartum sows. C. Darriet1, D. E. Axe2, and T. D. Crenshaw*1, 1University of Wisconsin, Madison, 2Granco Minerals, Petersburg, VA.


Undergraduate Student Oral Competition
Chair: J. Ernest Minton, Kansas State University
146-148
Sponsored by: Ralco Nutrition Inc.

Late castration increases observed scrotal hernias and reduces the number of irreparable scrotal hernias. K. L. Marcath*1,2, E. J. Ehinger1, D. J. Mulder1, and T. M. Seals1, 1Sandy Ridge, Dykhuis Farms Inc., Holland, MI, 2Michigan State University, Department of Animal Science, East Lansing.

Postpartum feeding behavior of dairy cows fed ad libitum or restricted prepartum diets containing wheat straw or orchardgrass. B. Weich*, A. D. Kimicikewycz, M. I. Endres, and N. B. Litherland, University of Minnesota, St Paul.

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*1, A. M. Meyer1, J. J. Reed1, T. L. Neville1, J. B. Taylor2, L. P. Reynolds1, D. A. Redmer1, K. A. Vonnahme1, and J. S. Caton1, 1Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.


Effect of organic and inorganic zinc supplementation on expression of key antioxidant genes in weanling pigs. R. L. Wangler*, P. S. D. Weber1, J. E. Link1, D. C. Mahan2, and G. M. Hill1, 1Michigan State University, East Lansing, 2The Ohio State University, Columbus.


Transcript profile of hexose transporters along the horse gastrointestinal tract. N. P. Taylor*, A. D. Woodward1, R. Manjarin1, S. J. Holcombe2, and N. L. Trottier1, 1Michigan State University, Department of Animal Science, East Lansing, 2Michigan State University, College of Veterinary Medicine, East Lansing.

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.

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.


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.
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.

Early finishing performance of pigs fed treatment of Denagard plus chlorotetracycline vs. oxytetracycline in grower diet. J. Graham*, D. Dau2, and J. Waddell3, 1South Dakota State University, Brookings, 2Novartis Animal Health, Greensboro, NC, 3Sutton Veterinary Clinic, Sutton, NE.

Breeding and Genetics
Chair: Jennifer Minick Bormann, Kansas State University

Comparison of sire re-ranking from censored sow lifetime reproductive traits. L. Engblom*, K. Stalder1, J. Holt2, W. Herring3, S. Tsurata4, M. Culbertson2, and J. Mabry1, 1Iowa State University, Ames, 2Smithfield Premium Genetics Group, Rose Hill, NC, 3University of Georgia, Athens.

Lifetime reproductive traits in Landrace, Yorkshire and crossbred sows. L. Engblom*, C. Schwab2, K. Stalder1, and J. Mabry1, 1Iowa State University, Ames, 2National Swine Registry, West Lafayette, IN.

Associations of gilt leg soundness traits with sow lifetime reproduction. M. Nikkil*, K. Stalder1, B. Mote1, J. Lampe2, B. Thorn3, M. Rothschild1, A. Johnson1, L. Karriker1, and T. Serenius1, 1Iowa State University, Ames, 2Swine Graphics Enterprises, Webster City, 3Newsham Choice Genetics, West Des Moines.

Association of single nucleotide polymorphism (SNP) markers in candidate genes and QTL regions with pork quality in commercial pigs. G. A. Rohrer*, D. J. Nonneman1, R. K. Miller2, H. Zerby3, and S. J. Moeller4, 1USDA ARS, Clay Center, NE, 2Texas A&M University, College Station, 3Texas A&M University, College Station, 4The Ohio State University, Columbus.


Estimates of genetic parameters of pig temperament scores during performance test. C. L. Yoder*1, J. S. Fix1, C. Maltecca1, J. P. Cassady1, S. Price2, and M. T. See1, 1North Carolina State University, Raleigh, 2Ivey Spring Creek Farms, Goldsboro, NC.

Effect of selection for residual feed intake on sow reproductive performance and efficiency. J. M. Young*1, R. Bergsma2, E. Knol1, J. F. Patience1, and J. C. M. Dekkers1, 1Iowa State University, Ames, 2Institute for Pig Genetics, Beuningen, the Netherlands.


A robust whole-genome analysis using Student’s-t distribution for residuals. K. Kizilkaya*1,2, R. L. Fernando1, and D. Garrick1, 1Iowa State University, Ames, 2Adnan Menderes University, Aydin, Turkey.

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

Benefits of yeast mannan oligosaccharides in diets for animals: Immune function and disease resistance. T. M. Che* and J. E. Pettigrew, University of Illinois, Department of Animal Sciences, Urbana.

Phosphorus and energy digestibility in enzyme treated soybean meal. K. P. Goebel* and H. H. Stein, University of Illinois, Urbana.

Energy concentration and phosphorus digestibility in yeast products, fish meal, and soybean meal fed to growing pigs. B. G. Kim* and H. H. Stein, University of Illinois, Urbana.

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.
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.


3:30 PM 239  Digestibility of inorganic phosphorus and efficacy of OptiPhos phytase in lactating sows. N. L. Horn*, M. L. Roux¹, N. R. Augspurger¹, and B. W. Ratliff², ¹JBS United, INC., Sheridan, IN, ²Enzyvia, LLC., Sheridan, IN.

3:45 PM 240  Stability of various commercial phytase sources. C. K. Jones*, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, D. R. Campbell², B. W. Ratliff³, J. M. DeRouchey¹, and J. L. Nelssen¹, ¹Kansas State University, Manhattan, ²DSM Nutritional Products, Inc., Parsippany, NJ, ³Enzyvia, 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. Schröder, North Dakota State University
206
Sponsored by: Cargill Animal Nutrition


99 RN Comparison of finishing diets for steers containing 25%, 40%, or 70% wet distillers grains. J. M. Carmack*, P. M. Walker, and L. A. Forster, Illinois State University, Department of Agriculture, Normal, Archer Daniels Midland Co., Decatur, IL.

100 NR Production of value-added pork by enrichment with omega-3 fatty acids. C. Brown*, X. Lin, E. van Heughten, R. Harrell, D. Hanson, and J. Odle, North Carolina State University, Raleigh, Novus International, St. Charles, MO.


102 NR Interaction of Bacillus spp. and Salmonella enterica serovar Typhimurium in immune/inflammatory signaling from swine intestinal epithelial cells. C. Aperce*, T. E. Burkey, B. KuKanich, B. A. Crozier-Dobson, S. S. Dritz, and J. E. Minton, Kansas State University, Animal Sciences and Industry, Manhattan, University of Nebraska, Animal Sciences, Lincoln, Kansas State University, Anatomy and Physiology, Manhattan, 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.
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.

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.

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.


Graduate Student Poster Competition-Ph.D.
Chair: J. W. Schroder, North Dakota State University

Sponsored by: Cargill Animal Nutrition


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

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.

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.

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.
Effect of dietary clay on diarrhea of weaned pigs experimentally infected with a pathogenic *E. coli*. M. Song*1, J. A. Soares1, Y. Liu1, O. Osuna2, C. W. Maddox1, and J. E. Pettigrew1, 1University of Illinois, Urbana, 2Milwhite, Inc., Brownsville, TX.


Undergraduate Student Poster Competition
Chair: Paul Walker, Illinois State University
Sponsored by: ADSA-ASAS Midwest Board


Use of ultrasound technology for the prediction of carcass yield grade of light weight, short-fed stocker cattle. S. J. Lawrence*1, S. E. Kreider1, J. J. Higgins1, D. A. Blasi1, L. Allen1, M. E. Dikeman2, M. P. Epp1, and P. Ritter2, 1Kansas State University, Manhattan, 2Cattle Performance Enhancement Company, Oakley, KS.

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.

Effect of residual sward height after grazing on gastrointestinal nematode parasitism in meat goats. L. M. Pezzanite*1, M. K. Neary1, T. K. Hutchens2, K. Andries3, J. E. Tower1, L. Snyder1, and M. E. Einstein1, 1Purdue University, West Lafayette, 2University of Kentucky, Lexington, 3Kentucky State University, Frankfort.

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.

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.

Growth, Development, Muscle Biology, and Meat Science Poster Session
Chair: Eric Berg, North Dakota State University
206
Sponsored by: Zinpro Performance Minerals

Use of ultrasound technology for the prediction of carcass yield grade of light weight, short-fed stocker cattle. S. J. Lawrence*, S. E. Kreider1, J. J. Higgins1, D. A. Blasi1, L. Allen1, M. E. Dikeman2, M. P. Epp1, and P. Ritter2, 1Kansas State University, Manhattan, 2Cattle Performance Enhancement Company, Oakley, KS.

Prediction of live weight of growing-finishing pigs from simple body measurements. L. Ochoa*, M. Ellis1, C. L. Puls1, M. E. Mercedes1, and B. A. Peterson2, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.

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.

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.


Evaluation of post-harvest Salmonella isolation and contamination of carcasses in vaccinated and non-vaccinated pigs. T. Frana*, L. McDeid1, L. Terry1, J. Kolb2, J. Husa3, and A. Oropeza-Munoz2, 1Iowa State University, Veterinary Diagnostics and Production Animal Medicine, Ames, 2Boehringer Ingelheim Vetmedica, Inc., Ames, IA.

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.


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. Pomereneke, G. Shurson, and R. LaBerge, University of Minnesota, Twin Cities.
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.

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.


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*, J. T. Sawyer1, J.-F. Meullenet2, M. D. Wharton1, and J. W. S. Yancey1, 1University of Arkansas, Department of Animal Science, Fayetteville, 2University of Arkansas, Department of Food Science, Fayetteville.

Lactic acid enhancement can improve the fresh and cooked beef color of dark-cutting beef. J. K. Apple*, J. T. Sawyer1, J.-F. Meullenet2, M. D. Wharton1, and J. W. S. Yancey1, 1University of Arkansas, Department of Animal Science, Fayetteville, 2University of Arkansas, Department of Food Science, Fayetteville.

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.


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

Effect of graded levels of corn distiller’s dried grain with solubles (DDGS) on growth performance of nursery pigs. T.-C.Tsai*, R. Dove1, P. Cline1, A. Owusu-Asiedu1, and M. Azain1, 1University of Georgia, Athens, Georgia, 2Danisco Animal Nutrition, Marlborough, UK.
Effects of corn DDGS and Allzyme SSF supplementation on performance and fat characteristics of grow-finish pigs. G. Li¹, W. Yao¹, and K. Filer*², ¹Nanjing Agricultural University, Nanjing, China, ²Alltech Inc., Nicholasville, KY.


Effects of sulfur concentration in distillers dried grains with solubles on feed preference and pig performance. B. G. Kim*¹, Y. Zhang², and H. H. Stein¹, ¹University of Illinois, Urbana, ²National Corn-to-Ethanol Research Center, Edwardsville, IL.

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*¹, Y. Zhang², and H. H. Stein¹, ¹University of Illinois, Urbana, ²National Corn-to-Ethanol Research Center, Edwardsville, IL.

Effect of particle size of corn distillers dried grains with solubles (DDGS) on digestible and metabolizable energy content for growing pigs. O. F. Mendoza*¹, M. Ellis¹, A. M. Gaines², M. Kocher², T. Sauber³, and D. Jones³, ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL, ³Pioneer Hi-Bred, West Des Moines, IA.

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*¹, M. Ellis¹, J. Eggert³, B. Cousins³, A. M. Gaines³, and F. K. McKeith¹, ¹University of Illinois, Urbana, ²Newsham Choice Genetics, West Des Moines, IA, ³BASF Co., Florham Park, NJ, ⁴The Maschhoffs, Carlyle, IL.

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*¹, M. Ellis¹, A. M. Gaines², B. A. Peterson², B. F. Wolter², R. Bowman², and M. Kocher², ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL.

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*, D. Pompeu, B. R. Wiegand, G. D. Gerlemann, R. B. Hinson, and G. L. Allee, University of Missouri, Columbia.


Solid-state fermentation-derived enzymes improve energy and nutrient digestibility in pigs under good management. B. Bucher¹, R. Messikommer¹, K. Samarasinghe¹, C. Wenk¹, and K. Jacques*², ¹Institute of Animal Sciences, Zurich, Switzerland, ²Alltech Inc., Nicholasville, KY.

Alternative strategies in providing digestible protein to young piglets: yeast-derived protein (NuPro) plus enzymes from solid state fermentation (Allzyme SSF). M. A. Naldo¹, B. Quilat², B. Catbagan², D. Garcia³, and A. Frio*³, ¹Silliman University College of Agriculture, Dumaguete City, Philippines, ²Camille Farm, Gen Santos City, Philippines, ³Alltech Biotechnology Corp., Muntinlupa City, Philippines.

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*¹, S. H. Oh², R. C. Noble², and I. H. Kim², ¹Department of Animal Resource & Science, Dankook University, Choenan, Choongnam, Korea, ²Department of Animal Science, North Carolina A&T State University, Greensboro.

Allzyme SSF supplementation of cassava-based diets: Effects on performance and nutrient digestibility of weanling pigs. U. Kanto¹, S. Juttupornpong¹, W. Jintanawich¹, P. Sookpopet¹, and K. Filer*², ¹SARDI, Kasetsart University, Kampaengsaen, Nakhon Pathom, Thailand, ²Alltech Asia-Pacific Biosciences Center, Bangkok, Thailand.

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*¹, C. L. Puls¹, M. Ellis², A. M. Gaines², B. A. Peterson², M. Kocher², and B. F. Wolter², ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL.

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.

*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.

Dietary n-3 fatty acids attenuate colon endotoxin transport in growing pigs. V. Mani*, E. Kuntz¹, N. Boddicker¹, J. D. Spencer², and N. K. Gabler¹, Iowa State University, Ames, IA. JBS United Inc., Sheridan, IN.

Dietary n-3 fatty acids differentially alter ileum nutrient transport in growing pigs under immune challenge. A. Flinn*, V. Mani¹, M. Jeffrey¹, J. D. Spencer², and N. K. Gabler¹, Iowa State University, Ames, IA. JBS United Inc., Sheridan, IN.

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.

Lactation response to a ruminally-protected B-vitamin product (Vicomb P+). H. Gencoglu¹,², L. Ferraretto¹, M. Akins¹, and R. Shaver¹, Department of Dairy Science, University of Wisconsin Madison, Department of Animal Nutrition and Nutritional Diseases, Faculty of Veterinary Medicine, University of Uludag, Bursa, Turkey.


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.
Effects of round bale alfalfa processing type on heifer performance, forage wastage, and eating preference. S. Q. Jones*, J. M. DeRouchey¹, J. W. Waggoner¹, T. T. Marston¹, R. M. Breiner¹, and T. J. Kraus², ¹Kansas State University, ²John Deere, Ottumwa, IA.

Comparison of feeding and mixing characteristics of precut, conventional and tub ground alfalfa or cornstalks in a TMR. S. Q. Jones*, J. M. DeRouchey¹, J. W. Waggoner¹, T. T. Marston¹, R. M. Breiner¹, and T. J. Kraus², ¹Kansas State University, ²John Deere, Ottumwa, IA.

Comparison of mixing characteristics of precut and conventional alfalfa and cornstalk bales in a vertical mixer. S. Q. Jones*, J. M. DeRouchey¹, J. W. Waggoner¹, T. T. Marston¹, R. M. Breiner¹, and T. J. Kraus², ¹Kansas State University, ²John Deere, Ottumwa, IA.

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.

Effect of advancing fermentation on cell wall monosaccharide composition of by-product feeds. S. J. Harris* and M. S. Kerley, University of Missouri, Columbia.

Effect of milk-based by-products on forage in vitro fermentation. M. H. Ramos* and M. S. Kerley, University of Missouri, Columbia.

A meta-analysis comparing nitrogen fertilization versus interseeded legume on performance of ruminants. M. H. Ramos*¹ and J. W. Lehmkuhler², ¹University of Missouri, Columbia, ²University of Kentucky, Lexington.

(Dairy Innovation Award) Intestinal digestibility of amino acids in rumen undegraded corn silage using the mobile bag technique. S. M. Fredin*, H. Lapierre², N. L. Whitehouse¹, and C. G. Schwab¹, ¹University of New Hampshire, Durham, ²Agriculture and Agri-Food, Sherbrooke, QC, Canada.

Performance of post-weaned Holstein heifer calves fed grain mixes supplemented with essential oils at differing levels. G. Golombeski*, B. Ziegler², D. Schimek², D. Ziegler¹, H. Chester-Jones³, M. Raeth-Knight¹, and J. Linn¹, ¹University of Minnesota, St. Paul, ²Hubbard Feeds, Inc., Mankato, MN, ³University of Minnesota, Southern Research and Outreach Center, Waseca.

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.

Effect of residual sward height after grazing on gastrointestinal nematode parasitism in meat goats. L. M. Pezzanite*, M. K. Neary¹, T. K. Hutchens², K. Andries³, J. E. Tower¹, L. Snyder¹, and M. E. Einstein¹, ¹Purdue University, West Lafayette, ²University of Kentucky, Lexington, ³Kentucky State University, Frankfort.
## Tuesday, March 16

**SYMPOSIA AND ORAL SESSIONS**

_Behavior, Housing & Well-Being_

**Chair:** J. Ernest Minton and Lily Edwards, Kansas State University

136-138

_Sponsored by: Pig Improvement Company Inc._

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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._

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*, L. R. Corah, M. E. King, and W. D. Busby, \(^1\)Certified Angus Beef LLC, Wooster, OH, \(^2\)_Iowa State University, Ames._

3 The effect of selection for residual feed intake on general behavioral activity in Yorkshire gilts. L. J. Sadler, A. K. Johnson, S. M. Lonergan, D. Nettleton, and J. C. M. Dekkers, \(^1\)_Iowa State University, Ames, \(^2\)_Iowa State University, Ames._

4 Association between claw lesion scores, lameness and sow gestation housing systems. S. S. Anil, L. Anil, J. Deen, S. K. Baidoo, M. E. Wilson, and T. L. Ward, \(^1\)_University of Minnesota, St. Paul, \(^2\)_University of Minnesota, Waseca, \(^3\)_Zinpro Corporation, Eden Prairie, MN.

5 Effect of parity on pre-weaning mortality and growth performance of piglets in a bedded, group-farrowing system. Y. Z. Li, J. E. Anderson, and L. J. Johnston, \(^1\)_University of Minnesota, St. Paul, \(^2\)_University of Minnesota, Morris.

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._


8 Relationship between start and end weight variation in a group of pigs. E. Magowan, J. Allen, V. E. Beattie, and M. E. E. McCann, \(^1\)Agri Food and Biosciences Institute, Hillsborough, Northern Ireland, \(^2\)_Devenish Nutrition Ltd., Belfast, Northern Ireland.

Effects of floor space during transport and journey time on transport losses and physical indicators of stress in market-weight pigs. C. M. Pilcher*1, M. Ellis1, M. J. Ritter2, J. Brinkmann3, C. L. Puls1, O. F. Mendoza1, A. Rojo1, and B. A. Peterson1, 1University of Illinois, Urbana, 2Elanco Animal Health, Greenfield, IN, 3The Maschhoffs, Carlyle, IL.


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. Bergstrom1, M. L. Potter*1, M. D. Tokach1, S. C. Henry2, S. S. Dritz1, J. L. Nelssen1, R. D. Goodband1, and J. M. DeRouchey1, 1Kansas State University, Manhattan, 2Abilene Animal Hospital, P.A., Abilene, Kansas.


(Invited ASAS Animal Science Young Scholar) Effects of diet on behavioral and neurophysiological indicators of aggression in pigs. R. Poletto*1,2, B. T. Richert1, R. L. Meisel1, H. W. Cheng2, and J. N. Marchant-Forde2, 1Purdue University, West Lafayette, IN, 2USDA Livestock Behavior Research Unit, West Lafayette, IN, 3University 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

Welcome. Rodney D. Geisert.

8:40 AM 27  (Invited) Use of Artemisia sp. to alleviate heat stress induced male infertility. W. R. Lamberson*, H. Smith1, K. M. Cammack2, and T. J. Safranski1, 1University of Missouri, Columbia, 2University of Wyoming, Laramie.

9:00 AM 28  (Invited) Seasonal effects on sow herds: Industry experience and management strategies. D. S. Pollmann*, Murphy-Brown LLC, Ames, IA.

9:30 AM 29  (Invited) Physiological and reproductive responses to periparturient heat stress in sows. T. J. Safranski*, A. M. Williams, and M. C. Lucy, University of Missouri, Columbia.

10:00 AM  Break


11:00 AM  Industry perspective of housing and environmental effects on swine production (Introduction). T. Safranski, University of Missouri.

11:05 AM  (Invited) Impact of nutrition on sow physiology. L. Greiner, Ltd/Innovative Swine Solutions, LLC.

11:25 AM  (Invited) Managing the conversion from crate to pen gestation. R. Schmitt, Seaboard.

11:45 AM  Discussion

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  (Invited) The mechanistic basis for beneficial effects of beta-agonists in food producing animals. D. Beermann, University of Nebraska-Lincoln.

8:45 AM  (Invited) Use of ractopamine in pork production systems. S. Carr, Elanco Animal Health, Greenfield, IN.

9:30 AM  Break
(Invited) Use of ractopamine in beef production. J. Scanga, Elanco Animal Health, Greenfield, IN.


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

Effects of porcine circovirus type 2 (PCV2) vaccine and increasing standardized ileal digestible lysine:calorie ratio on growth performance of growing and finishing pigs. N. W. Shelton*, M. D. Tokach1, S. S. Dritz1, R. D. Goodband1, J. L. Nelsenn1, J. M. DeRouchev1, and J. L. Usry2, 1Kansas State University, Manhattan, 2Ajinomoto Heartland Inc., Chicago, IL.


Determination of SID Trp:Lys requirement in grow-finish pig fed diets containing 30% DDGS. R. B. Hinson*, L. Ma1, G. D. Gerlemann1, G. L. Allee1, J. D. Less2, D. D. Hall3, H. Yang3, and D. Holzgraefe3, 1University of Missouri, Columbia, 2ADM Specialty Feed Ingredients, Decatur, IL, 3ADM Alliance Nutrition, Quincy, IL.


Determination of SID Trp:Lys ratio requirement of 11- to 22-kg pigs fed diets containing 30% DDGS. L. Ma*, Z. P. Zhu1, R. B. Hinson1, G. L. Allee1, J. D. Less2, D. D. Hall3, H. Yang3, and D. P. Holzgraefe1, 1University of Missouri, Columbia, 2ADM Specialty Feed Ingredients, Decatur, IL, 3ADM Alliance Nutrition, Quincy, IL.
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.


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*, M. V. Fossa1, M. Ruiz-Moreno1, G. I. Crawford2, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2University of Minnesota Extension Regional Office, Hutchinson.


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.


Ensiled or fresh mixed wet distillers grains with solubles and straw in growing diets. C. D. Buckner*, W. A. Griffin1, J. R. Benton1, T. J. Klopfenstein1, G. E. Erickson1, and M. E. Corrigan2, 1University of Nebraska, Lincoln, 2Lallemand Animal Nutrition North American, Milwaukee, WI.


Meta analysis of feeding winter calf-feds or summer yearlings wet distillers grains with different corn processing types. V. R. Bremer*, K. J. Hanford, G. E. Erickson, and T. J. Klopfenstein, University of Nebraska, Lincoln.

Metabolism by steers consuming wet corn gluten feed or wet distillers grains with solubles based finishing diets. C. D. Buckner*, K. M. Rolfe, N. F. Meyer, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.

Metabolism characteristics of feedlot diets containing different by-product lipid sources. V. R. Bremer*, K. M. Rolfe, C. D. Buckner, G. E. Erickson, and T. J. Klopfenstein, University of Nebraska, Lincoln.


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.

**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

8:30 AM 50 (Invited) Matching the cow to forage resources. D. L. Lalman*, C. P. McMurphy, G. L. Mourer, A. J. Sexten, G. E. Selk, and D. R. Stein, Oklahoma State University, Stillwater.

9:00 AM 51 (Invited) Potential to create carbon credits from beef production practices. D. B. Faulkner*, University of Illinois, Urbana.

9:30 AM 52 (Invited) Managing phosphorus supplementation to enhance the economic and environmental sustainability of beef cow-calf operations. J. R. Russell*, M. M. Haan², and K. A. Schwarte¹, ¹Iowa State University, Ames, ²Michigan State University-Kellogg Biological Station, Hickory Corners.

10:00 AM Break
(Invited) On-farm mortality composting of large animal carcasses. J. Payne* and B. Pugh, 1Oklahoma State University, Oklahoma Cooperative Extension Service, Muskogee, 2Oklahoma State University, Oklahoma Cooperative Extension Service, Stigler.

(Invited) Filling in the gaps in forage and feed needs. G. P. Lardy*, North Dakota State University, Fargo.


**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


(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.

Break

(Invited) Direct-fed microbials for growing and finishing cattle: Impact on growth performance and health. M. S. Brown* and C. R. Krehbiel, 1West Texas A&M University, Canyon, 2Oklahoma State University, Stillwater.

(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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<th>Time</th>
<th>Session</th>
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<tr>
<td>8:30 AM</td>
<td>324</td>
<td>(Invited) New directions in agricultural education.</td>
<td>D. L. Boggs*, Kansas State University, Manhattan.</td>
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<tr>
<td>8:55 AM</td>
<td>325</td>
<td>(Invited) Creating industry advocates in the classroom: Media interview project.</td>
<td>J. A. Sterle*, Texas A&amp;M University, College Station.</td>
</tr>
<tr>
<td>9:20 AM</td>
<td>326</td>
<td>Pork industry Fellows program in animal science at Iowa State University.</td>
<td>T. J. Baas*, M. G. Hogberg, and A. E. Christian, Iowa State University, Ames.</td>
</tr>
<tr>
<td>9:35 AM</td>
<td>327</td>
<td>Training students to be advocates for the animal industry through the class—Current issues in animal and range sciences.</td>
<td>R. C. Thaler* and K. W. Bruns, South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>10:05 AM</td>
<td>329</td>
<td>Equine issues and leadership: Preparing emerging leaders to be advocates for the equine industry.</td>
<td>R. C. Bott*, South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>10:20 AM</td>
<td>330</td>
<td>Beef leaders program at South Dakota State University.</td>
<td>S. J. Winterholler* and K. W. Bruns, South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>10:35 AM</td>
<td>331</td>
<td>Incorporation of a student response system into a large animal nutrition lecture course.</td>
<td>B. J. Bradford*, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>10:50 AM</td>
<td>332</td>
<td>Swine science online.</td>
<td>T. J. Baas*, M. T. See*, J. Sterle*, D. Meisinger*, and C. Masker*, 1Iowa State University, Ames, 2North Carolina State University, Raleigh, 3Texas A&amp;M University, College Station.</td>
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Nonruminant Nutrition
Nonruminant IV: Energy
Chair: Nathan Augspurger, JBS United Inc.
142-144
Sponsored by: Kent Feeds

9:45 AM 152 (National Pork Board Research Award) Effect of genotype on heat production and the net energy (NE) value of a corn-soybean meal-based diet. E. Kiarie* and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada.

10:00 AM 153 Practical method for estimating productive energy (NE) of wheat midds for growing pigs. R. D. Boyd1, C. E. Zier-Rush*1, and C. E. Fralick2, 1The Hanor Company, Franklin, KY, 2Swine-Tek Research, Van Wert, OH.


10:45 AM 156 (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. S. Hooda*1, B. U. Metzler-Zebeli1, J. J. Matte2, T. Vasanthan1, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.


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

1:00 PM Introduction

1:05 PM 45 (Invited) Obesity-associated insulin resistance and its relationship to laminitis. R. Carter*, Department of Clinical Studies/New Bolton Center, University of Pennsylvania School of Veterinary Medicine, Kennett Square.
1:35 PM 46  Lactic acid bacteria isolated from the equine stomach. A. H. Smith* and T. G. Rehberger, Danisco, Waukesha, WI.

1:50 PM 47  Relevant equine intensive nutrition software. P. Auwerda* and G. Dahke, Iowa State University, Ames.

2:05 PM 343  Transcript profile of hexose transporters along the horse gastrointestinal tract. N. P. Taylor*, A. D. Woodward*, R. Manjarin1, S. J. Holcombe2, and N. L. Trottier1, 1Michigan State University, Department of Animal Science, East Lansing, 2Michigan State University, College of Veterinary Medicine, East Lansing.

2:20 PM  Break

2:35 PM 48  (Invited) An update on horse welfare, contrasting the issues between developed countries and developing countries. C. R. Heleski*, Michigan State University, East Lansing.


3:20 PM  329  Equine issues and leadership: Preparing emerging leaders to be advocates for the equine industry. R. C. Bott*, South Dakota State University, Brookings.

3:35 PM  Discussion

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**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  Introduction. J. Paulson.

1:15 PM  61  (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? R. Grummer*, University of Wisconsin, Madison.

1:45 PM  62  (Invited) Strategies for nutritional management during the dry period: Controlled energy diets. J. K. Drackley*, University of Illinois, Urbana.

2:15 PM  Discussion and Debate

2:45 PM  Break
3:00 PM  63  (Invited) Diet cation-anion difference (DCAD) as a means of controlling milk fever; factors important to implementing DCAD management. J. Goff*, Iowa State University, Ames.

3:30 PM  64  (Invited) Low calcium diets and milk fever. J. D. Ferguson*, University of Pennsylvania, Kennett Square.

4:00 PM  Discussion

Growth, Development, Muscle Biology, and Meat Science
Chair: Tara McDaneld, USDA-ARS

1:00 PM  97  Effects of spaying and terminal implant strategy on performance and carcass characteristics of beef feedlot heifers. J. M. Kelzer*1, C. R. Dahlen2, G. I. Crawford3, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2University of Minnesota Northwest Research and Outreach Center, Crookston, 3University of Minnesota Extension Regional Office, Hutchinson.

1:15 PM  117  In pigs myofiber hyperplasia is reduced due to intrauterine crowding. J. Bérard1,2, C. E. Pardo1,2, S. Béthaz1, M. Kreuzer2, and G. Bee*1, 1Agroscope Liebefeld Posieux, Research Station ALP, Posieux, Switzerland, 2Department of Agricultural and Food Science, ETH-Zurich, Zurich, Switzerland.

1:30 PM  118  Effects of piglet birth weight and litter size on pre-weaning growth performance of pigs on a commercial farm. J. R. Bergstrom*1, M. L. Potter1, M. D. Tokach1, S. C. Henry2, S. S. Dritz1, J. L. Nelssen1, R. D. Goodband1, and J. M. DeRouchey1, 1Kansas State University, Manhattan, 2Abilene Animal Hospital, Abilene, KS.

1:45 PM  119  Effects of birth weight and gender on post-weaning performance of pigs in a commercial environment. J. R. Bergstrom*1, M. L. Potter1, M. D. Tokach1, S. C. Henry2, S. S. Dritz1, J. L. Nelssen1, R. D. Goodband1, and J. M. DeRouchey1, 1Kansas State University, Manhattan, 2Abilene Animal Hospital, Abilene, KS.

2:00 PM  120  Effects of birth weight and dietary Paylean inclusion level on the growth performance and carcass composition of pigs. C. L. Puls*1, M. Ellis1, L. Kutzler1, J. Killefer1, F. K. McKeith1, N. Williams2, B. A. Peterson1, B. F. Wolter1, and S. N. Carr1, 1University of Illinois, Urbana, 2PIC USA, Hendersonville, TN, 3The Maschhoffs, Carlyle, IL, 4Elanco Animal Health, Greenfield, IN.
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<tr>
<td>2:15 PM</td>
<td>121</td>
<td>Impact of feeding diets containing extruded flaxseed meal and vitamin E in finishing swine.</td>
<td>A. D. Beaulieu*, J. F. Patience¹, R. T. Zijlstra², J. L. Aalhus¹, and M. E. R. Dugan³, Prairie Swine Centre, Inc., Saskatoon, SK, Canada, University of Alberta, Edmonton, AB, Canada, Agriculture and Agri-Food Canada Lacombe Research Centre, Lacombe, AB, Canada.</td>
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<td>2:30 PM</td>
<td>83</td>
<td>Fatty acid profiles of pork fat are altered when ractopamine (Paylean), CLA and DDGS are fed.</td>
<td>H. L. Evans*, R. B. Hinson¹, G. D. Gerlemann¹, D. Pompeu¹, S. N. Carr², M. J. Ritter², B. R. Wiegand¹, G. L. Allee¹, and R. D. Boyd³, University of Missouri, Columbia, Elanco Animal Health, Greenfield, IN, The Hanor Company, Franklin, KY.</td>
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<td>3:15 PM</td>
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<td>4:15 PM</td>
<td>126</td>
<td>Control of Listeria monocytogenes on uncured, no-nitrate-or-nitrite-added frankfurters.</td>
<td>K. D. Schrader*, J. G. Sebranek, J. C. Cordray, J. D. Dickson, and A. F. Mendonca, Iowa State University, Ames.</td>
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<td>1:00 PM</td>
<td>158</td>
<td>Effects of corn distillers dried grains with solubles (DDGS) on quality traits of pork.</td>
<td>K. M. McClelland*, G. Rentfrow¹, G. L. Cromwell¹, M. D. Lindemann¹, and M. J. Azain². University of Kentucky, Lexington, University of Georgia, Athens.</td>
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<tr>
<td>1:15 PM</td>
<td>159</td>
<td>Attempts to improve belly firmness in finishing pigs fed a high level of DDGS.</td>
<td>M. C. Ulery¹, G. L. Cromwell¹, G. K. Rentfrow¹, M. D. Lindemann¹, and M. J. Azain². University of Kentucky, Lexington, University of Georgia, Athens.</td>
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<tr>
<td>1:30 PM</td>
<td>160</td>
<td>(Invited ASAS Animal Science Young Scholar) Dietary fiber and distillers dried grains with solubles as modulators of pig health.</td>
<td>V. Perez* and J. Pettigrew. University of Illinois, Urbana.</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>161</td>
<td>Effect of dried distillers grains with solubles (DDGS) withdrawal regimens on finishing pig performance and carcass traits.</td>
<td>J. Y. Jacela*, J. M. Benz¹, S. S. Dritz¹, M. D. Tokach¹, J. M. DeRouchey¹, R. D. Goodband¹, J. L. Nelssen¹, and K. J. Prusa². Kansas State University, Manhattan, Iowa State University, Ames.</td>
</tr>
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<td>2:30 PM</td>
<td>163</td>
<td>Development of equations to predict the metabolizable energy content of distillers dried grains with solubles (DDGS) samples from a wide variety of sources.</td>
<td>O. F. Mendoza*, M. Ellis¹, A. M. Gaines², M. Kocher², T. Sauber³, and D. Jones³. University of Illinois, Urbana, The Maschhoffs, Carlyle, IL, Pioneer Hi-Bred, Johnston, IA.</td>
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<tr>
<td>2:45 PM</td>
<td>164</td>
<td>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.</td>
<td>G. D. Gerlemann*, R. B. Hinson¹, D. Pompeu¹, S. N. Carr², M. J. Ritter¹, B. R. Wiegand¹, G. L. Allee¹, and R. D. Boyd¹. University of Missouri, Columbia, Elanco Animal Health, Greenfield, IN, The Hanor Company, Franklin, KY.</td>
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<td>3:00 PM</td>
<td>165</td>
<td>Effects of dried distiller grains with solubles (DDGS) and ractopamine on growth performance and carcass characteristics of swine.</td>
<td>A. Schinckel, M. Latour, and B. Richert*. Purdue University, West Lafayette, IN.</td>
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## 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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<td>2:45 PM</td>
<td>169</td>
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<td>3:30 PM</td>
<td>170</td>
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**1:00 PM 167** *(Invited) Measurement and quantification of fiber components in dietary ingredients.* G. C. Fahey*, University of Illinois, Urbana.

**1:45 PM 168** *(Invited) Differences in analytical composition and energy digestibility of select fiber sources.* B. J. Kerr, USDA-ARS-SOMMRU, Ames, IA.

**2:30 PM 169** *(Invited) Digestibility of dietary fiber in distillers co-products fed to growing pigs.* H. H. Stein*, University of Illinois, Urbana.

**3:30 PM 170** *(Invited) Digestion of carbohydrates and utilization of energy in pigs and sows fed diets with contrasting levels and physiochemical properties of dietary fiber.* K. E. B. Knudsen* and H. Jørgensen, Aarhus University, Department of Animal Health and Bioscience, Tjele, Denmark.

**4:15 PM** *(Invited) Factors to consider when using higher levels of fiber in diet formulation.* J. F. Patience*, Iowa State University, Ames.

## Ruminant Nutrition II

**Chair:** Barry Bradford, Kansas State University

204 FG

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<td>1:00 PM</td>
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**1:00 PM 274** *(Invited ASAS Animal Science Young Scholar) Plasma leptin and ghrelin concentrations and abundance of the growth hormone secreteaglogue receptor in beef cattle exhibiting differences in composition of gain.* J. S. Jennings*¹, R. H. Pritchard¹, D. H. Keisler², A. D. Weaver¹, J. A. Clapper¹, and A. E. Wertz-Lutz¹, ¹South Dakota State University, Brookings, ²University of Missouri, Columbia.

**1:30 PM 275** 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. K. J. Dick¹, G. C. Duff*¹, S. W. Limesand¹, S. P. Cuneo¹, D. K. Knudson¹, C. P. McMurphy¹, L. W. Hall¹, J. C. Bernal-Rigoli¹, J. A. Marchello¹, and W. Kreikemeier¹, ¹University of Arizona, Tucson, ²Nutrition Physiology Company, LLC, Guymon, OK.
1:45 PM 276  Bovine intestinal mucus as a substrate for growth of *E. coli O157:H7*. C. Aperce*, J. Heidenreich, and J. Drouillard, *Kansas State University, Animal Sciences and Industry, Manhattan*.

2:00 PM 277  Effect of health treatments on feedlot performance, carcass traits and profitability of beef calves fed in the Iowa Tri-County Steer Carcass Futurity. G. D. Fike*, L. R. Corah¹, M. E. King¹, and W. D. Busby², ¹Certified Angus Beef LLC, Wooster, OH, ²*Iowa State University, Ames*.

2:15 PM 278  Effect of lung adhesions on feedlot performance, carcass traits and profitability of beef calves fed in the Iowa Tri-County Steer Carcass Futurity. G. D. Fike¹, L. R. Corah¹, M. E. King¹, and W. D. Busby*², ¹Certified Angus Beef LLC, Wooster, OH, ²Iowa State University, Ames*.

2:30 PM 279  Effects of a dietary antioxidant on performance and carcass characteristics of feedlot cattle fed WDGS or high grain diets. J. P. Moore*, J. T. Vasconcelos¹², G. E. Erickson¹, S. A. Furman², M. Andersen³, and C. N. Macken⁴, ¹University of Nebraska, Lincoln, ²University of Nebraska, Panhandle Research and Extension Center, Scottsbluff, ³Novus International, Inc., St. Louis, MO, ⁴Performance Plus Liquid, Palmer, NE.

2:45 PM 280  Beta acid extracts of hops: Effects on ruminal metabolism and apparent total tract digestibility of high-concentrate diets. S. Uwituzé*, J. M. Heidenreich¹, J. J. Higgins¹, S. Garden³, and J. S. Drouillard¹, ¹Kansas State University, Manhattan, ²John I. Haas, Inc., Washington, DC.

3:00 PM  Break

3:15 PM 281  Effect of feeding corn modified to contain amylase on performance and carcass characteristics of feedlot steers. J. P. Schoonmaker*, M. E. Persia², and D. C. Beitz¹, ¹Iowa State University, Ames, ²Syngenta Biotechnology, Research Triangle Park, NC.


4:00 PM 284  Effects of initial body composition on carcass weight and compositional changes in heifers fed Zilmax. L. Thompson*, C. Schneider, G. Parsons, K. Miller, C. Reinhardt, and J. Drouillard, *Kansas State University, Manhattan*. 

Tuesday PM 45
Performance of finishing beef steers in response to anabolic implant dose and zilpaterol hydrochloride. S. L. Parr*, K. Y. Chung1, M. L. Galyean1, J. P. Hutcheson2, N. DiLorenzo1, K. E. Hales1, M. L. May1, M. J. Quinn1, D. R. Smith1, and B. J. Johnson1, 1Texas Tech University, Lubbock, 2Intervet / Schering-Plough Animal Health, De Soto, KS.


Effect of hide color and percentage Angus on feedlot performance and carcass traits in beef calves. L. R. Corah*, G. D. Fike1, M. E. King1, and W. D. Busby2, 1Certified Angus Beef LLC, Wooster, OH, 2Iowa State University, Ames.

Ruminant Nutrition III
Chair: Amer AbuGhazaleh, Southern Illinois University
204 AB


Ensiling wet distillers grains mixed with corn stalks and its feeding value for Holstein heifers. J. L. Anderson*, K. F. Kalscheur1, A. D. Garcia1, A. R. Hippen1, D. J. Schingoethe1, D. H. Kleinschmit2, and D. P. Casper2, 1South Dakota State University, Brookings, 2Agri-King Inc., Fulton, IL.


Effects of supplementing dairy cows with chromium propionate on milk and tissue chromium concentrations. K. E. Lloyd1, J. W. Spears*, S. McLeod1, R. S. Fry1, K. Kraafka2, A. Lamppte2, and V. Fellner1, 1North Carolina State University, Raleigh, 2Kemin AgriFoods North America, Inc, Des Moines, IA.

Postpartum feeding behavior of dairy cows fed ad libitum or restricted prepartum diets containing wheat straw or orchardgrass. B. Weich*, 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. Montoye, 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*, S. L. Bird2, G. I. Crawford3, R. Walker4, B. J. Funnell5, and A. DiCostanzo6, 1University of Minnesota, St. Paul, 2North Central Research and Outreach Center, Grand Rapids, MN, 3Regional Extension Office, Hutchinson, MN, 4Regional 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*, S. L. Bird2, G. I. Crawford3, R. Walker4, B. J. Funnell5, and A. DiCostanzo6, 1University of Minnesota, St. Paul, 2North Central Research and Outreach Center, Grand Rapids, MN, 3Regional Extension Office, Hutchinson, MN, 4Regional Extension Office, Andover, MN.


4:00 PM 296 Forage quality and grazing performance of beef cattle grazing brown mid-rib grain sorghum residue. A. K. Watson*, J. R. Geis1, W.A. Griffin1, G. E. Erickson1, T. J. Klopfenstein1, R. B. Mitchell2, and J. F. Pedersen2, 1University of Nebraska, Lincoln, 2USDA, ARS, Lincoln, NE.


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*, K. Coffey1, D. Philipp1, C. Kreibiel2, B. Holland2, J. Jennings3, D. Hubbell, II1, J. Tucker1, A. Young1, T. Hess1, D. Kreider1, M. Looper3, M. Popp1, M. Savin1, E. Kegley1, C. Rosenkranz, Jr.1, 1University of Arkansas, Fayetteville, 2Oklahoma State University, Stillwater, 3South Dakota State University, Brookings, 4Cooperative Extension Service, Little Rock, AR, 5USDA-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*, M. D. Ashworth², R. D. Geisert³, and F. J. White⁴, ¹Iowa State University, Ames, ²Yale University, New Haven, CT, ³University of Missouri, Columbia, ⁴Cameron 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  

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*, A. M. Meiszberg¹, L. I. Engblom¹, K. J. Stalder¹, and L. A. Karriker², ¹Iowa State University, Ames, ²Iowa State University, Ames.

17  

18  
Effects of increased hutch ventilation on dairy calf performance. L. M. Pezzanite*, T. S. Dennis¹, R. C. Schroer¹, M. M. Schutz¹, S. D. Eicher², and T. D. Nennich¹, ¹Purdue University, West Lafayette, IN, ²USDA-ARS, West Lafayette, IN.

19  
Effect of lactation housing on growth performance of pigs. Y. Z. Li*, L. J. Johnston¹, and J. E. Anderson², ¹University of Minnesota, St. Paul, ²University of Minnesota, Morris.
20 Association between sow longevity and gestation housing systems. L. Anil*¹, S. S. Anil², S. K. Baidoo³, and R. B. A. Dahlen¹, ¹University of Minnesota, Waseca, ²University of Minnesota, St. Paul.

21 Analysis of the association between the number of lesions in different claw areas in sows. S. S. Anil*¹, L. Anil², J. Deen¹, S. K. Baidoo², M. E. Wilson¹, and T. L. Ward³, ¹University of Minnesota, St Paul, ²University of Minnesota, Waseca, MN, ³Zinpro 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*¹, L. Anil², J. Deen¹, S. K. Baidoo², M. E. Wilson³, and T. L. Ward³, ¹University of Minnesota, St Paul, ²University of Minnesota, Waseca, MN, ³Zinpro Corporation, Eden Prairie, MN.


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*¹, M. Ellis¹, A. M. Gaines², B. A. Peterson², B.F. Wolter³, and R. Bowman³, ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL.

24 Grazing behavior of heifers measured by handheld GPS. F. Lopes*¹, D. K. Combs¹, P. C. Hoffman¹, N. M. Esser¹, and W. Coblentz², ¹University of Wisconsin, Madison, ²USDA/ARS, Marshfield, WI.


**Breeding and Genetics Poster Session**

Chair: Matt Spangler, University of Nebraska-Lincoln

206

Sponsored by: Zinpro Performance Minerals

Equine Poster Session
206
Sponsored by: Zinpro Performance Minerals


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

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.

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

Evaluation of alternative methods to analyze pig body weight data from animal sorting technologies1. A. Schinckel*1, M. Wastell2, M. Einstein1, J. Hubbs1, and P. Preckel1, 1Purdue University, West Lafayette, IN; 2Gro-Master Inc., Omaha, NE.

Analyses of lactation feed and energy intakes for three breeds of sows. A. Schinckel*1, C. Schwab2, V. Duttlinger3, and M. Einstein1, 1Purdue University, West Lafayette, IN; 2National Swine Registry, West Lafayette, IN; 3Tempel Genetics, Gentryville, IN.

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*1, M. Einstein1, S. Jungs2, C. Booher3, T. Stewart1, and S. Newman2, 1Purdue University, West Lafayette, IN; 2PIC North American, Hendersonville, TN.

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
Sponsored by: Zinpro Performance Minerals

Evaluation of potential sorting strategies on the lysine requirements of pigs. A. Schinckel*, M. Einstein¹, S. Jungst², C. Booher³, T. Stewart¹, and S. Newman², ¹Purdue University, West Lafayette, IN, ²PIC North American, Hendersonville, TN.


Efficacy of methionine hydroxy analogue-calcium salt and DL-methionine to support nitrogen retention in growing pigs. F. O. Opapeju*, J. K. Htoo², and C. M. Nyachoti¹, ¹University of Manitoba, Winnipeg, MB, Canada, ²Evonik Degussa GmbH, Hanau, Germany.

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.


Nonruminant Nutrition Poster Session
Ingredients and Feed Additives
Sponsored by: Zinpro Performance Minerals

Evaluation of the interaction between lysine level, OptiPak efficiency, and ractopamine hydrochloride (Paylean) on growth performance of late finishing pigs. R. Howdyshell*, S. A. Hansen¹, R. E. Musser², and E. L. Hansen³, ¹Hubbard Feeds, Mankato, MN, ²SODA Feed Ingredients LLC, Mankato, MN, ³New Fashion Pork, Jackson, MN.

The effects of deoxynivalenol on growth performance in nursery pigs. S. L. Johnston¹, J. F. Patience², D. Gillis², M. De La Llata*¹, S. A. Hansen¹, and A. D. Beaulieu², ¹Hubbard Feeds, Mankato, MN, ²Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

Effect of dietary clay on diarrhea of weaned pigs experimentally infected with a pathogenic E. coli. M. Song*, J. A. Soares¹, Y. Liu¹, O. Osuna², C. W. Maddox¹, and J. E. Pettigrew¹, ¹University of Illinois, Urbana, ²Milwhite, Inc., Brownsville, TX.


Production of value-added pork by enrichment with omega-3 fatty acids. C. Brown*, X. Lin¹, E. van Heugten¹, R. Harrell², D. Hanson¹, and J. Odle¹, ¹North Carolina State University, Raleigh, ²Novus International, St. Charles, MO.


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*, S. L. Johnston², T. D. Bidner¹, R. Musser³, and L. L. Southern¹, ¹LSU Agricultural Center, Baton Rouge, LA, ²Hubbard Feeds Inc., Mankato, MN, ³Soda Feed Ingredients, Mankato, MN.

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.

Effects of diets containing various concentrations of fumonisin (FB₁) 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.

Effect of two adsorbents on performance, blood, and liver chemistry of nursery pigs fed diets containing fumonisin (FB₁) supplied by naturally contaminated corn. S. Turner¹, D. R. Ledoux¹, G. E. Rottinghaus¹, J. Broomhead², and M. C. Shannon¹, ¹University of Missouri-Columbia, Columbia, ²Amlan International, Vernon Hills, IL.

Ractopamine (Paylean) response in heavy weight finishing pigs. L. W. Kutzler*, C. M. Peterson¹, M. Ellis¹, S.N. Carr², M.J. Ritter², T.A. Armstrong², F.K. McKeith¹, and J. Killefer¹, ¹University of Illinois at Urbana-Champaign, Urbana, IL, USA, ²ELANCO Animal Health, Greenfield, IN.

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.

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.
Mannan oligosaccharides (MOS) modulate gene expression profile in pigs experimentally infected with porcine reproductive and respiratory syndrome virus (PRRSV). T. M. Che*1, R. W. Johnson1, K. W. Kelley1, W. G. Van Alstine2, K. A. Dawson2, and C. A. Moran3, 1University of Illinois, Department of Animal Sciences, Urbana, 2Purdue University, Animal Disease and Diagnostic Laboratory, West Lafayette, IN, 3Alltech North American Bioscience Center, Nicholasville, KY.

Nonruminant Nutrition Poster Session
Minerals
206
Sponsored by: Zinpro Performance Minerals

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.

Effects of added copper sulfate and zinc oxide on weaning pig growth and plasma mineral levels. N. W. Shelton*1, M. D. Tokach1, J. L. Nelssen1, R. D. Goodband1, S. S. Dritz1, J. M. DeRouchey1, G. M. Hill2, R. G. Amachawadi1, and T. G. Nagaraja1, 1Kansas State University, Manhattan, 2Michigan State University, East Lansing.


Nonruminant Nutrition Poster Session
Nursery and Grow-Finish Pig Nutrition
206
Sponsored by: Zinpro Performance Minerals

Evaluation of feed budgeting, complete diet blending, and corn-supplement blending on finishing pig performance. R. C. Sulabo*1, G. Papadopoulos1, J. R. Bergstrom1, J. M. DeRouchey1, D. Ryder2, M. D. Tokach1, S. S. Dritz1, R. D. Goodband1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2Feedlogic Corp., Willmar, MN.

Interaction of *Bacillus* spp. and *Salmonella enterica* serovar Typhimurium in immune/inflammatory signaling from swine intestinal epithelial cells. C. Aperce*, 1 T. E. Burkey2, B. KuKanich3, B. A. Crozier-Dobson1, S. S. Dritz4, and J. E. Minton1, 1Kansas State University, Animal Sciences and Industry, Manhattan, 2University of Nebraska, Animal Sciences, Lincoln, 3Kansas State University, Anatomy and Physiology, Manhattan, 4Kansas State University, Diagnostic Medicine/Pathobiology, Manhattan.

Effects of a yeast-derived protein source (NuPro) with and without whey powder on piglet performance post-weaning. D. Henman1, A. Murphy1, and K. Jacques*, 2Rivalea Australia, Corowa, NSW, Australia, 2Alltech Inc., Nicholasville, KY.

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*, 1University of Arkansas, Fayetteville, 2Ajinomoto Heartland LLC, Chicago, IL.

**Nonruminant Nutrition Poster Session**

**Sow Nutrition**

206

Sponsored by: Zinpro Performance Minerals

Dietary supplementation of bacitracin methylene disalicylate (BMD) on sow and piglet performance, immunoglobulin status, and milk composition. S. K. Baidoo*, 1 R. B. A. Dahlen1, L. Anil1, D. A. Nelson2, and J. E. Wheaton1, 1University of Minnesota, St. Paul., 2Alpharma Animal Health, Bridgewater, NJ.

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*, 1 W. Xiao1, A. Rojo1, F. K. McKeith1, M. Ellis1, S. Webel1, J. Spencer2, A. M. Gaines3, and P. J. Bechtel4, 1University of Illinois, Urbana, 2JBS United, Sheridan, IN, 3The Maschhoffs, Carlyle, IL 4USDA/ARS/SARU, Fairbanks, AL.


Comparison of estimated body composition of pregnant sows using isotope dilution technique or using live weight and backfat thickness. P. J. L. Ramaekers*, 1, M. G. H. Veldhorst2, P. K. Theil1, and W. J. J. Gerrits2, 1Nutreco Netherlands BV, Boxmeer, the Netherlands, 2Wageningen University and Research Centre, Wageningen, the Netherlands.

Effects of increasing feeding level during late gestation on sow and litter performance. N. W. Shelton*, 1, J. M. DeRouchey1, C. R. Neill2, M. D. Tokach1, S. S. Dritz1, R. D. Goodband1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2PIC, Hendersonville, TN.

Odor and Nutrient Management Poster Session
Chair: Dustin Kendall, Murphy-Brown LLC
206
Sponsored by: Zinpro Performance Minerals


Ruminant Nutrition II Poster Session
206
Sponsored by: Zinpro Performance Minerals

Pro-vitamin A carotenoids in feedstuffs. C. L. Pickworth*, 1, S. C. Loerch1, F. L. Fluharty1, R. E. Kopec2, and S. J. Schwartz2, 1The Ohio State University, Wooster, 2The Ohio State University, Columbus.

Effect of housing on sustainability of beef cattle production. H. Koknaroglu1 and M. P Hoffman*, 1Suleyman Demirel University, Isparta, Turkey, 2Iowa State University, Ames.

Season affects energy input/output ratio in beef cattle production. H. Koknaroglu1 and M. P. Hoffman*, 1Suleyman Demirel University, Isparta, Turkey, 2Iowa State University, Ames.
The effect of LAB on in vitro ruminal fermentation. R. M. Harvey*1, N. F. Johnson1, M. A. Brooks1, M. S. Kerley1, and D. E. Diaz2, 1University of Missouri, Columbia, 2Novus International, Inc., St. Louis, MO.


Feeding MSE direct-fed microbials to finishing cattle decreases the fecal shedding of *Escherichia coli* O157:H7. M. E. Jacob*1, K. Lechtenberg2, L. L. Burnham3, D. Haverkamp3, and T. G. Nagaraja1, 1Kansas State University, Manhattan, 2Midwest Veterinary Services, Oakland, NE, 3Nature’s Way, Inc., Horton, KS.

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.

Comparison of finishing diets for steers containing 25%, 40%, or 70% wet distillers grains. J. M. Carmack*1, P. M. Walker1, and L. A. Forster2, 1Illinois State University, Department of Agriculture, Normal, 2Archer Daniels Midland Co., Decatur, IL.

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*1, D. G. Renter1, Z. D. Paddock1, K. Lechtenberg2, and T. G. Nagaraja1, 1Kansas State University, Manhattan, 2Midwest Veterinary Services, Oakland, NE.

Effects of a *Bacillus*-based direct-fed microbial on calf performance. C. A. Wehnes*1, A. H. Smith1, T. G. Rehberger1, and D. Shields2, 1Danisco USA, Inc., Waukesha, WI, 2Merrick’s, Inc., Union Center, WI.

Influence of supplemental calcium and feeding fish oil on growth performance and fatty acid composition of muscle of grazing calves. J. T. Richeson*1, E. B. Kegley1, and T. J. Wistuba2, 1University of Arkansas, Division of Agriculture, Fayetteville, 2Morehead State University, Morehead, KY.

Effect of supplemental molybdenum on forage-fed steers receiving high-sulfur water. K. L. Kessler*1, K. C. Olson2, C. L. Wright2, K. J. Austin1, P. S. Johnson2, and K. M. Cammack1, 1University of Wyoming, Laramie, 2South Dakota State University, Brookings.

Nutrient concentration as affected by supplement form (liquid vs dry) in a high moisture finishing ration. J. P. Jaderborg*1, G. L. Crawford1, C. Lahr2, H. Blalock2, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2Quality Liquid Feeds, Dodgeville, WI, 3Regional Extension Office, Hutchinson, MN.
Teaching Poster Session
Chair: Kelly Bruns, South Dakota State University
206
Sponsored by: Zinpro Performance Minerals

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*, K. Beeler, M. Whitney, G. Thome, M. Swan, M. Morrow, Y. Li, T. Baas, B. Richert, R. Knox, S. Pohl, A. Sutton, S. Moeller, J. Sterle, P. Holden, M. Hardin, K. Leedom-Larson, D. Newman, D. Meisinger, 1North Carolina State University, Raleigh, 2U.S. Pork Center of Excellence, Ames, IA, 3University of Minnesota, Mankato, 4Riverland College, Austin, MN, 5Washington State University, Pullman, 6Iowa State University, Ames, 7Purdue University, West Lafayette, IN, 8University of Illinois, Urbana, 9South Dakota State University, Brookings, 10Ohio State University, Columbus, 11Texas A&M University, College Station, 12National Pork Board, Des Moines, IA, 13North Dakota State University, Fargo.

9:15 AM 67 Development of a swine nutrient recommendations estimator and diet formulation software to support the National Swine Nutrition Guide. M. H. Whitney*, M. S. Carlson, S. D. Carter, G. R. Dahlke, J. M. DeRouchey, D. Meisinger, D. E. Reese, B. T. Richert, J. F. Patience, R. C. Thaler, and E. van Heughten, 1University of Minnesota, Mankato, 2University of Missouri, Columbia, 3Oklahoma State University, Stillwater, 4Iowa State University, Ames, 5Kansas State University, Manhattan, 6U.S. Pork Center of Excellence, Ames, IA, 7University of Nebraska, Lincoln, 8Purdue University, West Lafayette, IN, 9South Dakota State University, Brookings, 10North Carolina State University, Raleigh.


Birth weight impacts the likelihood of pigs being full value prior to finishing barn closeout. J. S. Fix*, J. P. Cassady, J. W. Holl, W. O. Herring, M. S. Culbertson, and M. T. See, North Carolina State University, Raleigh, Smithfield Premium Genetics Group, Rose Hill, NC.


Late castration increases observed scrotal hernias and reduces the number of irreparable scrotal hernias. K. L. Marcath*, E. J. Ehinger, D. J. Mulder, and T. M. Seals, Sandy Ridge, Dykhuis Farms Inc., Holland, MI, 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


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*, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, and R. D. Goodband, Kansas State University, Manhattan.


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. Johnston¹, R. D. Boyd*¹, C. E. Zier-Rush¹, and C. E. Fralick², ¹The Hanor Company, Franklin, KY, ²Swine-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*¹, D. Dau², and J. Waddell³, ¹South Dakota State University, Brookings, ²Novartis Animal Health, Greensboro, NC, ³Sutton Veterinary Clinic, Sutton, NE.

10:30 AM  75  

10:45 AM  175  

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*¹, C. Maddox¹, G. Fahey, Jr.¹, J. Pluske², and J. Pettigrew³, ¹University of Illinois, Urbana, ²Murdoch University, Murdoch, Australia.

9:15 AM  92  

9:30 AM  176  
Evaluation of PEP2 in nursery pig diets. A. J. Myers*¹, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, N. W. Shelton¹, G. Papadopoulos¹, J. M. DeRouchey¹, J. L. Nelssen¹, and D. McKilligan², ¹Kansas State University, Manhattan, ²Protein Resources, West Bend, IA.

10:00 AM 178  Effect of low oligosaccharide soybean meal in diets of early weaned pigs. S. K. Baidoo1, R. B. A. Dahlen*1, L. Anil1, and A. Doering2, 1Southern Research and Outreach Center, University of Minnesota, Waseca, MN, 2Agricultural Utilization and Research Institute, Waseca, MN.


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*, M. T. See1, J. A. Hansen2, A. L. De Souza2, T. Middleton3, and S. W. Kim1, 1North Carolina State University, Raleigh, 2Murphy-Brown LLC, Rose Hill, NC, 3Ag ProVision LLC, Kenansville, NC.

Nonruminant Nutrition

Nonruminant IX: Enzymes and Feed Processing

Chair: Matt Kocher, The Maschhoffs, LLC

204 FG


9:15 AM 182  Processing conditions affect nutrient digestibility of cold-pressed canola cake for grower pigs. R. W. Seneviratne1, E. Beltranena1,2, L. A. Goonewardene1,2, R. W. Newkirk3, and R. T. Zijlstra*, 1University of Alberta, Edmonton, AB, Canada, 2Alberta Agriculture and Rural Development, Edmonton, AB, Canada, 3Canadian International Grains Institute, Winnipeg, MB, Canada.


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*1, B. Richert2, D. Anderson1, and D. Kelly2, 1ChemGen Corp, Gaithersburg, MD, 2Purdue 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*, L. R. Tager1, T. A. Wilmoth1, K. M. Krause1, K. A. Vonnahme2, and M. E. Wilson1, 1West Virginia University, Morgantown, 2North 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*, M. F. Smith1, and T. W. Geary2, 1University of Missouri, Columbia, 2USDA-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*, T. A. Reinhardt2, D. C. Beitz1, and J. D. Lippolis2, 1Iowa State University, Ames, 2National 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\(_{\beta}\)) in ewe lambs during pregnancy and lactation. L. E. Camacho*, G. Perry3, L. P. Reynolds1, J. S. Caton1, and K. A. Vonnahme1, 1Center for Nutrition and Pregnancy, Dept. of Animal Sciences, North Dakota State University, Fargo, 2Department of Animal & Range Sciences, New Mexico State University, Las Cruces, 3Department of Animal & Range Sciences, South Dakota State University, Brookings.
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*, A. M. Meyer, M. E. Wilson, J. S. Caton, and K. A. Vonnahme, West Virginia University, Morgantown, North Dakota State University, Fargo.

Myelination is decreased in the brain stem of small piglets compared to larger littermates during late gestation. J. L. Vallet* and J. R. Miles, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.


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

Introduction

Effects of glycerol and sire breed on growth and carcass traits of finishing whether lambs. R. Beck*, A. Wertz-Lutz, C. Wright, J. Held, R. Zelinsky, and C. Delvaux, South Dakota State University, Brookings.

Effect of increasing level of glycerol in a feedlot diet on continuous culture fermentation characteristics. M. H. Ramos* and M. S. Kerley, University of Missouri, Columbia.
9:35 AM  261 Effects of different levels of glycerin in feedlot diets containing steam-flaked corn. J. P. Moore*, 1 J. T. Vasconcelos1,2, G. E. Erickson¹, S. A. Furman2, W. A. Griffin¹, and C. T. Milton¹, ¹University of Nebraska, Lincoln, ²University of Nebraska, Panhandle Research and Extension Center, Scottsbluff, ³Midwest 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.


Extension – Dairy
Chair: Jim Paulson, University of Minnesota

9:30 AM  57 Effect of bedding material on performance, health, and hide contamination of calves reared in hutches. K. D. Gay**, S. D. Eicher², C. S. Wilcox¹,2, J. A. Bridges¹, M. H. Rastagno², S. E. Charley¹, and M. M. Schutz¹, ¹Purdue University, West Lafayette, IN, ²USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN.


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.

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*1, E. van Heugten1, J. Odle1, R. Cabrera1, and R. D. Boyd2, 1North Carolina State University, Raleigh, 2Hanor 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*1, M. D. Lindemann1, G. L. Cromwell1, and M. G. Holt2, 1University of Kentucky, Lexington, 2Vi-COR, 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 β2-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*1, M. D. Lindemann1, G. C. Cromwell1, and J. L. Pierce2, 1University of Kentucky, Lexington, 2Alltech Inc., Nicholasville, KY.
Program Committees

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1977 R. J. Epley, University of Minnesota
1978 W. L. Singleton, Purdue University
1979 D. E. Schafer, Kansas State University
1980 L. R. Corah, Kansas State University
1981 M. G. Hogberg, Michigan State University
1982 C. W. Spaeth, Kansas State University
1983 L. H. Thompson, University of Illinois
1984 M. F. Hutjens, University of Illinois
1985 G. L. Kuhl, Kansas State University
1986 D. D. Simms, Kansas State University
1987 F. K. Brazle, Kansas State University
1988 S. B. Laudert, Kansas State University
1989 M. A. Russell, Purdue University
1990 D. F. Parrett, University of Illinois
1991 D. B. Faulkner, University of Illinois
1992 J. L. Nelssen, Kansas State University
1993 A. P. Schinckel, Purdue University
1994 D. A. Funk, University of Wisconsin, Madison
1995 G. C. Shurson, University of Minnesota
1996 R. D. Shaver, University of Wisconsin, Madison
1997 R. D. Goodband, Kansas State University
1998 Not given
1999 M. D. Tokach, Kansas State University
2000 J. F. Smith, Kansas State University
2001 W. O. Herring, University of Missouri
2002 M. J. Brouk, Kansas State University
2003 W. J. Powers, Iowa State University
2004 S. J. Moeller, The Ohio State University
2005 K. J. Stalder, Iowa State University
2006 P. M. Fricke, University of Wisconsin
2007 G. C. Lamb, University of Minnesota
2008 J. M. DeRouchey, Kansas State University
2009 P. S. Kuber, The Ohio State University

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1979 S. E. Curtis, University of Illinois
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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
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1991  M. F. Smith, University of Missouri
1992  D. L. Harmon, Kansas State University
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1994  L. G. Sheffield, University of Wisconsin, Madison
1995  J. Odle, University of Illinois
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2007  J. C. Matthews, University of Kentucky
2008  J. M. Reecy, Iowa State University
2009  G. E. Erickson, University of Nebraska

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1972  R. E. Hunsley, Purdue University
1974  D. H. Gee, South Dakota State University
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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
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2007 M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008 J. C. Woodworth, Lonza Inc.
2009 Not given

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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
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<td>D. G. Haught</td>
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<td>T. G. McDaneld</td>
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<td>J. H. Hampton</td>
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<td>K. M. Hargrave</td>
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<td>J. M. Koch</td>
<td>West Virginia University*</td>
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<td>M. Gorocica-Buenfil</td>
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2007  P. E. Urriola, University of Minnesota*
       R. N. Dilger, University of Illinois**
2008  J. M. Mapes, Michigan State University*
       E. Kiarie, University of Manitoba, Winnipeg, Canada**
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       D. M. Gorbach, Iowa State University**

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**Ph.D. Division

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       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
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<th>Year</th>
<th>President</th>
<th>Institution</th>
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<td>1963</td>
<td>O. G. Bentley</td>
<td>University of Illinois</td>
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<td>1964-65</td>
<td>R. H. Grummer</td>
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<td>1966-67</td>
<td>G. R. Johnson</td>
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<td>W. E. Dinusson</td>
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<td>U. S. Garrigus</td>
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<td>V. C. Speer</td>
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<td>R. M. Luther</td>
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<td>B. N. Day</td>
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<td>D. R. Zimmerman</td>
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<td>S. K. Webel</td>
<td>Purina Mills, Bloomington, IL</td>
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<td>D. L. Meeker</td>
<td>National Pork Producers Council,</td>
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<tr>
<td>2008</td>
<td>M. K. Nielsen</td>
<td>University of Nebraska</td>
</tr>
<tr>
<td>2009</td>
<td>M. E. Spurlock</td>
<td>Iowa State University</td>
</tr>
</tbody>
</table>
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
FUTURE MEETINGS

2011     March 14–16

2012     March 19–21

2013     March 18–20