Forty-second MEETING
Midwestern Sectional Scientific Sessions and Business Meeting
March 16–18, 2009

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://www.adsa.asas.org/midwest/2009
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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Purdue University, West Lafayette, IN
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**Midwest ADSA-ASAS Offers a Keynote Speaker**

**Speaker:** Damian Mason

**Title:** Humor for the Heart of Agriculture

Damian Mason is a comedian with enthusiasm for the Agricultural Industry. He graduated from Purdue University with a degree in Agricultural Economics and has since studied comedy writing and improvisation at the prestigious Second City Training Center in Chicago. Damian combines his farm background and knowledge, with a brilliant sense of comedic timing. The result is a funny, relevant, and uplifting presentation that resonates with today’s Ag professional. His funny stories and witty observations connect with the HEART of Agriculture – its people!

Damian’s Humor for the Heart of Agriculture is a REAL crowd pleaser.
**REGISTRATION**

Convention Center, Lobby
Monday, March 16, 9:30 a.m. – 7:30 p.m.
Tuesday, March 17, 7:00 a.m. – 4:00 p.m.
Wednesday, March 18, 9:00 a.m. – 11:00 a.m.

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†Limited to 12 Graduate Student or Post Doctoral members of ASAS/ADSA MW
*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 27, 2009.** No refunds will be issued on ticketed events.

**IMPORTANT PHONE NUMBERS**

<table>
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<tr>
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<td>Meeting Registration Desk:</td>
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<td>Renaissance Savery Hotel:</td>
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<td>515/283-0151</td>
<td>Holiday Inn Downtown:</td>
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<tr>
<td>515/243-1161</td>
<td>Hotel Fort Des Moines:</td>
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<tr>
<td>515/244-1700</td>
<td>Embassy Suites:</td>
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<tr>
<td>515/245-5500</td>
<td>Marriott:</td>
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</table>

Registration and housing forms can be found on the web.
www.adsa.asas.org/midwest/2009
2009 e-Career Tool and the Job Resource Center

NEW for 2009: The ASAS Midwestern Section and ADSA Midwest Branch is pleased to begin using the new “E-Career Tool”. The new tool will facilitate communication between employers and potential employees prior to the 2009 ASAS/ADSA Midwest Meeting making it easier to arrange contact in Des Moines. The tool will be available February 1st to April 15th and will be located at the following address: http://www.asas.org/ecareer/index.asp?id_meeting=5

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 oral or poster presentation(s) so potential employers can see your work.

CONTINUING in 2009: 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 Resource Center will be posted.

Students, graduates and experienced professionals are encouraged to post résumés at the Job Resource Center. Professionals from hundreds of companies, universities, and governmental agencies are represented each year at the Midwest Meeting. Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

Employers from industry academia and government are encouraged to post position announcements. Employers are asked to bring 25 to 50 copies of all position announcements.

Job descriptions and résumés can be posted at the Job Resource Center in Des Moines beginning at 12:00 p.m. on Monday, March 16, 2009.
SCHEDULE OF EVENTS

Monday, March 16

8:00 AM    ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
11:30 AM   Graduate Student Competitive Research Papers, M.S. Oral Division, 142-144
12:30 PM   Undergraduate Student Competitive Research Papers, Oral Division, 136-138
1:00 PM    David H. Baker Amino Acid Symposium, 204FG
1:30 PM    Graduate Student Competitive Research Papers, Ph.D. Oral Division, 146-148
4:30 PM    Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
5:30 PM    Reception, Convention Center Complex, Exhibit Hall, Room 206
6:45 PM    Keynote Speaker, Damian Mason. “Humor for the Heart of Agriculture”, Room 204FG
7:30 PM    AQ - Quiz Bowl Finals, Room 204AB

Tuesday, March 17, AM

6:30 AM    Program Committee Meeting, Renaissance Savery Hotel
8:00 AM    Animal Behavior, Housing, & Well-Being I, 146-148
8:00 AM    Billy N. Day Symposium: Utilization of Technology to Enhance Pig Reproductive Performance, 142-144
8:00 AM    Nonruminant Nutrition I: DDGS and Glycerol A, 204FG
8:00 AM    Nonruminant Nutrition II: Energy and Amino Acids, 136-138
8:00 AM    Ruminant Nutrition I, 205IJ
8:30 AM    Ruminant Nutrition II: Mycotoxin Symposium, 204AB
9:00 AM    Teaching, 134
10:30 AM   Nonruminant Nutrition III: Environment and Health, 136-138
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). There will be a limited number of box lunches available for purchase in the Exhibit Hall for those individuals who did not order a lunch in advance. The box lunches for sale will be on a first come basis.

Tuesday, March 17, PM

1:00 PM    Breeding and Genetics I, 134
1:00 PM    Dairy Extension Symposium: Dairy Cattle Nutrition and Immunology, 146-148
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 MW 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 Noon on Wednesday. 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 16**
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
- Growth, Development, Muscle Biology, and Meat Science
  - Nonruminant Nutrition - Session I
  - Odor and Nutrient Management
  - Ruminant Nutrition – Session I
  - Teaching

**Tuesday, March 17**
All authors present from 4:30 PM – 6:00 PM

- Animal Behavior, Housing and Well Being
- Breeding and Genetics
- Swine Extension
- Nonruminant Nutrition - Session II
- Physiology
- Ruminant Nutrition – Session II
A SPECIAL THANK YOU
From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2009 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, MS - Cargill Animal Nutrition
Graduate Poster, Ph.D. - Cargill Animal Nutrition
Undergraduate Oral - Kent Feeds, 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**
Intervet Schering Plough Animal Health
Iowa State University

**Breakfast (Wednesday)**
Land O’Lakes Purina Feed, LLC

**Cyber Café & Job Resource Center**
Diamond V Mills, Inc.
Feedstuffs Newspaper

**Abstract Book**
Fort Dodge Animal Health

**Program Book**
Kemin Industries
Posters
Zinpro

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

Billy N. Day Symposium
Billy N. Day Appreciation Club

Joint Swine Extension and Animal Behavior, Housing, & Well Being Symposium
Pig Improvement Company, Inc. and American Society of Animal Science

Ruminant Nutrition Symposium
Fort Dodge Animal Health

Program Sponsors

Nonruminant Nutrition III
Alltech, Inc.

Nonruminant Nutrition IV
Danisco Animal Nutrition

Nonruminant Nutrition V
JBS United, Inc.

General Meeting
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Ajinomoto Heartland LLC
American Angus Association
Babcock Genetics, Inc.
BASF Corporation Animal Nutrition
DSM Nutritional Products, Inc.
Elanco Animal Health
ILC Resources
International Ingredient Corporation
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JBS United, Inc.
Iowa State University
Kemin Industries
Kent Feeds, Inc.
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National Pork Board
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Bronze Level
Agri-Nutrition Services, Inc.
American Angus Association
APC, Inc.
Babcock Genetics, Inc.
BASF Corporation Animal Nutrition
BASF Plant Science
DeKalb Feeds, Inc.
ILC Resources
International Ingredient Corporation
Lucta USA Inc.
Saf Agri/Lesaffre Feed Additives
PREPARATION GUIDELINES FOR ORAL PRESENTATIONS — LCD

Collection of PowerPoint Files Prior to Meeting
Each room will be equipped with a computer and an LCD projector. Again for 2009, in an effort to maximize efficiency onsite and to avoid possible technical issues, we will be collecting PowerPoint files for oral presentations only prior to the meeting. After all presentations have been collected, they will be distributed to the appropriate program chair on site prior to the start of the session. To ensure a smooth presentation, it is critical that you read and follow the instructions provided. Click the link provided below for detailed instructions for creating and submitting your presentations. http://www.adsa.asas.org/midwest/2009/insppt.htm

Upload Process
Presentations must be submitted electronically through our upload site at: http://www.fass-abstracts.org/meetinginfo.asp?meetingcode=146
This is the same application used to submit the meeting abstracts. Select the “Login and Manage Abstracts” link and be sure to use the same account login information that was created at the time of submission. If you do not recall this information, use the “forgot password” link on the login page. Once you are logged in, click the “add/manage documents” link for your abstract in the table to go to the upload page.
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=146

Upload Deadlines
The deadline for final presentations to be submitted is: March 9, 2009 11:59 PM, Central Daylight Savings Time.
By using the upload site, PPT files will be linked to the already submitted abstract. Editing will not be allowed on existing abstracts.
There is not a file size limit for uploading presentations, but please be aware that uploading large files will be hindered by connection speeds.

All presentations must be uploaded in PowerPoint format on or before Monday, March 9, 2009 11:59 PM, Central Daylight Savings Time.

POSTER SESSIONS
All posters will be in the Convention Complex, Exhibit Hall, Room 206 from Monday 1:00 PM until Wednesday, Noon. See each session to find out when authors are to be present.

POSTERS PRESENTED
Monday, March 16 – 4:30–6:00 PM
Tuesday, March 17 – 4:30–6:00 PM
Monday, March 16
SYMPOSIA AND ORAL SESSIONS

Graduate Student Competitive Research Papers, M.S. Oral Division
Chair: Dari C. Brown, Land O’Lakes Purina Feed LLC,
Gray Summit, MO

Sponsored by: DeKalb Feeds, Inc.

11:30 AM 76 Use of crude glycerol, a biodiesel co-product, in diets for lactating sows. S. J. Schieck*, L. J. Johnston2, B. J. Kerr3, S. K. Baidoo4, and G. C. Shurson1, 1University of Minnesota, St. Paul, 2West Central Research and Outreach Center, Morris, MN, 3USDA-ARS, Ames, IA, 4Southern Research and Outreach Center, Waseca, MN.


12:00 PM 78 Effect of progesterone (P) antagonist RU486 on uterine progesterone receptor (PGR) mRNA expression, embryonic development and ovarian function during early pregnancy in pigs. D. J. Mathew*, E. M. Sellner1, C. S. Okamura1, R. D. Geisert1, L. L. Anderson1, and M. C. Lucy1, 1University of Missouri, Columbia, 2Iowa State University, Ames, IA.


12:30 PM 80 Factors affecting progeny profitability in Simmental-Angus steers harvested at optimum endpoint. A. L. Shreck*, C. O. Trejo1, J. W. Homm2, L. L. Berger1, and D. B. Faulkner1, 1University of Illinois, Urbana, 2Elanco Animal Health, Greenfield, IN.

12:45 PM 81 Effect of maternal diet on fetal:maternal ratio of circulating amino acids, non-esterified fatty acids, blood urea nitrogen, and glucose concentrations in ewes. L. A. Lekatz*, G. Wu2, L. P. Reynolds1, D. A. Redmer1, J. S. Caton1, and K. A. Vonnahme1, 1North Dakota State University, Fargo, 2Texas A&M University, College Station.

1:00 PM 82 Use of microarray to determine genes differentially expressed in muscle and subcutaneous fat of heifers never treated or considered chronically morbid after a 63-d preconditioning program. J. Johnson*, D. R. Stein, L. O. Burciaga-Robles, B. P. Holland, D. L. Step, U. DeSilva, and C. R. Krechbiel, Oklahoma State University, Stillwater.

1:15 PM Break.

1:30 PM 83 Efficacy of varying phyttase levels and development of a P release curve. C. K. Jones*, M. D. Tokach1, B. W. Ratliff2, N. L. Horn3, S. S. Dritz1, R. D. Goodband1, J. M. DeRouchey1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2Enzyvia, LLC, Sheridan, IN, 3JBS United, Inc., Sheridan, IN.

1:45 PM 84 Effects of elevated levels of distiller’s grains on performance and carcass characteristics in steers fed up to 70% distillers. S. W. Reader*, R. L. Atkinson1, P. M. Walker2, J. M. Carmack2, and B. R. Wiegand3, 1Southern Illinois University, Carbondale, 2Illinois State University, Normal, 3University of Missouri, Columbia.
Vascular Endothelial Growth Factor (VEGF) mRNA isoforms are altered in bovine granulosa cells (GC) by circulating progestin concentrations (P4) and may indicate follicle status and oocyte competence.

R. Slattery*1, D. Clopton1, J. Wood1, R. Cushman2,1, and A. Cupp1, 1UNL, Lincoln, NE, 2USDA-MARC, Clay Center, NE.


Amino acid digestibility of corn distillers solubles-related co-products in growing pigs. J. A. Soares*1, H. H. Stein1, G. C. Shurson2, and J. E. Pettigrew1, 1University of Illinois, Urbana, 2University of Minnesota, St. Paul.


The nutritional value of expeller-pressed canola meal for grower-finisher pigs. R. W. Seneviratne*1, M. G. Young2, E. Beltranena1, L. A. Goonewardene1,2, R. W. Newkirk4, and R. T. Zijlstra1, 1University of Alberta, Edmonton, Alberta, Canada, 2Gowans Feed Consulting, Wainwright, Alberta, 3Alberta Agriculture and Rural Development, Edmonton, Alberta, 4Canadian International Grains Institute, Winnipeg, Manitoba, Canada.

Does administration of anabolic growth implants to finishing beef cattle influence carcass attributes of cattle genetically indexed for enhanced beef palatability? J. C. Galbreath*1, R. J. Maddock1, G. P. Lardy1, V. L. Anderson2, C. S. Schauer4, N. L. Hall1, and E. P. Berg1, 1North Dakota State University, Fargo, 2Carrington Research Extension Center, North Dakota State University, Carrington, ND, 3Hettinger Research Extension Center, North Dakota State University, Hettinger, ND.

Effects of a molasses coated cottonseed product on diet digestibility, feed intake, production, and milk fatty acid profile of high-producing dairy cattle. C. R. Mullins* and B. J. Bradford, Kansas State University, Manhattan.

Associations of placental efficiency and nutrient transporter expression in the pig. T. A. Wilmuth*, C. O. Lemley, J. M. Koch, and M. E. Wilson, West Virginia University, Morgantown.

(National Pork Board Research Award) Energy determination of corn co-products fed to finishing pigs and use of in vitro OM digestibility to predict in vivo ME. P. V. Anderson*1, B. J. Kerr1, and G. C. Shurson2, 1Iowa State University, Ames, 2USDA-ARS Swine Odor and Manure Management Research Unit, Ames, IA, 3University of Minnesota, St. Paul.
12:30 PM 305 Relationship of growth rate and feed efficiency in Suffolk ram lambs. J. L. Hayes*1, A. B. Culham1, G. M. Hill1, E. C. Westover1, J. E. Link1, and M. E. Benson2, 1Michigan State University, East Lansing, 2Washington State University, Pullman.

12:45 PM 306 Fatty acid profiles of and iodine value correlations between four carcass fat depots from pigs fed varied combinations of ractopamine and energy. H. L. Evans*1, R. B. Hinson1, B. R. Wiegand1, M. J. Ritter2, S. N. Carr2, K. S. Roberts1, and G. Allee1, 1University of Missouri, Columbia, 2Elanco Animal Health, Greenfield, IN.

1:00 PM 307 Microbial growth in refrigerated colostrum over 7 days. M. Beyer* and S. I. Kehoe, University of Wisconsin, River Falls.

1:15 PM 308 Effects of sire by implant interactions on carcass traits in Hereford cattle. J. A. Bishop* and D. W. Moser, Kansas State University, Manhattan.

1:30 PM 309 The nutritional efficacy of mare milk in neonatal pigs. E. L. Wilsplotz*, A. Willyard, A. Buckley, and N. L. Trottier, Michigan State University, East Lansing.

1:45 PM Break.

2:00 PM 310 Effect of dietary conjugated linoleic acid and coconut oil on muscle lipid content in mice. K. M. Kanosky*, S. Ippagunta, and K. M. Barnes, West Virginia University, Morgantown.

2:15 PM 311 Effects of nutritional plane and selenium supply during gestation on milk yield and composition in ewes. L. J. Garbel*1, A. M. Meyer1, J. J. Reed1, T. L. Neville1, J. D. Kirsch1, W. L. Keller1, R. M. Weigl1, J. B. Taylor2, L. P. Reynolds2, J. S. Luther1, D. A. Redmer1, J. S. Caton1, and K. A. Vonnahme1, 1North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.

2:30 PM 312 Impact of time and temperature on tissue quality and diagnostic outcome in swine. W. Holt*1, J. Reiman1, L. Karriker1, J. Hanson2, L. Layman1, and A. Johnson1, 1Iowa State University, Ames, Iowa, 2Murphy Brown Inc., Rose Hill, NC.

2:45 PM 313 Lean gain in Suffolk ram lambs relative feed efficiency and cost. E. C. Westover*1, A. B. Culham1, G. M. Hill1, A. L. Bushman1, J. E. Link1, J. L. Hayes1, and M. E. Benson2, 1Michigan State University, E. Lansing, 2Washington State University, Pullman.


3:15 PM Break.


3:45 PM 316 Effects of nutritional plane and selenium supply during gestation on ewe colostrum quality, mammary gland growth, and lamb serum IgG. S. I. Fry*1, J. F. Thorson1, A. M. Meyer1, J. J. Reed1, T. L. Neville1, J. B. Taylor1, L. P. Reynolds1, J. S. Luther1, D. A. Redmer1, K. A. Vonnahme1, C. J. Hammer1, and J. S. Caton1, 1North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.
4:00 PM  317  Evaluation of lean growth and daily gain in two maternal lines of pigs. E. C. Mahan*1 and T. A. Rathje2, 1University of Missouri, Columbia, 2Danbred North America, Columbus, NE.


David H. Baker Amino Acid Symposium
Chair: Gail Czarnecki-Maulden,
Nestle Purina Research, St. Louis, MO
204FG

Sponsored by: David H. Baker Appreciation Club

1:00 PM  Introduction.

1:05 PM  46  (Invited) Where is the next generation? R. A. Easter*, University of Illinois, Urbana.

1:40 PM  47  (Invited) The origin of methyl groups and their function. J. T. Brosnan*, Memorial University of Newfoundland, St. Johns, Newfoundland, Canada.


2:30 PM  Break.

2:45 PM  49  (Invited) Regulation of gastrointestinal function: Motivation from the distal gut. K. A. Tappenden*, University of Illinois, Urbana.

3:20 PM  50  The standardized ileal digestible isoleucine to lysine requirement ratio may not be greater than 50% in post-weaned piglets. J. van Milgen*1,2, R. Barca1,2, L. Brossard1,2, N. Le Floc’h1,2, D. Melchior4, and Y. Primot3, 1INRA, UMR1079, Saint-Gilles, France, 2Agrocampus Ouest, UMR1079, Rennes, France, 3AJINOMOTO EUROLYSINE S.A.S., Paris, France.

3:35 PM  51  The evaluation of feeding lactating sows on grams of lysine compared to percent of lysine in the diet. L. Greiner*1, J. Soto1, J. Connor1, G. Allec2, J. Usry3, and N. Williams4, 1Innovative Swine Solutions, LLC, Carthage, IL, 2University of Missouri, Columbia, 3Ajinomoto Heartland LLC, Chicago, IL, 4PIC, Hendersonville, TN.

3:50 PM  52  (Invited) Practical and theoretical evaluations of amino acid-related research for use in commercial swine production. M. Edmonds*, Kent Feeds, Inc., Muscatine, IA.

4:25 PM  Concluding Remarks.

Graduate Student Competitive Research Papers, Ph.D. Oral Division
Chair: Marc L. Bauer, North Dakota State University, Fargo
146-148

Sponsored by: Akey

1:30 PM  95  Effects of nutritional plane and selenium supply on intestinal mass and mRNA expression of angiogenic factors and their receptors in the ewe and neonatal lamb. A. M. Meyer*1, T. L. Neville1, J. J. Reed1, J. B. Taylor2, L. P. Reynolds3, D. A. Redmer1, K. A. Vonnahme3, and J. S. Caton1, 1North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.
Effect of dietary arginine supplementation to sows on litter size, fetal weight and myogenesis at d 75 of gestation. J. Bérard\textsuperscript{1,2}, M. Kreuzer\textsuperscript{2}, and G. Bee\textsuperscript{1}, \textsuperscript{1}Agroscope Liebefeld Posieux, Posieux, Fribourg, Switzerland, \textsuperscript{2}Department of Agricultural and Food Science, Zurich, Zurich, Switzerland.


Effects of in vitro insulin and 2,4-thiazolidinedione on the function of neutrophils harvested from blood of cows in different physiological states. X. S. Revelo\textsuperscript{*} and M. R. Waldron, University of Missouri, Columbia.

The effect of supplementing dried distillers grains to steers grazing cool season meadow. W. A. Griffin\textsuperscript{*}, B. L. Nuttleman\textsuperscript{1}, T. J. Klopfenstein\textsuperscript{1}, G. E. Erickson\textsuperscript{1}, L. A. Stalker\textsuperscript{2}, J. A. Musgrave\textsuperscript{2}, and R. N. Funston\textsuperscript{1}, University of Nebraska, Lincoln, \textsuperscript{2}West Central Research and Extension Center, North Platte, NE.

Effect of season, transport length, deck location, and lairage length on pork quality and blood cortisol concentration. D. J. Newman\textsuperscript{*1}, M. H. Ryan\textsuperscript{2}, and C. C. Carr\textsuperscript{3}, \textsuperscript{1}North Dakota State University, Fargo, \textsuperscript{2}Farmland Foods, Wichita, KS, \textsuperscript{3}University of Florida, Gainesville.

Effects of mannan oligosaccharide on immune response and growth performance in weaned pigs experimentally infected with PRRS virus. M. T. Che\textsuperscript{*1}, R. W. Johnson\textsuperscript{1}, K. W. Kelley\textsuperscript{1}, W. G. Van Alstine\textsuperscript{2}, K. A. Dawson\textsuperscript{1}, C. A. Moran\textsuperscript{2}, and J. E. Pettigrew\textsuperscript{1}, \textsuperscript{1}University of Illinois, Urbana, \textsuperscript{2}Purdue University, West Lafayette, IN, \textsuperscript{3}Alltech North American Bioscience Center, Nicholasville, KY.

Effects of growing diet composition on abundance of peroxisome proliferator-activated receptor gamma-2 in beef cattle adipose tissue. J. S. Jennings\textsuperscript{*}, J. A. Clapper, A. D. Weaver, and A. E. Wertz-Lutz, South Dakota State University, Brookings.


Effect of selection for residual feed intake on feeding behavior in pigs. J. M. Young\textsuperscript{*}, W. Cai, and J. C. M. Dekkers, Iowa State University, Ames.

POSTER PRESENTATIONS
All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 PM until Noon on Wednesday. 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 (Breeding and Genetics, BG; 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 Competitive Research Papers, M.S. Poster Division
Chair: Leo Timms, Iowa State University, Ames
Sponsored by: Cargill Animal Nutrition
The effect of initial market grade on carcass ultrasound characteristics of feeder goats. B. Galbreath*1, T. Burkes2, R. Miculinich1, T. Platt1, and T. Wistuba1, 
1Morehead State University, Morehead, KY, 2Kentucky Department of Agriculture, Frankfort, KY.

Effects of high-sulfur water and clinoptilolite on growth performance and gene expression of steers fed forage-based diets. 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.


Validation of a rapid analytical technique to predict oxidation capacity of fresh beef. L. Senaratne*, C. Calkins, T. Carr, and A. S. de Mello Jr., University of Nebraska, Lincoln.

Effects of low-solubles distiller’s dried grains (LS-DDG) in diets for growing-finishing pigs: Carcass characteristics and pork fat quality. R. B. Amaral*1, J. M. DeRouchey3, M. D. Tokach1, S. S. Dritz1, J. L. Nelssen1, R. D. Goodband1, T. A. Houser1, K. J. Prusa2, and L. Huskey3, 1Kansas State University, Manhattan, 2Iowa State University, Ames, 3JBS Swift & Company, Greeley, CO.

Effects of crude glycerol and ractopamine HCl on growth performance, carcass characteristics, and loin quality of finishing pigs. A. W. Duttlinger*1, J. M. Carmack*1, R. L. Atkinson2, K. L. Jones2, and S. W. Reader2, 1Illinois State University, Normal, 2Southern Illinois University, Carbondale.

Effects of crude glycerin on feedlot performance and carcass characteristics of finishing wether lambs. P. Gunn*1, M. Neary1, R. Lemenager1, and S. Lake2, 1Purdue University, West Lafayette, IN, 2University of Wyoming, Laramie.

High moisture distillers grains can be successfully stored during summer. A. R. Hanson*, P. M. Walker, and J. M. Carmack, Illinois State University, Normal.

Feeding value of wet distillers grains for lactating dairy cows when co-ensiled with corn silage or haycrop silage. N. S. Schmelz*, S. L. Lake, R. P. Lemenager, D. Buckmaster, M. M. Schutz, and S. S. Donkin, Purdue University, West Lafayette, IN.

Effect of site of infusion of Lactobacillus acidophilus and Propionibacterium on dry matter intake, milk production, and milk components in lactating dairy cows. K. S. Thompson*, N. B. Litherland, S. E. Gilliland, L. O. Burciaga-Robles, and C. R. Krehbiel, Oklahoma State University, Stillwater.

Graduate Student Competitive Research Papers, Ph.D. Poster Division

Chair: Leo Timms, Iowa State University, Ames
Sponsored by: Cargill Animal Nutrition

Determination of the contributions of cytochrome P450 2C (CYP2C) and 3A (CYP3A) to the hepatic catabolism of progesterone. C. O. Lemley* and M. E. Wilson, West Virginia University, Morgantown.
### Undergraduate Student Competitive Research Papers, Poster Division

**Chair:** James G. Linn, University of Minnesota, St. Paul  
**Sponsored by:** ADSA ASAS MW Board

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<tr>
<td>319</td>
<td><strong>BG</strong> Feed efficiency, temperament, ultrasound measurements, and growth in developing Angus heifers.</td>
<td>B. L. Winslow*, K. A. Gray, M. H. Poore, C. S. Whisnant, and J. P. Cassidy</td>
<td>North Carolina State University, Raleigh.</td>
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<td>321</td>
<td><strong>PHY</strong> Influence of pre-cyropreservation pH and temperature on boar semen quality.</td>
<td>N. E. Tharp*, P. Purdy, H. Blackburn, S. Spiller, T. S. Steward</td>
<td>Purdue University, West Lafayette, IN, USDA-ARS-NCGRP, National Animal Germplasm Program, Fort Collins, CO.</td>
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<tr>
<td>323</td>
<td><strong>NN</strong> Evaluation of fermented soybean meal in diets fed to weanling pigs.</td>
<td>O. J. Rojas*, B. G. Kim, H. H. Stein</td>
<td>National University of Colombia, Bogota, Colombia, University of Illinois, Urbana.</td>
</tr>
<tr>
<td>324</td>
<td><strong>NN</strong> Effect of feeding yeast culture in the diets of late gestation and lactating sows and gilts on sow and litter performance.</td>
<td>C. Stangohr*, T. Kellner, G. Fitzner, J. Sonderman, C. Hostetler</td>
<td>South Dakota State University, Brookings, University of Nebraska, Lincoln, Diamond V, Cedar Rapids, IA, Danbred North America, Columbus, NE.</td>
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<tr>
<td>325</td>
<td><strong>RN</strong> Dietary inclusion of crude glycerol in a growing-finishing meat goat system.</td>
<td>K. S. Roberts*, B. R. Wiegand, C. Clifford-Rathert, M. S. Kerley, C. K. Cave, A. N. Stewart</td>
<td>North Dakota State University, Fargo, Dakota Gold Research Association, Sioux Falls, SD.</td>
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### Growth, Development, Muscle Biology and Meat Science Posters

**Chair:** Tara McDaneld, USDA-ARS, Clay Center, NE  
**Sponsored by:** Zinpro

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<td>123</td>
<td>Mineral content of m. Teres major and m. Infraspinatus from steers fed wet distillers grains plus solubles and vitamin E.</td>
<td>A. S. de Mello Jr., L. S. Senaratne, K. Watanabe, J. A. Driskell, M. I. Schnepf, F. L. Hamouz, C. R. Calkins</td>
<td>University of Nebraska, Lincoln.</td>
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Monday PM 19


Obesity alters proteoglycan mRNA abundance in the subcutaneous fat depot of the Ossabaw Miniature swine. A. Adedokun*, O. Adeola, M. Sturek, and K. Ajuwon. Purdue University, West Lafayette, IN, Indiana University-Purdue University, Indianapolis.

The effect of initial market grade on carcass ultrasound characteristics of feeder goats. B. Galbreath*, T. Burkes, R. Miculinich, T. Platt, and T. Wistuba. Morehead State University, Morehead, KY, Kentucky Department of Agriculture, Frankfort, KY.

Flavor of beef value cuts from cattle fed wet distillers grains plus solubles and vitamin E. K. Watanabe*, M. I. Schnepf, A. S. de Mello Jr., J. A. Driskell, and C. R. Calkins, University of Nebraska, Lincoln.


Validation of a rapid analytical technique to predict oxidation capacity of fresh beef. L. Senaratne*, C. Calkins, T. Carr, and A. S. de Mello Jr., University of Nebraska, Lincoln.


Restaurant patrons’ perceptions of North Dakota and guaranteed tender labeling relative to price paid and palatability. A. N. Lepper*, R. J. Maddock, and E. P. Berg, North Dakota State University, Fargo.

Optimizing beef cuts: Comparison of sensorial attributes and objective tenderness of m. Obliguis abdominis and m. Splenius. C. R. Calkins, A. S. de Mello Jr.*, and L. S. Senaratne, University of Nebraska, Lincoln.

Internal color and tenderness of the infraspinatus are affected by cooking method and degree of doneness. M. D. Wharton*, J. K. Apple, J. W. S. Yancey, J. T. Sawyer, and M. S. Lee, University of Arkansas Division of Agriculture, Fayetteville.

Internal color and tenderness of the semimembranosus are affected by cooking method and degree of doneness. M. D. Wharton*, J. K. Apple, J. W. S. Yancey, J. T. Sawyer, and M. S. Lee, University of Arkansas Division of Agriculture, Fayetteville.

Nonruminant Nutrition - Posters Session I

Ingredients

Energy and nitrogen balance for pigs receiving mixed-species meat and bone meal in corn-soybean meal based diet. O. A. Olukosi* and O. Adeola, Purdue University, West Lafayette, IN.
Effect of Fresta F Concentrate on performance of weanling pigs fed in a commercial environment. K. Purser*1, T. Weedon2, C. Hankins3, and K. Wendler4, 1Delacon Phytogenic Feed Additives, Steyr, Austria, 2Land O’Lakes Purina Feed, St. Paul, MN.


Apparent and standardized ileal digestibility values for amino acids in a yeast-derived protein source (NuPro®) for 3- to 4-wk-old pigs. S. Moehn1, P. Groenewegen*2, and R. O. Ball1, 1University of Alberta, Edmonton, Alberta, Canada, 2Alltech Inc., Nicholasville, KY.

Effect of spray-dried egg on growth performance of nursery pigs. M. Song*1, B. G. Harmon2, J. A. Soares1, M. T. Che1, and J. E. Pettigrew1, 1University of Illinois, Urbana, 2Railsplitter Feed Technology, Wildwood, MO.


The effects of extrusion and inclusion of dried distillers grains on amino acid ileal digestibility in swine. G. A. Apgar*1, P. M. Walker2, and R. L. Atkinson1, 1Southern Illinois University, Carbondale, 2Illinois State University, Normal.

Metabolizable energy content of feed-grade glycerin for growing pigs and its effect on growth performance, carcass characteristics and pork quality traits. O. M. Mendoza*1, M. Ellis1, F. K. McKeith1, and A. M. Gaines2, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.

Effect of dietary level of distillers dried grains with solubles (DDGS) and of Paylean on the growth performance, carcass characteristics and meat quality parameters of finishing pigs. C. L. Puls*1, M. Ellis1, B. A. Peterson1, F. K. McKeith1, J. Killefer1, A. M. Gaines2, B. F. Wolter2, M. J. Ritter3, and S. N. Carr3, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL, 3Elanco Animal Health, Greenfield, IN.

In vitro evaluation of the fermentation characteristics in the pig intestines of hulless barley differing in β-glucan content. R. Jha12, J. Bindelle13, B. Rossnagel2, A. Van Kessel2, and P. Leterme*1, 1Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada, 3Faculté des Sciences agronomiques, Gembloux, Belgium.


110 Effects of crude glycerol and ractopamine HCl on growth performance, carcass characteristics, and loin quality of finishing pigs. A. W. Duttlinger*1, J. M. DeRouchey1, M. D. Tokach1, S. S. Dritz2, J. L. Nelssen1, R. D. Goodband1, T. A. Houser1, K. J. Pruasa2, and L. Huskey3, 1Kansas State University, Manhattan, 2Iowa State University, Ames, 3JBS Swift & Company, Greeley, CO.

109 Effects of low-solubles distiller’s dried grains (LS-DDG) in diets for growing-finishing pigs: Carcass characteristics and pork fat quality. R. B. Amaral*1, L. J. Johnston2, J. E. Anderson3, S. K. Baidoo4, and G. C. Shurson1, 1University of Minnesota, St. Paul, 2West Central Research and Outreach Center, Morris, 3University of Minnesota, Morris, 4Southern Research and Outreach Center, Waseca.


323 Evaluation of fermented soybean meal in diets fed to weanling pigs. O. J. Rojas*2, B. G. Kim1, and H. H. Stein1, 1National University of Colombia, Bogota, Colombia, 2University of Illinois, Urbana.

Odor and Nutrient Management Posters
Sponsored by: Zinpro

233 Nutrient balance and recoverable nitrogen and phosphorus of a commercial feedlot. S. Q. Jones*, J. M. DeRouchey, and J. M. Ham, Kansas State University, Manhattan.


Ruminant Nutrition - Posters Session I
Sponsored by: Zinpro

112 Effects of crude glycerin on feedlot performance and carcass characteristics of finishing wether lambs. P. Gunn*1, M. Neary1, R. Lemenager1, and S. Lake2, 1Purdue University, West Lafayette, IN, 2University of Wyoming, Laramie.

325 Dietary inclusion of crude glycerol in a growing-finishing meat goat system. K. S. Roberts*1, B. R. Wiegand1, C. Clifford-Rathert2, M. S. Kerley1, C. K. Cave2, and A. N. Stewart2, 1University of Missouri, Columbia, 2Lincoln University, Jefferson City, MO.

279 Effects of supplemental organic cobalt on nutrient digestion and nitrogen balance in lambs fed forage-based diets. E. J. Scholljegerdes*1, W. J. Hill2, and H. T. Purvis2, 1USDA-ARS, Northern Great Plains Research Laboratory, Mandan, ND, 2Ralco Nutrition Inc., Marshall, MN.

280 Effects of nutritional plane and selenium supply during gestation on ewe performance, body composition, and offspring body weight. A. M. Meyer*1, J. J. Reed1, D. J. Newman1, J. B. Taylor2, L. P. Reynolds1, D. A. Redmer1, K. A. Vonnahme1, and J. S. Caton1, 1North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.

281 Conception rates of beef cows fed a supplement with rumen-protected fat. P. Moriel*1, E. Pegorer Goncalves2, V. Navighugu1, G. Aines2, E. Block2, and B. Hess2, 1University of Wyoming, Laramie, 2ARM & HAMMER Animal Nutrition, Division of Church & Dwight Co., Inc., US.

111 Effects of distillers grain supplementation on dystocia and beef cow performance. J. M. Carmack*1, P. M. Walker1, R. L. Atkinson2, K. L. Jones2, and S. W. Reader2, 1Illinois State University, Normal, 2Southern Illinois University, Carbondale.

282 Prepartal provision of wheat grain facilitates metabolic transition in preparturient heifers. F. Ehsanbaksh1, H. Amanlou1, D. Zahratkesh1, and A. Nikkhah*1,2, 1Zanjan University, Zanjan, Iran, 2University of Illinois, Urbana.
Evaluation of a diet containing pelleted high oil canola meal for lactating dairy cows. D. M. Harris1, M. E. Meyer*1, H. A. Maiga1, and C. Dahlen2, 1University of Minnesota, Crookston, 2Northwest Research and Outreach Center, Crookston, MN.

Feeding value of wet distillers grains for lactating dairy cows when co-ensiled with corn silage or haycrop silage. N. S. Schmelz*, S. L. Lake, R. P. Lemenager, D. Buckmaster, M. M. Schutz, and S. S. Donkin, Purdue University, West Lafayette, IN.


Effect of site of infusion of Lactobacillus acidophilus and Propionibacterium on dry matter intake, milk production, and milk components in lactating dairy cows. K. S. Thompson*, N. B. Litherland, S. E. Gilliland, L. O. Burciaga-Robles, and C. R. Krehbiel, Oklahoma State University, Stillwater.

Effect of physical form of flaxseed on digestibility of lactation diets fed to Holstein steers. N. R. Bork*, J. W. Schroeder, K. A. Vonnahme, G. P. Lardy, M. L. Bauer, and E. J. Scholljegerdes, 1North Dakota State University, Fargo, 2North Great Plains Research Laboratory, ARS, Mandan, ND.

Utilization of leaf litter as a potential feed source. J. K. Smith*, J. Neel, and E. E. D. Felton, 1West Virginia University, Morgantown, 2Appalachian Farming Systems Research Center, Beaver, WV.

High moisture distillers grains can be successfully stored during summer. A. R. Hanson*, P. M. Walker, and J. M. Carmack, Illinois State University, Normal.

Teaching Posters
Sponsored by: Zinpro


Tuesday, March 17
SYMPOSIA AND ORAL SESSIONS

Animal Behavior, Housing, & Well-Being I
Co-Chairs: Janeen L. Salak-Johnson, University of Illinois, Urbana, and Ernest Minton, Kansas State University, Manhattan

8:00 AM 6 Use of OmniGen-AF to reduce mammary E. coli infection and to augment mucosal immunity in a murine model of bovine mastitis. A. Rowson*, S. B. Puntenney, E. Aalseth, Y. Q. Wang, and N. E. Forsberg, 1OmniGen Research, Corvallis, OR, 2Dairy Consulting, Lake Stevens, WA.


Monday PM – Tuesday AM

8:45 AM 9 The effect of supplementing dry feed with a nutritional gel additive at the time of vaccination on nursery pig behavior. J. Kline*, A. Johnson1, R. Witte1, L. Sadler1, B. de Rodas2, D. Brown2, L. Layman1, W. Holt1, L. Karriker1, and K. Stalder1, 1Iowa State University, Ames, 2Land O Lakes Purina Feed, Gray Summit, MO.

9:00 AM 10 Evaluation of a pre-molt calcium and low-energy diet molting program: effects on behavior. E. R. Dickey, K. Bregendahl, and A. K. Johnson*, Iowa State University, Ames.

9:15 AM 11 Piglet mortality in an outdoor farrowing hut: What behaviors contribute to their demise over the first 72-h? J. Garvey1, J. J. McGlone2, K. J. Stalder1, L. J. Sadler*1, and A. K. Johnson1, 1Iowa State University, Ames, 2Texas Tech University, Lubbock, TX.

9:30 AM 12 Analysis of the agreement between locomotion score and culling due to lameness among culled sows in commercial farms. Y. Sasaki1, S. S. Anil2, L. Anil2, J. Dee2, M. E. Wilson3, and T.L. Ward3, 1Meiji University, Kanagawa, Japan 214-8571, 2University of Minnesota, St. Paul, 3Zinpro Corporation, Eden Prairie, MN.

9:45 AM Break.

10:00 AM 13 Drinker to nursery pig ratio: Effects on behavior. C. Jackson1, K. Stalder1, L. Sadler1, R. Edler2, J. Holck2, P. DuBois3, L. Karriker1, and A. Johnson*, 1Iowa State University, Ames, 2Boehringer Ingelheim Vetmedica, Ames, IA, 3Cargill Pork, Wichita, KS.

10:15 AM 14 Effects of moving market weight pigs in different group sizes during loading on stress responses and transport losses at the packing plant. N. L. Berry1, M Ritter2, E Brunton1, W Stremsterfer1, B Hoag1, J Wolfe1, N Fitzgerald1, M Porth1, D Delaney1, and T Weldon1, 1Cargill, Inc., Coralville, IA, 2Elanco Animal Health, Greenfield, IN.

10:30 AM 15 Variation in temperature within trucks transporting pigs during two seasons in two locations. S. Hayne1, T. Samarakone1, T. Crowe1, S. Torrey1, R. Bergeron4, T. Widowski1, N. Lewis1, C. Dewey1, L. Faucitano1, and H. Gonyou1, 1Prairie Swine Centre, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, 3Agriculture and Agri-Food Canada, Sherbrooke, QC, 4University of Guelph, Guelph, ON, 5University of Manitoba, Winnipeg, MB.

10:45 AM 16 Analysis of stress associated with a newly designed mechanical restraint for pigs. L. Anil1, S. S. Anil1, J. Dee2*, M. E. Wilson3, and T. L. Ward3, 1University of Minnesota, St. Paul, 2Zinpro Corporation, Eden Prairie, MN.

11:00 AM 17 The effect of housing facilities on steer behavior and temperament during the winter. R. Baker*, A. Johnson, L. Sadler, K. Stalder, and M. Honeyman, Iowa State University, Ames.

11:15 AM 18 Effects of Korral Kools running time on core body temperature of dairy cows in a desert environment. X. Ortiz*, J. Smith1, B. Bradford1, J. Harner1, and A. Oddy2, 1Kansas State University, Manhattan, 2NADA Al-Othman, Al Ahsa, Saudi Arabia.

11:30 AM 19 Effects of Korral Kools running time on core body temperatures of multiparous cows and primiparous cows in a desert environment. X. Ortiz*, J. Smith1, B. Bradford1, J. Harner1, and A. Oddy2, 1Kansas State University, Manhattan, 2NADA Al-Othman, Al Ahsa, Saudi Arabia.
CAST issue paper: Sow welfare in individual gestation accommodation. S. E. Curtis*1, R. B. Baker2, M. J. Estienne3, P. B. Lynch4, J. J. McGlone5, and B. K. Pedersen6, 1University of Illinois, Urbana, 2Iowa State University, Ames, 3Virginia Polytechnic and State University, Blacksburg, 4Moorepark Research Centre, Ireland, 5Texas Tech University, Lubbock, *Danish Farm Design, A/S.

Billy N. Day Symposium
Utilization of Technology to Enhance Pig Reproductive Performance
Chair: Rodney D. Geisert, University of Missouri, Columbia
142-144
Sponsored by: Billy N. Day Appreciation Club

Nonruminant Nutrition I
DDGS and Glycerol A
Co-Chairs: Brent Ratliff, Enzyvia LLC, Sheridan, IN, and Eduardo Beltranena, Alberta Agriculture and Rural Development, Edmonton
204FG

Effect of DDGS source on growth performance and carcass characteristics of growing-finishing pigs. A. J. Drescher*1, S. K. Baidoo2, L. J. Johnston3, and G. C. Shurson4, 1University of Minnesota, St. Paul, 2Southern Research and Outreach Center, Waseca, MN, 3West Central Research and Outreach Center, Morris, MN.

Effects of distillers dried grains with solubles and high-protein distillers dried grains on growth performance and organ weights of growing and finishing pigs. N. A. Gutierrez*, D. Y. Kil, B. G. Kim, and H. H. Stein, University of Illinois, Urbana.
Effects of low-solubles distiller’s dried grains (LS-DDG) in diets for growing-finishing pigs: Energy content and pig growth performance. R. B. Amaral¹, L. J. Johnston², J. E. Anderson³, S. K. Baidoo, and G. C. Shurson, ¹University of Minnesota, St. Paul, ²West Central Research and Outreach Center, Morris, ³University of Minnesota, Morris, 4Southern Research and Outreach Center, Waseca.


Using high protein distillers dried grains (HP-DDG) to replace soybean meal in diets for finishing pigs. R. B. Hinson*, G. D. Gerlemann¹, L. Ma¹, L. Prewitt², and G. L. Allec¹, ¹University of Missouri, Columbia, ²Agreeco, Chesterfield, MO.

Energy concentration and amino acid digestibility in a novel source of high-protein distillers dried grain fed to pigs. B. G. Kim*, G. I. Petersen, and H. H. Stein, University of Illinois, Urbana.

Amino acid digestibility of corn distillers solubles-related co-products in growing pigs. J. A. Soares*¹, H. H. Stein¹, G. C. Shurson², and J. E. Pettigrew¹, ¹University of Illinois, Urbana, ²University of Minnesota, St. Paul.

Influence of rapid introduction and removal of dietary corn distillers dried grains with solubles (DDGS) on pig performance and carcass characteristics. A. M. Hilbrands*¹, L. J. Johnston¹, G. C. Shurson², and I. Kim², ¹University of Minnesota, West Central Research and Outreach Center, Morris, ²University of Minnesota, St. Paul.


Inclusion of fat in sow lactation diets containing dry distillers grain with solubles. L. Greiner¹, J. Soto*, G. Allec², and J. Connor³, ¹Innovative Swine Solutions, LLC, Carthage, IL, ²University of Missouri, Columbia, ³Professional Swine Management, LLC, Carthage, IL.

Digestibility of dietary fiber in distillers co-products fed to growing pigs. P. E. Urriola*, G. C. Shurson², and H. H. Stein¹, ¹University of Illinois, Urbana, ²University of Minnesota, St. Paul.


Nonruminant Nutrition II
Energy and Amino Acids
Co-Chairs: Chad Halstad, Swine Nutrition Services, Truman, MN, and Joel DeRouchey, Kansas State University, Manhattan

Amino acid fortified diets for weanling pigs replacing the use of fish meal and whey protein. S. W. Kim*, C. M. Ballou¹, B. J. Min¹, and R. L. Payne², ¹North Carolina State University, Raleigh, ²Evonik-Degussa Corp., Kennesaw, GA.
Determining the optimum dietary tryptophan to lysine ratio in growing pigs fed diets formulated with higher levels of the other essential amino acids. A. D. Quant*1, M. D. Lindemann1, G. L. Cromwell1, B. J. Kerr2, and R. L. Payne3, 1University of Kentucky, Lexington, 2USDA, Ames, IA, 3Evonik-Degussa Corporation, Kennesaw, GA.

The use of crystalline amino acids in sow lactation diets. G. L. Allee*1, L. Greiner2, J. L. Usry3, and N. Williams4, 1University of Missouri, Columbia, 2Innovative Swine Solutions, Carthage, IL, 3Ajinomoto Heartland, LLC, Chicago, IL, 4Pig Improvement Company, Hendersonville, TN.

The standardized ileal digestible valine to lysine requirement ratio is at least 70% in post-weaned piglets. J. van Milgen*1,2, R. Barea1,2, L. Brossard1,2, N. Le Floc’h1,2, D. Melchior1, and Y. Primot3, 1INRA, UMR1079, Saint-Gilles, France, 2Agrocampus Ouest, UMR1079, Rennes, France, 3AJINOMOTO EUROLYSINE S.A.S., Paris, France.

Bioefficacy of liquid methionine hydroxy analogue (MHA-FA) compared to DL-methionine based on growth response maximum in pigs. R. D. Boyd*1, M. E. Johnston1, and C. E. Fralick2, 1The Hanor Company, Inc., Franklin, KY, 2Swine Tek Research, Van Wert, OH.

Growth performance of 20-to 50-kilogram pigs fed low crude protein diets supplemented with L-Histidine, L-Cystine, and Glycine. S. Powell*1, J. Greely1, T. Bidner1, L. Southern1, and R. Payne2, 1LSU Agricultural Center, Baton Rouge, LA, 2Evonik-Degussa Corp., Kennesaw, GA.

Growth performance of 20-to 50-kilogram pigs fed low crude protein diets supplemented with Glycine and L-Arginine. S. Powell*1, T. Bidner1, L. Southern1, and R. Payne2, 1LSU Agricultural Center, Baton Rouge, LA, 2Evonik-Degussa Corp., Kennesaw, GA.

Impact of dietary energy level and ractopamine on growth performance, carcass characteristics, and meat quality of finishing pigs. R. B. Hinson*1, B. R. Wiegand1, M. J. Ritter2, S. N. Carr2, and G. L. Allee1, 1University of Missouri, Columbia, 2Elanco Animal Health, Greenfield, IN.

Effects of increasing standardized ileal digestible lysine to metabolizable energy ratio on performance of 55 to 80 kg gilts in a commercial finishing environment. N. W. Shelton*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, and J. M. DeRouchey, Kansas State University, Manhattan.

Evaluation of the prediction of the net energy content of canola meal and full-fat canola seeds in growing pigs. C. A. Montoya*, K. Neufeld, P. Kish, and P. Leterme, Prairie Swine Centre Inc., Saskatoon, SK, Canada.


The effects of replacing corn with soybean hulls on performance and carcass characteristics of feedlot steers. M. H. Ramos*, M. Kerley, Y. Liang, and S. J. Harris, University of Missouri, Columbia.

Timing of Optaflexx inclusion in feedlot diets on performance and carcass characteristics of beef steers. J. M. Kelzer*, C. R. Dahlen, G. I. Crawford, and A. DiCostanzo, 1University of Minnesota, St. Paul, 2Northwest Research and Outreach Center, University of Minnesota, Crookston, MN, 3Extension Regional Center, University of Minnesota, Hutchinson, MN.

Comparison of Revalor XS, a new single dose implant, to a Revalor IS and Revalor S implant strategy in finishing steers. C. A. Nichols*, G. E. Erickson, J. T. Vasconcelos, M. N. Streeter, B. D. Dicke, D. J. Jordan, R. J. Cooper, T. L. Scott, and T. J. Klopfenstein, 1University of Nebraska, Lincoln, 2Intervet/Shering-Plough, Inc., Millisboro, DE, 3Cattlemens Nutrition Services, Lincoln, NE.

Evaluation of component TE-IS with Tylan followed by component TE-S with Tylan vs. a single component TE-200 with Tylan or a single Revalor XS implant in beef finishing steers. C. A. Nichols*, J. T. Vasconcelos, G. E. Erickson, S. A. Furman, J. J. Sindt, and T. J. Klopfenstein, 1University of Nebraska, Lincoln, 2University of Nebraska Panhandle Research and Extension Center, Scottsbluff, 3VetLife, Inc., West Des Moines, IA.


Effects of round bale feeding method on hay dry matter intake and eating behavior by beef cows. B. Wilson*, T. T. Marston, and K. C. Olson, Kansas State University, Manhattan.

Ruminant Nutrition II
Mycotoxin Symposium
Chair: Alvaro Garcia, South Dakota State University, Brookings
204AB
Sponsored by: Fort Dodge Animal Health

(Invited) Challenges in understanding mycotoxin related research: Real world applications. D. E. Duarte* and G. Pena, 1Novus International Inc., St. Louis, MO, 2Utah State University, Logan.

(Invited) Performance, metabolism and immunity in livestock fed diets contaminated with Fusarium mycotoxins. T. K. Smith*, University of Guelph, Guelph, Ontario, Canada.


Teaching
Chair: Kelly Bruns, South Dakota State University, Brookings

9:00 AM  301  Details of a NSF supported research education for undergraduates (REU) training program for recruiting and training future graduate students. J. Rice*, K. Saunders, and M. Rothschild, Iowa State University, Ames.

9:15 AM  302  Clicker technology for introductory animal science courses. G. M. Hill* and J. E. Link, Michigan State University, East Lansing.


Nonruminant Nutrition III
Environment and Health

Co-Chairs: Jason W. Frank, University of Arkansas, Fayetteville, and Joel Spencer, JBS United, Sheridan, IN

10:30 AM  157  Efficacy of different porcine circovirus vaccination regimens on pig performance. B. E. Bass*, J. W. Frank1, Z. B. Johnson1, C. V. Maxwell1, and P. R. Dubois2, 1University of Arkansas, Fayetteville, 2Cargill Pork, Wichita, KS.


11:00 AM  158  Eicosapentaenoic and docosahexaenoic acid modulate the inflammatory response in porcine cartilage explants. C. I. Robison and M. W. Orth*, Michigan State University, East Lansing.


11:30 AM  160  Growth performance of pigs farrowed in indoor versus outdoor management systems and weaned into an indoor, off-site nursery. E. Davis*, C. V. Maxwell1, J. D. Spencer1, R. L. Moser3, J. Rehberger1, and T. Rehberger1, 1Agtech Products, Inc., Waukesha, WI, 2University of Arkansas, Fayetteville, 3JBS United, Inc., Sheridan, IN.

11:45 AM  161  The use of ractopamine to enhance the environmental sustainability of pork production. K. A. Ross*, A. D. Beaulieu, J. Merrill, G. Vessie, and J. F. Patience, 1Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada, 3Elanco Animal Health, Guelph, ON, Canada, 4Iowa State University, Ames.
**Breeding and Genetics I**

**Chair: Douglas Newcom, Newsham Choice Genetics, Chesterfield, MO**

**1:00 PM 27** Impact of gilts’ body composition and body structure on reproductive performance. M. Nikkilä*, K. Stalder, B. More, J. Lampe, B. Thorn, M. Rothschild, A. Johnson, L. Karriker, and T. Serenius, 1Iowa State University, Ames, 2Fast Genetics, Saskatchewan, Canada, 3Swine Graphics Enterprises, Webster City, IA, 4Newsham Choice Genetics, West Des Moines, IA, 5FABA Breeding, Vantaa, Finland.

**1:15 PM 28** Estimates of variance components and genetic correlations between swine estrus traits. M. T. Knauer*, M. T. See, J. P. Cassady, and D. W. Newcom, 1North Carolina State University, Raleigh, 2Newsham Choice Genetics, West Des Moines, IA.

**1:30 PM 29** Estimates of variance components and genetic correlations between swine structural conformation traits. M. T. Knauer*, M. T. See, J. P. Cassady, and D. W. Newcom, 1North Carolina State University, Raleigh, 2Newsham Choice Genetics, West Des Moines, IA.

**1:45 PM 30** Longitudinal analysis of body weight and feed intake in selection lines for residual feed intake in pigs. W. Cai*, H. Wu, and J. C. M. Dekkers, 1Iowa State University, Ames, 2Iowa State University, Ames.

**2:00 PM 31** (National Pork Board Research Award) Growth and efficiency of pigs selected for residual feed intake on restricted and ad libitum diets. N. Boddicker*, N. Gabler, M. Spurlock, and J. C. M. Dekkers, Iowa State University, Ames.


**2:45 PM 33** Using computed tomography as a selection tool for carcass-meat quality and robustness. B. Holm*, D. Olsen, and J. Kongsro, 1Norvin, Hamar, Norway, 2Norvin USA, Harmony, MN.

**3:00 PM 34** Genetic parameters of heat stress tolerance in sows. S. Bloemhof*, E. Knol, and I. Misztal, 1Institute for Pig Genetics, Beuningen, The Netherlands, 2Animal Breeding and Genomics Centre, Wageningen, The Netherlands, 3University of Georgia, Athens.

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**Dairy Extension Symposium**

**Dairy Cattle Nutrition and Immunology**

**Chair: David Fischer, University of Illinois, Edwardsville**

**1:00 PM (Invited) Overview of ruminant immune function.** M. Foote, Cornell University, Ithaca, NY.

**1:45 PM (Invited) Role of immune suppression in retained placent and uterine health of dairy cattle.** J. Goff, Iowa State University, Ames.

**2:30 PM Break.**
2:45 PM (Invited) Nutritional effect on immune function in transition dairy cows. M. Waldron, University of Missouri, Columbia.
3:30 PM (Invited) Immune function and effects on somatic cell counts and milk quality. G. Pighetti, University of Tennessee, Knoxville.
4:15 PM Discussion.

Joint Swine Extension I and Animal Behavior, Housing, & Well Being II Symposium
Gestation Sow Housing: Current Understanding and Considerations
Co-Chairs: Mark Whitney, University of Minnesota, Mankato, and Janeen L. Salak-Johnson, University of Illinois, Urbana
142-144
Sponsored by: Pig Improvement Company, Inc. and American Society of Animal Science

1:00 PM 61 (Invited) Introduction to the sow gestation housing issue. M. H. Whitney*, University of Minnesota Extension, Mankato, MN.
2:00 PM 63 (Invited) Genetic considerations for different sow housing options. R. O. Bates*, Michigan State University, East Lansing.
2:30 PM Break.
2:45 PM 64 (Invited) Feeding, labor, and management considerations with different sow gestation housing systems. D. G. Levis*, University of Nebraska, Lincoln.
3:25 PM 65 (Invited) Experiences with pen gestation sow housing from an American pork production system. R. W. Ivey*, Maxwell Foods, LLC, Goldsboro, NC.
4:05 PM 66 (Invited) Group housing systems for gestating sows: The European perspective. B. K. Pedersen*, Danish Farm Design A/S, Forskerparken 10, DK-5230 Odense M.

Growth, Development, Muscle Biology, and Meat Science I Symposium
Advances to Control Variation in Meat Tenderness
Chair: Dan Nonneman, USDA-ARS, Clay Center, NE 205IJ

1:00 PM (Invited) Hyperspectral imaging as a way to predict beef tenderness. C. Calkins, University of Nebraska, Lincoln.
1:45 PM (Invited) Controlling variation in tenderness. S. Shackelford, USDA/ARS - USMARC, Clay Center, NE.
2:30 PM Break.
2:45 PM (Invited) Validation of commercial genetic markers. M. Dikeman, Kansas State University, Manhattan.
3:30 PM (Invited) The bovine SNP chip and whole genome association for beef quality. R. Schnabel, University of Missouri, Columbia.
Nonruminant Nutrition IV
DDGS and Glycerol B
204FG

Sponsored by: Danisco Animal Nutrition

1:00 PM 163 Effects of high levels of distillers dried grains with solubles (DDGS) and enzymes on growth performance and carcass traits of grow-finish pigs. J. J. Jacela*, S. S. Dritz¹, M. D. Tokach¹, J. M. DeRouchey¹, R. D. Goodband¹, J. L. Nelssen¹, and K. J. Prusa², ¹Kansas State University, Manhattan, ²Iowa State University, Ames.

1:15 PM 164 Effect of phytase and xylanase supplementation or particle size on nutrient digestibility of diets containing distillers dried grains with solubles (DDGS) co-fermented from wheat and corn in cannulated grower pigs. J. Yanez*¹², E. Beltranena¹, and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, Alberta, Canada, ²Universidad Autónoma de Baja California, Mexicali, México, ³Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada.

1:30 PM 165 Effects of pelleting diets containing distillers dried grain with solubles on growth performance and nutrient digestibility in nursery pigs. Z. P. Zhu*¹², R. B. Hinson¹, L. Ma¹, and G. L. Allee¹, ¹University of Missouri, Columbia, ²China Agricultural University, Beijing, P. R. China.

1:45 PM 166 Effect of single- or twin-screw extrusion on energy and amino acid digestibility of wheat or corn distillers dried grain and solubles (DDGS) for growing pigs. E. Beltranena*¹², J. Sánchez Torres³, L. Goonewardene¹², X. Meng¹, and R. T. Zijlstra¹, ¹Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada, ²University of Alberta, Edmonton, Alberta, Canada, ³Universidad Autónoma de Baja California, Mexicali, Baja California, México.

2:00 PM 167 Biofuel co-products in swine diets: Combining DDGS and glycerol. P. J. Lammers*, M. S. Honeyman¹, and B. J. Kerr², ¹Iowa State University, Ames, ²USDA-ARS NSRIC, Ames, IA.

2:15 PM 168 Evaluation of crude glycerol, a biodiesel co-product, in growing pig diets to support growth and improve pork quality. S. J. Schieck*, L. J. Johnston², G. C. Shurson¹, and B. J. Kerr³, ¹University of Minnesota, St. Paul, ²West Central Research and Outreach Center, Morris, MN, ³USDAR-ARS, Ames, IA.


2:45 PM 76 Use of crude glycerol, a biodiesel co-product, in diets for lactating sows. S. J. Schieck*, L. J. Johnston², B. J. Kerr³, S. K. Baidoo⁴, and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²West Central Research and Outreach Center, Morris, MN, ³USDAR-ARS, Ames, IA, ⁴Southern Research and Outreach Center, Waseca, MN.

3:00 PM 94 (National Pork Board Research Award) Energy determination of corn co-products fed to finishing pigs and use of in vitro OM digestibility to predict in vivo ME. P. V. Anderson*, B. J. Kerr², and G. C. Shurson³, ¹Iowa State University, Ames, ²USDAR-ARS Swine Odor and Manure Management Research Unit, Ames, IA, ³University of Minnesota, St. Paul.
Nonruminant Nutrition V
Minerals and Vitamins
Co-Chairs: Dustin Dean, International Ingredient Corporation, St. Louis, MO, and Gretchen Hill, Michigan State University, East Lansing
136-138
Sponsored by: JBS United, Inc.

1:00 PM 170 (Invited) Genetic and molecular mechanisms affecting phosphorus utilization. C. H. Stahl*, North Carolina State University, Raleigh.

1:30 PM 171 Presence of pharmacological quantities of Zn as a dose does not stimulate growth. G. M. Hill*, J. E. Link, J. A. Snedegar, and M. J. Dawes, Michigan State University, East Lansing.

1:45 PM 172 The effects of KemTRACE®brand Chromium Propionate on growth performance of grow-finish pigs fed reduced fat diets. B. Hinson*, J. Hahn2, and G. Allec1,1 University of Missouri, Columbia, 2Kemin Industries, Inc., Des Moines, IA.

2:00 PM 173 Effects of dietary concentration of P and microbial phytase on the digestibility of amino acids and energy by growing pigs. A. A. Pahm1, G. I. Petersen1, N. R. Augspurger2, and H. H. Stein1, University of Illinois, Urbana, 2JBS United Inc., Sheridan, IN.

2:15 PM 174 Addition of ZINPRO® zinc methionine complex to late finishing swine diets containing ractopamine enhances growth rate. J. W. Frank*, C. V. Maxwell1, Z. B. Johnson1, T. L. Ward1, and M. E. Wilson2,1 University of Arkansas, Fayetteville, 2Zinpro Corporation, Eden Prairie, MN.


2:45 PM 83 Efficacy of varying phytase levels and development of a P release curve. C. K. Jones1, M. D. Tokach1, B. W. Ratliff2, N. L. Horn3, S. S. Dritz1, R. D. Goodband1, J. M. DeRouchey1, and J. L. Nelssen1,1 Kansas State University, Manhattan, 2Enzyvia, LLC, Sheridan, IN, 3JBS United, Inc., Sheridan, IN.

Physiology
Reproductive Physiology
Chair: Matthew E. Wilson, West Virginia University, Morgantown
140

1:00 PM 235 Effects of feeding linseed meal on litter size in pigs. K. A. Vonnahme*, J. Benz2, and R. Zimprich1, North Dakota State University, Fargo, 2Kansas State University, Manhattan.


2:00 PM 89 Effect of gonadotropin treatment on estrus expression and ovulation in seasonally anestrous weaned sows. R. Manjarin* and R. Kirkwood, Michigan State University, East Lansing.

Tuesday PM 33
Associations of placental efficiency and nutrient transporter expression in the pig. T. A. Wilmoth*, C. O. Lemley, J. M. Koch, and M. E. Wilson, West Virginia University, Morgantown.

Effect of progesterone (P) antagonist RU486 on uterine progesterone receptor (PGR) mRNA expression, embryonic development and ovarian function during early pregnancy in pigs. D. J. Mathew*, E. M. Sellner1, C. S. Okamura1, R. D. Geisert1, L. L. Anderson2, and M. C. Lucy1, 1University of Missouri, Columbia, 2Iowa State University, Ames, IA.

Break.

Effect of maternal diet on fetal:maternal ratio of circulating amino acids, non-esterified fatty acids, blood urea nitrogen, and glucose concentrations in ewes. L. A. Lekatz*1, G. Wu2, L. P. Reynolds1, D. A. Redmer4, J. S. Caton1, and K. A. Vonnahme1, 1North Dakota State University, Fargo, 2Texas A&M University, College Station.

Influence of exogenous progestin on ovarian function in beef cows. R. A. Cushman*, J. R. Wood2, S. E. Echternkamp1, and A. S. Cupp2, 1USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2University of Nebraska, Lincoln.

Effects of in vitro insulin and 2,4-thiazolidinedione on the function of neutrophils harvested from blood of cows in different physiological states. X. S. Revelo* and M. R. Waldron, University of Missouri, Columbia.


Ruminant Nutrition III
By-product Utilization
Chair: Barry Bradford, Kansas State University, Manhattan


Effects of level of dried distiller’s grains supplementation on native pasture and subsequent effects on wheat pasture gains. K. H. Jenkins*, J. C. MacDonald2, F. T. McCollum III1, and S. H. Amosson3, 1Texas AgriLife Research, Amarillo, 2West Texas A&M University, Canyon, 3Texas AgriLife Extension, Amarillo.

Comparing the energy value of wet distillers grains to dry rolled corn in forage based diets. B. L. Nuttelman*, M. K. Luebbe, J. R. Benton, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.

Utilizing wet corn gluten feed instead of roughage during grain adaptation in finishing feedlot cattle. T. J. Huls1, M. K. Luebbe1, T. J. Klopfenstein1, G. E. Erickson1, W. A. Griffin1, R. A. Stock2, and D. R. Mark1, 1University of Nebraska, Lincoln, 2Cargill, Blair, NE.


Effects of substituting wet distillers grains with solubles in a wet corn gluten feed based diet on finishing performance. C. A. Nichols*, M. K. Luebbe1, G. E. Erickson1, R. A. Stock2, and T. J. Klopfenstein1, 1University of Nebraska, Lincoln, 2Cargill, Blair, NE.
2:30 PM 265 Corn wet distillers grains plus solubles or solubles in feedlot diets containing wet corn gluten feed. V. R. Bremer*1, J. R. Benton1, K. J. Hanford2, G. E. Erickson3, T. J. Klopfenstein1, and R. A. Stock2, 1University of Nebraska, Lincoln, 2Cargill Wet Milling, Blair, NE.

2:45 PM 266 Effects of wet corn gluten feed and roughage inclusion levels in finishing diets containing modified distillers grains plus solubles. J. R. Benton*1, G. E. Erickson3, T. J. Klopfenstein1, M. K. Luebbe1, and R. U. Lindquist2, 1University of Nebraska, Lincoln, 2Archer Daniels Midlands Co., Columbus, NE.

3:00 PM Break.

3:15 PM 267 Effects of concentration of alfalfa hay on performance of steers fed steam-flaked corn-based finishing diets containing 25% sorghum wet distiller's grains. J. C. MacDonald*1,2, K. H. Jenkins1, F. T. McCollum III1, and N. A. Cole4, 1Texas AgriLife Research, Amarillo, 2West Texas A&M University, Canyon, 3Texas AgriLife Extension, Amarillo, 4USDA-ARS, Bushland, TX.


3:45 PM 269 Effect of bambermycins and level of distillers grains on performance and carcass characteristics of feedlot cattle. E. R. Loé1, G. I. Crawford*2, A. E. Wertz-Lutz2, and B. D. Rops1, 1South Dakota State University, Brookings, 2University of Minnesota, Hutchinson.

4:00 PM 270 35% corn wet distiller’s grains plus solubles in steam-flaked and dry-rolled corn based finishing diets: Effects on animal performance. J. C. MacDonald*1,2, K. H. Jenkins1, E. K. Buttry1,2, J. B. Lewis1,2, S. B. Smith3, R. K. Miller1, T. E. Lawrence2, F. T. McCollum III3, and N. A. Cole4, 1Texas AgriLife Research, Amarillo, 2West Texas A&M University, Canyon, 3Texas AgriLife Extension, Amarillo, 4Texas A&M University, College Station, 5USDA-ARS, Bushland, TX.

4:15 PM 271 35% corn wet distiller’s grains plus solubles in steam-flaked and dry-rolled based finishing diets: Effects on fatty acids, sensory attributes, and shelf life of loins. J. C. MacDonald*1,2, K. H. Jenkins1, E. K. Buttry1,2, J. B. Lewis1,2, S. B. Smith3, R. K. Miller1, T. E. Lawrence2, F. T. McCollum III3, and N. A. Cole4, 1Texas AgriLife Research, Amarillo, 2West Texas A&M University, Canyon, 3Texas AgriLife Extension, Amarillo, 4Texas A&M University, College Station, 5USDA-ARS, Bushland, TX.

Nonruminant Nutrition VI
Other Ingredients

Chair: Jerry Shurson, University of Minnesota, St. Paul

136-138


3:15 PM 177 Nutritional value of flaxseed meal for swine. L. Eastwood and P. Leterme*, Prairie Swine Centre Inc., Saskatoon, SK, Canada.

3:30 PM 178 Varietal effects of barley carbohydrate composition on digestibility, fermentability and microbial ecophysiology in an in vitro model of the pig gastrointestinal tract. J. Bindelle1,2, R. Pieper3,4, B. Rossnagel4, A. Van Kessel*4, and P. Leterme3,4, 1Fonds national de la Recherche scientifique, Belgium, 2Gembloux Agricultural University, Belgium, 3Prairie Swine Centre Inc., Canada, 4University of Saskatchewan, Canada.
Digestible and net energy content of white and black canola meals of Brassica napus and B. juncea in growing pigs. C. A. Montoya*, K. Neufeld, P. Kish, and P. Leterme, Prairie Swine Centre Inc., 2Saskatoon, SK, Canada.

Effects of oxidized corn oil and synthetic antioxidant blend on animal performance in finishing pigs. D. M. Fernandez-Dueñas*1, L. W. Kutzler1, D. D. Boler1, J. Zhao2, R. J. Harrell2, J. Andrews2, M. Vazquez-Añon2, M. Ellis1, J. Killefer1, and F. K. McKeith1, 1University of Illinois, Urbana, 2Novus International Inc., St. Charles, MO.

Amino acid digestibility and energy concentration in full fat soybeans from conventional, high protein, or low oligosaccharide varieties and in soybean meal fed to weanling pigs. K. M. Baker*, B. G. Kim, and H. H. Stein, University of Illinois, Urbana.

Effects of cracked corn on growth performance and stomach lesions in finishing pigs. S. M. Williams*, J. D. Hancock, S. Issa, and T. L. Gugle, Kansas State University, Manhattan.

Amino acid digestibility and energy concentration in full fat soybeans from conventional, high protein, or low oligosaccharide varieties and in soybean meal fed to weanling pigs. K. M. Baker*, B. G. Kim, and H. H. Stein, University of Illinois, Urbana.

Effects of cracked corn on growth performance and stomach lesions in finishing pigs. S. M. Williams*, J. D. Hancock, S. Issa, and T. L. Gugle, Kansas State University, Manhattan.

The nutritional value of expeller-pressed canola meal for grower-finisher pigs. R. W. Seneviratne*1, M. G. Young2, E. Beltranena1,3, L. A. Goonewardene1,3, R. W. Newkirk4, and R. T. Zijlstra1, 1University of Alberta, Edmonton, Alberta, Canada, 2Gowans Feed Consulting, Wainwright, Alberta, 3Alberta Agriculture and Rural Development, Edmonton, Alberta, 4Canadian International Grains Institute, Winnipeg, Manitoba, Canada.

POSTER PRESENTATIONS

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

Animal Behavior, Housing, & Well Being Posters
Sponsored by: Zinpro

1 Environmental factors impacting response to bovine viral diarrhea vaccines in Angus calves. M. J. Schneider1, R. G. Tait, Jr.*1, J. F. Ridpath2, and J. M. Reecy3, 1Iowa State University, Ames, IA, USA, 2National Animal Disease Center/ARS/USDA, Ames, IA, USA.

2 Effect of maternal fear on pre-weaning mortality of piglets in a loose farrowing system. Y. Z. Li*, University of Minnesota, Morris, MN, US.


4 Monitoring environmental conditions on a swine transport trailer. C. M. Pilcher*, C. M. Peterson, A. C. Lenkaitis, X. Wang, T. L. Funk, Y. Sun, and M. Ellis, University of Illinois, Urbana.

5 Impact of Paylean level and handling intensity on stress responses of market-weight pigs to a handling and transportation model. C. M. Peterson*1, C. M. Pilcher1, M. J. Ritter2, S. N. Carr2, J. N. Marchant-Forde3, and M. Ellis3, 1University of Illinois, Urbana, 2Elanco Animal Health, Greenfield, IN, 3USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN.

Tuesday PM
Breeding and Genetics Posters
Chair: Justin Holl, Smithfield Premium Genetics, Rose Hill, NC
Sponsored by: Zinpro

Residual feed intake in Angus beef cattle divergently selected for feed:gain ratio. S. Smith*, The Ohio State University, Columbus.


Ultrasonically measured ribeye area in beef cattle: A look into the relationship between image quality and prediction bias. M. L. Spangler*1, S. P. Greiner2, T. D. Pringle3, J. M. Rumph4, D. R. Strohbehn5, and W. D. Busby6, 1University of Nebraska, Lincoln, 2Virginia Polytechnic Institute and State University, Blacksburg, 3University of Georgia, Athens, 4Michigan State University, East Lansing, 5Iowa State University, Ames.

Factors associated with feed intake of Angus steers. M. G. Dib*1, J. F. Taylor2, R. D. Schnabel2, and L. D. Van Vleck13, 1University of Nebraska, Lincoln, 2University of Missouri, Columbia, 3Agriculture Research Service - USDA, Lincoln, NE.

Effects of high-sulfur water and clinoptilolite on growth performance and gene expression of steers fed forage-based diets. K. L. Kessler*1, K. C. Olson2, C. L. Wright2, K. J. Austin3, P. S. Johnson1, and K. M. Cammack1, 1University of Wyoming, Laramie, 2South Dakota State University, Brookings.

Evaluation of G × E in Angus cattle by using reaction norms. B. Maricle*1, M. Kaps2, R. W. Weber1, and W. Lambocher1, 1University of Missouri, Columbia, 2University of Zagreb, Zagreb, Croatia.

Swine Extension Posters
Chair: Mark Whitney, University of Minnesota, Mankato Hall
Sponsored by: Zinpro

Evaluation of the growth of backfat depth, loin depth and carcass weight on different sire and dam lines. A. Schinckel*1, M. Einstein1, S. Jungst2, C. Booher2, and S. Newman2, 1Purdue University, West Lafayette, IN, 2PIC North American, Hendersonville, TN.

Evaluation of different mixed model nonlinear functions to describe the body weight growth of pigs of different sire and dam lines. A. Schinckel*1, M. Einstein1, S. Jungst2, C. Booher2, and S. Newman2, 1Purdue University, West Lafayette, IN, 2PIC North American, Hendersonville, TN.

Evaluation of the impact of pig birth weight on grow-finish performance. A. Schinckel*1, M. Einstein1, S. Jungst2, C. Booher2, and S. Newman2, 1Purdue University, West Lafayette, IN, 2PIC North American, Hendersonville, TN.

Evaluation of the impact of pig birth weight on grow-finish performance, backfat depth and loin depth. A. Schinckel*1, M. Einstein1, S. Jungst2, C. Booher2, and S. Newman2, 1Purdue University, West Lafayette, IN, 2PIC North American, Hendersonville, TN.

Evaluation of different mixed model nonlinear functions to describe the feed intakes of pigs of different sire and dam lines. A. Schinckel*1, M. Einstein1, S. Jungst2, C. Booher2, and S. Newman2, 1Purdue University, West Lafayette, IN, 2PIC North American, Hendersonville, TN.

Number of functional underline sections affects weaned piglet body weight and quality. C. L. Yoder*1, J. S. Fix1, J. W. Holl2, W. O. Herring3, J. M. Bender4, and M. T. See1, 1North Carolina State University, Raleigh, 2Smithfield Premium Genetics Group, Rose Hill, NC.

Nonruminant Nutrition - Posters Session II
Additives

Sponsored by: Zinpro

217 Effects of two types of carbohydrase supplements on apparent ileal and total tract nutrient digestibility of American and Chinese distiller's dried grains with solubles (DDGS) in growing pigs. J. H. Lee*1, I. H. Kim1, J. S. Yoo1, J. W. Hong2, J. H. Lee2, W. S. Lee3, and S. D. Lee3, 1Department of Animal Resource & Science, Dankook University, Cheonan, Korea, 2Institute of Animal Science, DAESANG Farms Co., Ltd, Korea, 3National Institute of Animal Science, Korea.

218 Evaluation of iron status and iron transfer efficiency in sows following dietary administration of δ-aminolevulinic acid and vitamin C. Y. J. Chen*1, L. Yan1, D. K. Kang1, Y. Hyun2, and I. H. Kim1, 1Department of Animal Resource & Science, Dankook University, Cheonan, Korea, 2Easy Bio System, Korea.

219 The influence of complexed minerals fed to developing maternal gilts through three parities on reproductive and lactation performance. C. L. Bradley*1, J. W. Frank1, C. V. Maxwell1, Z. B. Johnson1, T. L. Ward2, and M. E. Wilson3, 1University of Arkansas, Fayetteville, 2Zinpro Corporation, Eden Prairie, MN.

220 Influence of complexed minerals during gilt development on growth performance and claw wall growth. C. L. Bradley*1, J. W. Frank1, C. V. Maxwell1, Z. B. Johnson1, T. L. Ward2, and M. E. Wilson3, 1University of Arkansas, Fayetteville, 2Zinpro Corporation, Eden Prairie, MN.

221 Effects of carbadox on microbial ecology in ileal digesta and feces of weanling pigs. M. Song*1, L. L. Stewart1, J. Barnes2, J. A. Soares1, B. R. Gramm2, R. D. Nimmo2, H. H. Stein1, and J. E. Pettigrew1, 1University of Illinois, Urbana, IL, USA, 2Phibro Animal Health Co., Ridgefield Park, NJ, USA.


224 Dietary anionic mineral (CAD-MATE®) addition increases body pools of readily exchangeable Ca in prepartum sows. C. Darriet*1, D. E. Axce2, and T. D. Crenshaw1, 1University of Wisconsin, Madison, WI, 2Granco Minerals, Petersburgh, VA.


228 In vitro assay to evaluate ability of enzymatically hydrolyzed yeast containing MOS to bind enteropathogenic bacteria. S. Jalukar*, J. Oppy, and M. Holt, Varied Industries Corporation, Mason City, IA, USA.

229 Dose-dependent TNF-α production of porcine alveolar macrophages in response to yeast components. M. T. Che*1, R. W. Johnson1, K. W. Kelley4, K. A. Dawson2, C. A. Moran2, and J. E. Pettigrew1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Alltech North American Bioscience Center, Nicholasville, KY.


Effect of yeast culture in the diets of late gestation and lactating sows and gilts on sow and litter performance. C. Stangohr, T. Kellner, G. Fitzner, J. Sonderman, and C. Hostetler. South Dakota State University, Brookings, Diamond V, Cedar Rapids, IA, Danbred North America, Columbus, NE.

**Physiology Posters**

**Reproductive Physiology**

Chair: Kimberly A. Vonnahme, North Dakota State University, Fargo

Sponsored by: Zinpro

Determination of the contributions of cytochrome P450 2C (CYP2C) and 3A (CYP3A) to the hepatic catabolism of progesterone. C. O. Lemley and M. E. Wilson. West Virginia University, Morgantown.

In vivo and in vitro expression of porcine zinc transporter (ZnT1) mRNA. H. Tran, P. S. Miller, and T. E. Burkey. University of Nebraska, Lincoln.


Influence of pre-cyropreservation pH and temperature on boar semen quality. N. E. Tharp, P. Purdy, H. Blackburn, S. Spiller, and T. S. Stewart. Purdue University, West Lafayette, IN, USDA-ARS-NCGRP, National Animal Germplasm Program, Fort Collins, CO.

**Ruminant Nutrition - Posters Session II**

Sponsored by: Zinpro


Post-wean performance by spring and fall-born steer calves weaned from full access, limited access, or no access to endophyte-infected tall fescue. J. Caldwell*¹, K. Coffey¹, D. Philipp¹, J. Jennings³, D. Hubbell, III¹, T. Hess¹, D. Kreider¹, M. Looper², M. Popp¹, M. Savin¹, and C. Rosenkrans, Jr.¹, ¹University of Arkansas, Fayetteville, ²USDA-ARS, Booneville, AR, ³Cooperative Extension Service, Little Rock, AR.

Effects of lipid source on feed digestibility and flow of fatty acids from the rumen. R. Potu*, A. AbuGhazaleh, K. Jones, and R. Atkinson, Southern Illinois University, Carbondale.

Effects of functional oils and monensin alone or in combination on feedlot cattle growth and carcass composition. M. Jedlicka*, T. Purevjav¹, A. Conover¹, J. Torrent², G. Pusillo², and M. Hoffman¹, ¹Iowa State University, Ames, ²Oligo Basics USA LLC, Wilmington, DE.

Effects of fat enriched protein supplement on performance and tissue fatty acid composition of grazed lambs. Q. Baptiste*, S. Chavez, E. Nestor, D. Matapadrino, and E. Felton, West Virginia University, Morgantown.

Influence of dietary thiamin supplementation on ruminal pH and hydrogen sulfide gas concentration in lambs fed a ration containing 60% distillers dried grains with solubles. B. W. Neville*¹, C. S. Schauer², L. A. Kirschten¹, K. Karges³, M. L. Gibson³, and G. P. Lardy³, ¹North Dakota State University, Fargo, ²Hettinger Research and Extension Center, Hettinger, ND, ³Dakota Gold Research Association, Sioux Falls, SD.

Effects of distillers dried grains with solubles inclusion in growing and finishing diets on intake, average daily gain, and gain efficiency of beef steers. J. L. Leupp*¹, G. P. Lardy¹, R. J. Maddock¹, M. L. Bauer¹, K. Karges², M. L. Gibson², and J. S. Caton¹, ¹North Dakota State University, Fargo, ²Dakota Gold Research Association, Sioux Falls, SD.


Distillers’ grains–soy hull diets as a corn replacement for feedlot cattle. C. O. Trejo*¹, L. L. Berger¹, T. G. Nash¹, and L. Forster², ¹University of Illinois, Urbana, ²Archer Daniels Midland Company, Decatur, IL.

Effects of differing levels of glycerol supplementation on performance and carcass characteristics in feedlot steers. K. Culp*, C. Fleenor¹, M. Claey¹, R. Lemenager¹, and S. Lake², ¹Purdue University, West Lafayette, IN, ²University of Wyoming, Laramie.

Effect of a lactic acid-lactobacillus preservative and moisture level at baling on in-situ digestibility of crabgrass hay by heifers. J. D. Caldwell*¹, A. E. Killion¹, L. A. Hardin¹, K. P. Coffey¹, A. N. Young¹, D. Philipp¹, and W. Coblenz², ¹University of Arkansas, Fayetteville, ²USDA-ARS, Marshfield, WI.

Alternatives for baling alfalfa hay under high moisture conditions. F. Valdez*¹, B. Lavin², A. Hernandez², D. Sapienza², T. Johnson³, and D. Westerhaus¹, ¹Kemin Industries, Inc., Des Moines, IA, ²Beta Sta. Monica, Coahuilla, Mexico, ³Sapienza Analaytica, LLC, Slater, IA.
Wednesday, March 18
SYMPOSIA AND ORAL SESSIONS

Breeding and Genetics II
Chair: Jennifer Minnick-Bormann,
Kansas State University, Manhattan
142-144

9:00 AM  35  (Dairy Innovation Award) (Invited Young Dairy Scholar) Genetic regulation of milk fatty acid composition: developing tools for use in selection. R. A. Nafikov*1, J. P. Schoonmaker1, J. M. Reece1, D. Moody-Spurlock1, J. Minick-Bormann2, K. J. Kochler1, and D. C. Beitz1, 1Iowa State University, Ames, 2Kansas State University, Manhattan.

9:30 AM  36  Comparison of linear regression, fixed factors, saturated and cubic spline models to modeling the effects of inbreeding and age at first calving on milk yield in first lactation rbST and non-rbST treated Holstein cows. M. J. Geha*1, J. F. Keown1, S. D. Kachman1, and L. D. VanVleck1,2, 1University of Nebraska, Lincoln, 2U.S. Meat Animal Research Center-ARS, Lincoln, NE.

9:45 AM  37  Correlation of pelvic measures in beef cows with calf birth weight and dystocia score. J. M. Rumph*1, R. E. Williams2, and J. K. Bertrand3, 1Michigan State University, Lake City, 2American-International Charolais Association, Kansas City, MO, 3University of Georgia, Athens.

10:00 AM  38  Effects of sire by implant interactions on carcass traits in Hereford cattle. J. A. Bishop* and D. W. Moser, Kansas State University, Manhattan.

10:15 AM  39  Simulation of genomic selection in a crossbred beef cattle population. K. Kizilkaya*1,2, R. L. Fernando3, and D. Garrick3, 1Iowa State University, Ames, 2Adnan Menderes University, Aydin, Turkey.

10:30 AM  40  Predicting allele frequencies in a DNA pools using Illumina high density SNP genotyping data. B. L. Peiris*1, J Ralph2, S. J. Lamont1, and J. C. M. Dekkers1, 1Iowa State University, Ames, 2Aviagen Ltd. UK, UK.

11:00 AM  41  Bivariate Student-t error linear mixed model and Bayesian MCMC implementation. K. Kizilkaya*1,2 and B. Mestav2, 1Iowa State University, Ames, 2Adnan Menderes University, Aydin, Turkey.

Beef/Small Ruminant Extension
Chair: Galen Erickson, University of Nebraska, Lincoln
146-148


9:15 AM  54  Effect of growing beef replacement heifers on wheat pasture before and during breeding on reproductive performance. M. H. Bryant*, G. E. Selk, R. P. Wettemann, D. L. Lalman, and G. W. Horn, Oklahoma Agricultural Experiment Station, Stillwater, OK.
9:30 AM  55  Profit variability for calf-fed and yearling production systems. R. M. Small*, D. R. Mark1, D. M. Feuz2, and T. J. Klopfenstein3,1 University of Nebraska, Lincoln, 2 Utah State University, Logan.

9:45 AM  56  The economic impact of increasing corn price and supplementation decisions on economics of beef production systems. W. A. Griffin*, T. J. Klopfenstein, G. E. Erickson, D. R. Mark, and K. M. Rolfe, University of Nebraska, Lincoln.

10:00 AM  57  Impact of supplementing modified wet distillers grains with solubles to long yearling steers grazing native range. K. M. Rolfe*, M. K. Luebbe, W. A. Griffin, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.

10:15 AM  58  Comparison of corn co-products/corn residue bales and alfalfa hay on cow performance, lactation, and economics. T. J. Braungardt*, D. B. Faulkner1, D. W. Shike1, K. Karges2, M. Gibson2, and N. M. Post1, 1 University of Nebraska, Lincoln, 2 Dakota Gold Research Association, Sioux Falls, SD.


10:45 AM  60  Development of a maturity index as a predictor of first pregnancy probability. M. C. Stockton*, R. K. Wilson1, L. A. Stalker1, D. M. Feuz2, and R. N. Funston1, 1 University of Nebraska, Lincoln, 2 Utah State University, Logan.

Swine Extension II
Chair: Mark Whitney, University of Minnesota, Mankato

9:00 AM  67  Effect of reduced nocturnal temperature for early-weaned pigs on performance and energy consumption. R. C. Thaler*, L. J. Johnson2, M. C. Brumm1, and M. C. Shannon4 and the NCERA-89 Committee on Swine Management, 1 South Dakota State University, Brookings, 2 West Central Research and Outreach Center, University of Minnesota, Morris, MN, 3 University of Nebraska, Lincoln, 4 University of Missouri, Columbia.


9:30 AM  312  Impact of time and temperature on tissue quality and diagnostic outcome in swine. W. Holt*, J. Reiman1, L. Karriker1, J. Hanson2, L. Layman1, and A. Johnson1, 1 Iowa State University, Ames, Iowa, 2 Murphy Brown Inc., Rose Hill, NC.

Growth, Development, Muscle Biology and Meat Science II
Chair: Terry Houser, Kansas State University, Manhattan

9:00 AM  306  Fatty acid profiles of and iodine value correlations between four carcass fat depots from pigs fed varied combinations of ractopamine and energy. H. L. Evans*, R. B. Hinson1, B. R. Wiegand1, M. J. Ritter2, S. N. Carr2, K. S. Roberts1, and G. Allee1, 1 University of Missouri, Columbia, 2 Elanco Animal Health, Greenfield, IN.


9:30 AM  82  Use of microarray to determine genes differentially expressed in muscle and subcutaneous fat of heifers never treated or considered chronically morbid after a 63-d preconditioning program. J. Johnson*, D. R. Stein, L. O. Burciaga-Robles, B. P. Holland, D. L. Step, U. DeSilva, and C. R. Krehbiel, Oklahoma State University, Stillwater.
Effect of dietary arginine supplementation to sows on litter size, fetal weight and myogenesis at d 75 of gestation. J. Bérard*1,2, M. Kreuzer2, and G. Bee1, 1Agroscope Liebefeld Postieux, Postieux, Fribourg, Switzerland, 2Department of Agricultural and Food Science, Zurich, Zurich, Switzerland.


Influence of selection for reduced residual feed intake on pork quality. R. M. Smith*, J. M. Young1, M. J. Anderson1, R. C. Johnson2, E. Huff-Lonergan1, J. Dekkers3, and S. M. Lonergan1, 1Iowa State University, Ames, 2Farmland Foods, Dennison, IA.

Effects of different winter growing programs and subsequent finishing on gene expression in different adipose tissue depots in beef steers. D. Stein*1, A. Pillai1, U. DeSilva1, C. K. Krehbiel1, G. W. Horn1, M. McCurdy2, J. J. Wagner3, P. Ayoubi1, J. B. Morgan1, and R. D. Geisert4, 1Oklahoma State University, Stillwater, 2Nutrition Service Associates, Kenmore, QLD, Australia, 3Southeast Colorado Research Center, Colorado State University, Lamar, CO, 4University of Missouri, Columbia.

Nonruminant Nutrition VII
Feeding and Management
Co-Chairs: Nathalie L. Trottier, Michigan State University, East Lansing, and Denny McKilligan, Tech Mix Inc, Ames, IA 136-138


Effect of incremental levels of red blood cells on growth performance, linear carcass traits, and viscera and organ weights of finishing pigs. E. D. Frugé*, T. D. Bidner, and L. L. Southern, LSU Agricultural Center, Baton Rouge, LA.

Evaluation of an encapsulated fortified nutrient pack (FNP) on growth performance and apparent total tract nutrient digestibility in growing-finishing pigs. V. D. Naranjo*1, T. D. Bidner1, S. L. Johnston2, R. E. Musser3, and L. L. Southern1, 1LSU Agricultural Center, Baton Rouge, LA, 2Hubbard Feeds Inc., Mankato, MN, 3Soda Feed Ingredients, LLC, Mankato, MN.

Effects of decreasing or increasing sow feed intake prior to farrowing on lactation performance. D. W. Rozeboom*1, R. D. Goodband2, K. J. Stalder3, and NCERA-89 Committee on Swine Management4, 1Michigan State University, East Lansing, 2Kansas State University, Manhattan, 3University of Tennessee, Knoxville.

Supplementing sow diets with N-Take during lactation increases feed intake. C. L. Bradley*1, J. W. Frank1, C. Zier2, C. V. Maxwell1, R. D. Boyd2, and D. McKilligan3, 1University of Arkansas, Fayetteville, 2The Hanor Company, Inc., Franklin, KY, 3TechMix, Inc., Stewart, MN.
Does the heavier weaning weights of modern pigs affect their iron requirement? 
J. S. Jolliff* and D. C. Mahan, The Ohio State University, Columbus.

Effects of an organic copper source on growth performance and tissue copper concentration in nursery pigs. J. Zhao*1, R. J. Harrell1, G. Allec2, B. Hinson2, P. Winkelbauer1, C. Atwell1, J. D. Richards1, and M. Vazquez-Anon1, 1Novus International Inc, St. Charles, MO, 2University of Missouri, Columbia.

The nutritional efficacy of mare milk in neonatal pigs. E. L. Wilsplotz*, A. Willyard, A. Buckley, and N. L. Trottier, Michigan State University, East Lansing.

Ruminant Nutrition IV
Chair: Alvaro Garcia, South Dakota State University, Brookings
204AB

Effects of nutritional plane and selenium supply on intestinal mass and mRNA expression of angiogenic factors and their receptors in the ewe and neonatal lamb. A. M. Meyer*1, T. L. Neville1, J. J. Reed1, J. B. Taylor2, L. P. Reynolds1, D. A. Redmer1, K. A. Vonnahme1, and J. S. Caton1, 1North Dakota State University, Fargo, 2USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.

Effects of sulfur and monensin concentrations on in vitro hydrogen sulfide production. D. R. Smith1, N. DiLorenzo*1, J. Leibovich1, M. L. May1, M. J. Quin1, J. W. Homm2, and M. L. Galyean1, 1Texas Tech University, Lubbock, 2Elanco Animal Health, Greenfield, IN.

Feedlot incidences of polio and ruminal hydrogen sulfide levels with varying hay level inclusion. S. Vanness*, N. Meyer, T. Klopfenstein, and G. Erickson, University of Nebraska, Lincoln.


Lactation performance of dairy cows fed corn silage treated with Silaferm. A. R. Hippen*1, M. S. Laubach1, K. D. Gross1, P. L. Linke1, K. F. Kalscheur1, D. J. Schingoethe1, and P. Summer2, 1Purdue University, West Lafayette, IN, 2DairyNet Inc., Brookings, SD.

Lactational response of lactating dairy cows fed a diet containing mustard bran. H. A. Maiga*1, M. L. Bauer2, C. Dahlen3, and M. Badaruddin3, 1University of Minnesota, Crookston, 2North Dakota State University, Fargo, 3Northwest Research and Outreach Center, Crookston, MN, 4Minn-Dak Growers, Ltd, Grand Forks, ND.

Practical association of colostral somatic cell counts with calf immunity, health and growth. E. Ferdowsi Nia1, G. R. Ghorbani1, H. R. Rahmani1, M. Alikhani1, M. Mohammad Alipour1, and A. Nikkhah*2,3, 1Isfahan University of Technology, Isfahan, Iran, 2University of Illinois, Urbana, 3Zanjan University, Zanjan, Iran.

Microbial growth in refrigerated colostrum over 7 days. M. Beyer*, S. I. Kchoe, University of Wisconsin, River Falls.
Special Symposium
North American Swine Energy System
Chair: James E. Pettigrew, University of Illinois, Urbana
204FG
Sponsored by: National Pork Board and United Soybean Board


9:20 AM 192 (Invited) The importance of advancing our understanding and application of energy systems. J. F. Patience*1,2, G. L. Allee3, J. F. Pettigrew4, and A. D. Beaulieu5, 1Prairie Swine Centre, Saskatoon, SK Canada, 2Iowa State University, Ames, 3University of Missouri, Columbia, 4University of Illinois, Urbana.


10:05 AM 194 (Invited) Net energy requirements for maintenance in growing and finishing pigs. D. Y. Kil*1, F. Ji1, R. B. Hinson2, A. D. Beaulieu3, L. L. Stewart4, G. L. Allee5, J. F. Patience6, J. E. Pettigrew7, and H. H. Stein8, 1University of Illinois, Urbana, 2University of Missouri, Colombia, 3Prairie Swine Centre, Saskatoon, SK, Canada.

10:30 AM Break.

10:50 AM 195 (Invited) Effects of dietary lipids on net energy of corn in diets fed to growing and finishing pigs. D. Y. Kil*1, F. Ji1, R. B. Hinson2, A. D. Beaulieu3, L. L. Stewart4, J. F. Patience5, J. E. Pettigrew6, and H. H. Stein7, 1University of Illinois, Urbana, 2University of Missouri, Columbia, 3Prairie Swine Centre, Saskatoon, SK, Canada.


11:20 AM 197 (Invited) Net energy of soybean oil and choice white grease in diets fed to growing or finishing pigs. D. Y. Kil*1, F. Ji2, R. B. Hinson3, A. D. Beaulieu4, L. L. Stewart5, G. L. Allee6, J. F. Patience7, J. E. Pettigrew8, and H. H. Stein9, 1University of Illinois, Urbana, 2University of Missouri, Colombia, 3Prairie Swine Centre, Saskatoon, SK, Canada.

11:35 AM 198 (Invited) Net energy of soybean hulls and wheat middlings in diets fed to growing or finishing pigs. L. L. Stewart*1, D. Y. Kil2, F. Ji3, R. B. Hinson4, A. D. Beaulieu5, G. L. Allee6, J. F. Patience7, J. E. Pettigrew8, and H. H. Stein9, 1University of Illinois, Urbana, 2University of Missouri, Colombia, 3Prairie Swine Centre, Saskatoon, SK, Canada.

11:50 AM 199 (Invited) Reduced dietary crude protein impacts growth performance, carcass nutrients and energy metabolism in growing and finishing pigs. A. D. Beaulieu*1, G. L. Allee2, F. Ji3, R. B. Hinson4, D. Y. Kil5, H. H. Stein6, L. L. Stewart7, J. E. Pettigrew8, and J. F. Patience9, 1Prairie Swine Centre, Saskatoon, SK, Canada, 2University of Missouri, Columbia, 3University of Illinois, Urbana, 4Iowa State University, Ames.
12:05 PM  200  (Invited) Comparison of measured values for NE in diets and ingredients fed to pigs and values predicted from European energy systems. D. Y. Kil¹, F. Ji¹, R. B. Hinson², A. D. Beaulieu³, L. L. Stewart¹, G. L. Allee², J. F. Patience³, J. E. Pettigrew¹, and H. H. Stein*¹, ¹University of Illinois, Urbana, ²University of Missouri, Colombia, ³Prairie Swine Centre, Saskatoon, SK, Canada.


1:00 PM  Adjourn.

Writing a Scientific Paper for Publication Workshop
Co-Chairs: Michael Galyean, Gregory Lewis and a Third Person to be announced

Sponsored by: ASAS/ADSA MW Section, JAS and JDS

9:00 AM

Communicating science is as important to the scientific process as designing and conducting the experiment itself. This workshop will help students take complete sets of data from the data presentation stage to a fully formed paper. The workshop will focus on essential techniques for writing a scientific paper. The basic structure for the paper will be modeled after either the Journal of Animal Science or Journal of Dairy Science (whichever the student prefers to publish in).

Full information can be found on the Midwest web site: http://adsa.asas.org/midwest/2009/

Participation is limited to 12 ASAS/ADSA MW Graduate Students or Post Doctoral Students and pre-registration is required.

5:00 PM  Adjourn.
Program Committees

Animal Behavior, Housing, Well Being
Janeen Salak-Johnson, Chair
   Ernest Minton
   Suzanne Milman

Breeding and Genetics
Douglas W. Newcom, Chair
   Justin Holl
   Jennifer Minick-Bormann

Extension - Beef / Small Ruminant
Galen Erickson, Chair
   Daniel Buskirk
   Kent Tjardes

Extension – Swine
Mark Whitney, Chair
   Janet Snow
   Chad Hastad

Extension - Dairy
Dave Fischer, Chair
   James Paulson
   Mike Socha
   Cindie Luhman

Growth, Development, Muscle Biology, and Meat Science
Dan Nonneman, Chair
   Terry Houser
   Tara McDaneld

Nonruminant Nutrition
John F. Patience, Chair
   Aaron Gaines
   Nathan Augsburger
Odor and Nutrient Management
Dustin Kendall, Chair
Joel DeRouchey
Mike Brouk

Physiology
Matt Wilson, Chair
Kim Vonnahme
Jeremy Miles

Ruminant Nutrition
Alvaro Garcia, Chair
Barry Bradford
Al Miron

Teaching
Miriam Weber-Nielsen, Chair
Kelly Bruns
Sylvia Kehoe

David H. Baker Symposium
Gail Czarnecki-Maulden, Chair
Terri Parr
Ryan Dilger

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

Special Committees

ASAS Nominations
Merlyn Nielsen, Chair
Ronny L. Moser
Deana L. Hancock

ADSA Nominations
Richard Pursley, Chair
Michael Schutz
Patrick Hoffman
Academic Quadrathlon
Eric Berg, Chair
Tony Seykora
Kim Vonnahme
Matt Wilson
Paul Kuber
Aimee Wertz-Lutz
Sylvia Kehoe
Phil Spike
Tim Safranski
Dennis Banks
Richard Cobb

Competitive Research Paper Committees

Graduate Student
Dari Brown, Chair
Leo Timms
Marc Bauer
Sam Baidoo
J.W. Schroeder
A. DiCostanzo
Scott Radcliffe
Gerry Shurson
Ron Bates
Jess Miner
Betsey Newton
Chris Forcherio
Ken Purser
Tom Johnson
Mercedes Vazquez-Anon

Undergraduate Student
Jim Linn, Chair
Mike Fowler
Ernie Minton
Paul Walker
Ed Stephas
Terry Faidley
Young Animal/Dairy Science Leaders Awards
Committees

**Extension**
David Casper, Chair
Graham Clifford Lamb
Joel DeRouchey
Bill Miller

**Research**
Shawn Donkin, Chair
Jamie Matthews
John Killefer
James Reecy

**Teaching**
Greg Lardy, Chair
Kelly Bruns
Katherine Lee
Henry Zerby

**Agribusiness**
Alvaro Garcia, Chair
Murray Pettitt
Jason Woodworth
Paul Porter

**National Pork Board Swine Innovation**
Merlyn Nielsen, Chair
Nathan R. Augspurger
Randy Walker

**Innovation in Dairy Research**
Richard Pursley, Chair
David Carlson
A. Bettegowda

**Stahly Award**
Tom Crenshaw, Chair
Gary Cromwell
Jerry Weigel
PAST RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

1971  G. E. Ricketts, University of Illinois
1972  V. B. Mayrose, Purdue University
1974  M. R. Geasler, Iowa State University
1976  R. J. Vatthauer, University of Wisconsin
1977  R. J. Epley, University of Minnesota
1978  W. L. Singleton, Purdue University
1979  D. E. Schafer, Kansas State University
1980  L. R. Corah, Kansas State University
1981  M. G. Hogberg, Michigan State University
1982  C. W. Spaeth, Kansas State University
1983  L. H. Thompson, University of Illinois
1984  M. F. Hutmans, 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. Schnecker, 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

OUTSTANDING RESEARCHER AWARD

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

OUTSTANDING TEACHER AWARD

1971  B. G. Harmon, University of Illinois
1972  R. E. Hunsley, Purdue University
1974  D. H. Gee, South Dakota State University
1976  T. R. Cline, Purdue University
1977  P. J. Cunningham, University of Nebraska
1978  B. D. Moser, University of Nebraska
1979  C. L. Hausler, Southern Illinois University
1980  T. R. Carr, University of Illinois
1981  M. E. Dikeman, Kansas State University
1982  R. E. Morrow, University of Missouri
1983  D. J. Kesler, University of Illinois
1984  R. A. Easter, University of Illinois
1985  D. F. Parrett, University of Illinois
1986  J. G. Sebranek, Iowa State University
1987  D. R. Brink, University of Nebraska
1988  K. M. Irvin, The Ohio State University
1989  R. P. Lemenager, Purdue University
1990  B. R. Skaar, Iowa State University
1991  D. A. Nichols, Kansas State University
1992  M. A. Russell, Purdue University
1993  D. K. Combs, University of Wisconsin, Madison
1994  L. C. Martin, Kansas State University
1995  M. E. Benson, Michigan State University
1996  B. D. Banks, Michigan State University
1997  H. D. Tyler, Iowa State University
1998  C. R. Youngs, Iowa State University
1999  J. N. Spain, University of Missouri
2000  M. E. Doumit, Michigan State University
2001  S. M. Lonergan, Iowa State University
2002  W. N. Osburn, Michigan State University
2003  S. C. Kelm, University of Wisconsin-River Falls
2004  M. S. Weber Nielsen, Michigan State University
2005  B. D. Nielsen, Michigan State University
2006  B. A. Reiling, University of Nebraska
2007  K. W. Bruns, South Dakota State University
2008  H. N. Zerby, The Ohio State University

AGRIBUSINESS AWARD
1995  P. L. Houghton, Heartland Cattle Co., McCook, Nebraska
1996  J. A. Barmore, Vita Plus Corp., Madison, Wisconsin
1997  D. E. Dill, Dairy Strategies, Mendota Heights, MN
1998  C. M. Luhman, Land O’lakes Research Farm, Webster City, IA
1999  Not Given
2000  D. L. Hancock, Elanco Animal Health, Greenfield, IN
2001  J. M. Lynch, Heartland Cattle Co., McCook, NE
2002  Not Given
2003  J. M. Campbell, APC, Inc., IA
2004  D. M. Webel, United Feeds, IN
2005  T. A. Rathje, Danbred North America, Columbus, NE
2006  T. E. Sauber, Pioneer, A Dupont Company
2007  M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008  J. C. Woodworth, Lonza Inc.

PAST WINNERS OF INVITATIONAL
COMPETITIVE RESEARCH PAPER AWARDS

UNDERGRADUATE STUDENTS - ORAL
1987  R. E. Raw, University of Missouri
1988  J. A. Ragains, University of Missouri
1989  G. L. Ambrose, South Dakota State University
1990  C. N. Kemper, University of Missouri
1991  T. R. Eberle, North Dakota State University
1992  B. J. MacDonald, North Dakota State University
1993  B. L. Dunn, Kansas State University
1994  S. M. Nelson, University of Nebraska
1995  L. J. Trinity, Iowa State University
1996  M. E. Cunningham, Oklahoma State University
1997  C. E. Sorenson, South Dakota State University
1998  J. L. Strickland, University of Nebraska
1999  B. A. DeMontigny, North Dakota State University
2000  K. S. Freise, University of Illinois
2001  K. R. Nollette, University of Nebraska
2002  B. Meyer, University of Nebraska
2003  A. Harvey, South Dakota State University
2004  L. H. Bach, Michigan State University
2005  A. M. Meyer, Michigan State University
2006  L. D. Holmes, Southern Illinois University
       R. Schnobrich, University of Minnesota
2007  B. H. Godsey, Kansas State University
2008  B. L. Varnes, Michigan State University

GRADUATE STUDENTS - ORAL

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

2007  P. L. Nester, North Dakota State University*
      N. DiLorenzo, University of Minnesota**
2008  N. R. Bork, North Dakota State University*
      B. A. Peterson, University of Illinois**

*M.S. Division
**Ph.D. Division

PAST WINNERS OF UNDERGRADUATE
CONTEMPORARY ISSUES COMPETITION

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

YOUNG DAIRY SCHOLARS

2006  B. J. Bradford, Michigan State University
      N. Litherland, University of Illinois
      W. Miller, Kansas State University
      R. Rastani, University of Wisconsin
2007  M. Abdelqader, South Dakota State University
      D. B. Carlson, University of Illinois
      M. Carriquiry, University of Minnesota
      M. Geha, University of Nebraska
      N. A. Janovick-Guretzky, University of Illinois
      D. H. Kleinschmit, South Dakota State University
      E. D. Reid, University of Illinois
      P. J. Ross, Michigan State University
2008  A. Bettegowda, Michigan State University
      J.M. Bewley, Purdue University
      E.L. Karcher, Iowa State University
      K.M. Moyes, University of Illinois
      B. W. Pamp, South Dakota State University
      M. L. Raeth-Knight, University of Minnesota
<table>
<thead>
<tr>
<th>Year</th>
<th>President</th>
<th>Institution</th>
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<tr>
<td>1963</td>
<td>O. G. Bentley</td>
<td>University of Illinois</td>
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<tr>
<td>1964-65</td>
<td>R. H. Grummer</td>
<td>University of Wisconsin</td>
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<td>1966-67</td>
<td>G. R. Johnson</td>
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<td>1968</td>
<td>R. J. Meade</td>
<td>University of Minnesota</td>
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<td>1969</td>
<td>J. A. Hoefer</td>
<td>Michigan State University</td>
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<td>1970-71</td>
<td>W. E. Dinusson</td>
<td>North Dakota State University</td>
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<tr>
<td>1972</td>
<td>J. F. Lasley</td>
<td>University of Missouri</td>
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<td>1973</td>
<td>U. S. Garrigus</td>
<td>University of Illinois</td>
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<td>1974-75</td>
<td>V. C. Speer</td>
<td>Iowa State University</td>
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<td>1976</td>
<td>H. S. Teague</td>
<td>The Ohio State University</td>
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<td>1977</td>
<td>R. M. Luther</td>
<td>South Dakota State University</td>
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<td>1978</td>
<td>B. N. Day</td>
<td>University of Missouri</td>
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<td>1979-80</td>
<td>D. R. Zimmerman</td>
<td>University of Nebraska</td>
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<td>1981</td>
<td>A. L. Pope</td>
<td>University of Wisconsin</td>
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<td>R. D. Goodrich</td>
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<td>E. R. Miller</td>
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<td>W. R. Woods</td>
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<td>1985</td>
<td>L. R. Corah</td>
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<td>B. D. Moser</td>
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<td>S. E. Curtis</td>
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<td>R. G. Zimbelman, D. J. Meisinger</td>
<td>Indiana</td>
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<td>1989</td>
<td>T. J. Klopfenstein</td>
<td>University of Nebraska</td>
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<td>J. R. Romans</td>
<td>South Dakota State University</td>
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<td>1991</td>
<td>J. E. Pettigrew</td>
<td>University of Minnesota</td>
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<td>1992</td>
<td>C. E. Sasse</td>
<td>Cenex/Land O’Lakes</td>
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<td>1993</td>
<td>M. G. Hogberg</td>
<td>Michigan State University</td>
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<td>1994</td>
<td>G. L. Allee</td>
<td>University of Missouri</td>
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<td>1995</td>
<td>S. K. Webel</td>
<td>Purina Mills, Bloomington, IL</td>
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<td>1996</td>
<td>D. L. Meeker</td>
<td>National Pork Producers Council, Des Moines, IA</td>
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<td>1997</td>
<td>T. S. Stahly</td>
<td>Iowa State University</td>
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<td>R. P. Lemenager</td>
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<td>1999</td>
<td>S. P. Ford</td>
<td>Iowa State University</td>
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<td>2000</td>
<td>J. R. Males</td>
<td>Oregon State University</td>
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<td>2001</td>
<td>M. L. Day</td>
<td>The Ohio State University</td>
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<td>2002</td>
<td>R. K. Johnson</td>
<td>University of Nebraska</td>
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<td>2003</td>
<td>C. L. Ferrell</td>
<td>USDA, Clay Center</td>
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<td>2004</td>
<td>G. C. Shurson</td>
<td>University of Minnesota</td>
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<td>2005</td>
<td>A. L. Grant</td>
<td>Purdue University</td>
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<td>2006</td>
<td>D. L. Hancock</td>
<td>Elanco Animal Health, Greenfield, IN</td>
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<td>2007</td>
<td>R. L. Moser</td>
<td>JBS United, Inc., Sheridan, IN</td>
</tr>
<tr>
<td>2008</td>
<td>M. K. Nielsen</td>
<td>University of Nebraska</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
FUTURE MEETINGS

2010  March 15–17