Forty-fourth MEETING

Midwestern Sectional Scientific Sessions and Business Meeting

March 14–16, 2011

Polk County Convention Complex
501 Grand Avenue
Des Moines, IA 50309
AMERICAN SOCIETY OF ANIMAL SCIENCE

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University of Nebraska, Lincoln

Dr. Wendy J. Powers, ASAS/ADSA Director-at-Large
Michigan State University, East Lansing
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REGISTRATION
Convention Center, Lobby
Monday, March 14, 8:30 am – 7:30 pm
Tuesday, March 15, 7:00 am – 4:00 pm
Wednesday, March 16, 9:00 am – 11:00 am

Before February 24 After February 24
ASAS/ADSA Member $120 $170
Undergraduate Student $20 $20
Graduate Student Member $40 $60
Postdoctoral Fellow Member $50 $70
ASAS/ADSA Fellow Free Free
*Nonmember (ASAS Membership) $255 $305
**Nonmember (ADSA Membership) $230 $280
*Graduate Student Nonmember (ASAS) $60 $80
**Graduate Student Nonmember (ADSA) $50 $70
*Postdoctoral Fellow Nonmember (ASAS) $115 $135
**Postdoctoral Fellow Nonmember (ADSA) $105 $125

*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 24, 2011. No refunds will be issued on ticketed events.

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

Registration and housing forms can be found on the web.
e-Career Tool and the Job Resource Center

The ASAS Midwestern Section and ADSA Midwest Branch are pleased to use the “E-Career Tool”. This tool facilitates communication between employers and potential employees prior to the 2011 ASAS/ADSA Midwest Meeting by making it easier to arrange contact in Des Moines. The tool will be available February 1 to April 15 and will be located at the following address: http://www.asas.org/ecareer/index.asp?id_meeting=13.

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

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

Continuing in 2011: The traditional Job Resource Center will be located in the Exhibit Hall, Room 206, at the Polk County Convention Complex. Sign-up sheets for making “connections” and instructions for use of the Placement Center will be posted.

Students, graduates and experienced professionals are encouraged to post résumés at the Job Resource Center. Professionals from hundreds 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 in Des Moines beginning at noon on Monday, March 14, 2011.
SCHEDULE OF EVENTS

Monday, March 14

7:30 am  2011 Breakfast to kick off AQ Activities, Polk County Convention Complex, 205 D
8:00 am  AQ Written Exams, Polk County Convention Complex
8:30 am  ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
9:00 am  AQ Quiz Bowl Preliminary Rounds, Polk County Convention Complex
1:00 pm  David H. Baker Amino Acid Symposium, 204 FG
12:00 pm Graduate Student Competitive Research Papers, M.S. Oral Division, 142-144
12:30 pm Graduate Student Competitive Research Papers, Ph.D. Oral Division, 136-138
1:00 pm  Animal Pain — The Science and the Issues, 204 AB
1:00 pm  Undergraduate Student Competitive Research Papers, Oral Division, 146-148
1:00 pm  Enhancement of Student Learning using Activities Outside of the Classroom, 140
4:30 pm  Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
5:30 pm  Reception, Convention Center Complex, Exhibit Hall, Room 206
7:00 pm  Keynote Speaker: Mark Mayfield, 204 FG
7:30 pm  Final AQ Quiz Bowl Competition and Awards Presentation, Polk County Convention Complex, 204 FG

Tuesday, March 15, morning

6:30 am  Program Committee Meeting, Renaissance Savery Hotel
6:30 am  Graduate Student Involvement Discussion, 205D
8:00 am  Breeding and Genetics, 136-138
8:00 am  Billy N. Day Symposium: The Replacement Gilt, 204 FG
8:00 am  Role of Adipose Tissue in Skeletal Muscle, 140
8:00 am  Extension Swine, 142-144
8:00 am  Ruminant Nutrition: By-product Utilization (Distillers Grains), 146-148
8:00 am  Tips on How to Navigate the Job Search and Interview Process for Animal Science Students, 205D
8:00 am  Nonruminant Nutrition, Amino Acids, 204 AB
8:00 am  Extension – Dairy, 134
9:00 am  Graduate Student Breakfast and Learn: This event is open to all undergraduate and graduate students. Join us for an informal discussion with a diverse panel of industry and academic professionals about finding and attaining a career that fits you, your interests and your skills. 205D There will be a $5.00 charge at the door.
9:00 am  Excess Dietary Nitrogen-Effects on Metabolism, Productivity, the Environment and Future Regulations Symposium, 142-144
9:30 am  Nonruminant Nutrition, Nursery Nutrition, 205 IJ
10:15 am Nonruminant Nutrition, Minerals, 204 AB
11:30 am  Box Lunch, Convention Center Complex, Exhibit Hall
A box lunch will be served in the Exhibit Hall for those individuals who
ordered and paid for it on the registration form. (Ticket will be with
badge.)

Tuesday, March 15, afternoon

1:00 pm  Using Computerized Tools in Dairy Management, 134
1:00 pm  The Genetics of Disease Resistance Symposium, 136-138
1:00 pm  Growth, Development, Muscle Biology and Meat Science, 140
1:00 pm  Nonruminant Nutrition, Co-product Feedstuffs, 142-144
1:00 pm  Symposium: Beef Cattle Reproduction Management NCERA-087 Beef
         Cow-Calf Nutrition and Management, 146-148
1:00 pm  Nonruminant Nutrition, Quantifying Feed Ingredient Quality, 204AB
1:00 pm  Physiology Symposium: Factors Influencing Female Reproductive
         Efficiency, 204 FG
1:00 pm  Ruminant Nutrition I, 205 IJ
4:30 pm  Poster Presentations, Convention Center Complex, Exhibit Hall, Room
         206
5:30 pm  Reception, Convention Center Complex, Exhibit Hall, Room 206

Wednesday, March 16, morning

6:45 am  Breakfast, Business Meeting, Awards Program, Convention Center
         Complex, Exhibit Hall, Room 206
9:00 am  Physiology, 140
9:00 am  Controlling Infectious Claw Lesions with Footbaths and Potential
         Environmental Implications, 136-138
9:00 am  Nonruminant Nutrition, Energy, 204 AB
9:00 am  Ruminant Nutrition II, 204 FG
9:00 am  Nonruminant Nutrition, Feed and Water Additives, 205 IJ
12:00 pm ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel

Camera, Video Camera, and Cell Phone Policy
Use of cameras, video cameras, and cell phones (for calls or as cameras) is
prohibited during oral and poster presentations to minimize disruption and
unauthorized dissemination of data. Violators may be asked to leave the session/
conference. Exceptions to this policy must be approved in advance by Midwest
ASAS Secretary.
Poster Schedule

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

Monday, March 14
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

Animal Behavior, Housing and Well Being
Breeding and Genetics
Odor and Nutrient Management
Physiology
Teaching

Tuesday, March 15
All authors present from 4:30 pm – 6:00 pm

Extension – Beef/Small Ruminant
Extension – Swine

Growth, Development, Muscle Biology and Meat Science
Nonruminant Nutrition
Ruminant Nutrition
A SPECIAL THANK YOU

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2011 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, Ph.D. – Akey
- Graduate Poster, M.S. – Cargill Animal Nutrition
- Graduate Poster, Ph.D. – Cargill Animal Nutrition
- Undergraduate Oral – Ralco Nutrition Inc.
- Undergraduate Poster – ADSA ASAS MW Board

**The Tim S. Stahly Outstanding Swine Nutrition Midwest Graduate Student Award**
- The Tim S. Stahly Memorial and Tribute Fund
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Pig Improvement Company Inc.
Ralco Nutrition Inc.
Zinpro Performance Minerals

Bronze Level
Agri-King Inc.
BASF Corporation Animal Nutrition
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Iowa State University
Prince Agri Products Inc.
PREPARATION GUIDELINES FOR ORAL PRESENTATIONS

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

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

1. PRE-MEETING UPLOAD

We will once again be offering presenters the ability to upload presentation files in advance of the meeting. Avoid the on-site rush and upload your presentation on your own schedule. The Web site is available 24 hours a day from now until **11:59 pm CDT on March 7, 2011** at:


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

   http://www.fass-abstracts.org/invited_papers/?meetingcode=178

2. ON-SITE UPLOAD

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

   All **Monday** presentations will need to be submitted by Monday at 10:00 am
   All **Tuesday** presentations will need to be submitted by Monday at 5:00 pm
   All **Wednesday** presentations will need to be submitted by Tuesday at 4:00 pm

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

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

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

   **No presentations will be loaded while the session is in progress, between presentations, or during breaks.**
### Monday, March 14

#### SYMPOSIA AND ORAL SESSIONS

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
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<tbody>
<tr>
<td>12:15 PM</td>
<td>82</td>
<td>Optimal dietary methionine to methionine plus cysteine ratio is</td>
<td>N. Litvak*, A. Rakhshandeh*, J. Htoo, and C. F. M. de Lange</td>
<td>University of Guelph, Guelph, ON, Canada, Evonik Degussa GmbH, Hanau, Germany.</td>
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<td>increased during immune system stimulation in growing pigs.</td>
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<td>12:30 PM</td>
<td>83</td>
<td>Granulated lysozyme as an alternative to antibiotics improves</td>
<td>K. D. May*, J. E. Wells, C. V. Maxwell, and W. T. Oliver</td>
<td>University of Arkansas, Fayetteville, USDA, ARS, U.S. Meat Animal Research</td>
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<td>growth performance and small intestinal morphology of 10-day-old</td>
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<td>Center, Clay Center, NE.</td>
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<td>pigs.</td>
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<tr>
<td>12:45 PM</td>
<td>84</td>
<td>BVDV2 titer level relationships with growth and body composition</td>
<td>E. D. Downey*, E. C. Conrad, K. K. Lintz, J. F. Ridpath, R. G. Tait,</td>
<td>Iowa State University, Ames, National Animal Disease Center/ARS/USDA, Ames,</td>
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<td>traits in Angus calves.</td>
<td>Jr.*, D. J. Garrick, and J. M. Reecy</td>
<td>IA.</td>
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<tr>
<td>1:00 PM</td>
<td>85</td>
<td>Economic analysis of smooth bromegrass pasture beef growing</td>
<td>A. K. Watson*, T. J. Klopfenstein, G. E. Erickson, W. H. Schacht, and D.</td>
<td>University of Nebraska, Lincoln.</td>
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<td>systems.</td>
<td>R. Mark</td>
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<td>carcass characteristics, and economics.</td>
<td>Retallick</td>
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<tr>
<td>1:30 PM</td>
<td>87</td>
<td>Relationship between litters per sow per year breeding value and</td>
<td>C. E. Abell*, K. J. Stalder, and J. W. Mabry</td>
<td>Iowa State University, Ames.</td>
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<td>sire progeny means for farrowing rate.</td>
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<td>1:45 PM</td>
<td>88</td>
<td>Evaluating the procedures used for digestibility studies of minerals with grower pigs.</td>
<td>D. W. Gowenlock* and D. C. Mahan, The Ohio State University, Columbus.</td>
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<tr>
<td>2:00 PM</td>
<td>89</td>
<td>Thermal response of lactating sows within forced-air (FA)</td>
<td>W. R. Martin*, D. J. Mathew, T. J. Safranski, D. E. Spiers, and M. C.</td>
<td>University of Missouri, Columbia.</td>
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<td>ventilated and evaporatively-cooled (EC) farrowing rooms.</td>
<td>Lucy</td>
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Effects of supplementing dried distillers grains with solubles to heavy, yearling stocker cattle during the last 90 days of grazing to improve performance and carcass characteristics when utilizing a short feeding protocol. A. Stickel*, T. Houser, J. Drouillard, K.C. Olson, A. Pacheco, M. Macek, G. Parsons, K. Miller, L. Thompson, M. Dikeman, J. Unruh, and D. Blasi, Kansas State University, Manhattan.

Optimum dietary isoleucine and lysine levels in a barley-wheat based starter pig diet. L. Huber*1, J.K. Htoo2, D. Wey1, C.H. Zhu1, and C.F.M. de Lange3, 1University of Guelph, Guelph, ON, Canada, 2Evonik Degussa GmbH, Hanau, Germany.

Association of myostatin on weight, intake, and carcass traits in crossbred steers adjusted to different endpoints. S. K. Pruitt*, K. M. Rolfe, B. L. Nuttelman, W. A. Griffin, J. R. Benton, G. E. Erickson, D. C. Ciobanu, and M. L. Spangler, University of Nebraska, Lincoln.

Effect of crossfostering on survival and growth of swine in finishing. J. A Bishop*1, J. P Cassady1, J. W Holl2, W. O. Herring2, M. S. Culbertson2, and M. T. See1, 1North Carolina State University, Raleigh, 2Smithfield Premium Genetics, Rose Hill, NC.


The effects of alternative housing methods on gestating sow welfare. S. J. Gasca*1, A. E. Dedecker2, J. L. Salak-Johnson2, P. M. Walker1, and A. R. Hanson1, 1Illinois State University, Normal, 2University of Illinois, Urbana.

Effect of inclusion of a Saccharomyces cerevisiae fermentation product in feedlot diets with two different sulfur concentrations. D. M. Paulus*1, J. P. Jaderborg1, C. Belknap2, G. I. Crawford1, and A. DiCostanzo1, 1University of Minnesota, Saint Paul, 2Diamond V Mills, Cedar Rapids, IA.

Effects of deleting crystalline amino acids from low-CP, amino acid-fortified diets and dietary valine:lysine ratio for nursery pigs from 6.8 to 11.3 kg. J. E. Nemechek*1, M. D. Tokach1, S. S. Dritz1, R.D. Goodband1, J. M. DeRouchey1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2Ajinomoto Heartland, LLC, Chicago, IL.

Response by the modern lactating sow and progeny to source and level of supplemental dietary fat. D. S. Rosero*1, E. van Heugten1, J. Odle1, and R. D. Boyd2, 1North Dakota State University, Department of Animal Sciences, Raleigh, 2Hanor Company, Inc., Franklin, KY.

4:45 PM 100 Effects of dietary tallow and DDGS on pork fat quality. 
J. M. Pomereneke*, G. C. Shurson1, S. K. Baidoo2, and L. J. Johnston3, 1University of Minnesota, St. Paul, 2Southern Research and Outreach Center, Waseca, MN, 3West Central Research and Outreach Center, Morris, MN.

Graduate Student Oral Competition-Ph.D.
Chair: Alfredo DiCostanzo, University of Minnesota
136 – 138
Sponsored by: Akey

12:30 PM 101 Effect of sow omega-3 fatty acid supplementation on growth performance of piglets from low birth weight litters.
M. N. Smit*, J. D. Spencer2, S. A. Crowder1, J. L. Patterson1, F. Aarsse1, and G. R. Foxcroft1, 1University of Alberta, Edmonton, AB, Canada, 2JBS United Inc., Sheridan, IN.

12:45 PM 102 Meta-analyses to improve prediction of pork carcass fat quality.

1:00 PM 103 Enterosorption therapy provided by Calibrin-Z when pigs were fed low zearalenone concentrations. J. P. Wang*, I. H. Kim1, S. W. Choi2, J. Broomhead1, and F. Chi1, 1Dankook University, Department of Animal Resource & Science, Cheonan, Choongnam, South Korea, 2CTCBio, Seoul, South Korea, 3Amlan International, Chicago, IL.

1:15 PM 104 Effects of including low fat dried distillers grains in finishing diets on feedlot performance and carcass characteristics of beef steers.
J. M. Kelzer*, J. M. Popowski1, S. Bird2, R. Cox1, G. I. Crawford3, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2University of Minnesota, North Central Research and Outreach Center, Grand Rapids, 3University of Minnesota Extension, Hutchinson.


1:45 PM 106 Effects of corn dried distillers grains with solubles (DDGS) on diet digestibility and slurry output from gestating sows. X. J. Li*, S. K. Baidoo2, G. C. Shurson1, and L. J. Johnston3, 1University of Minnesota, Saint Paul, 2Southern Research and Outreach Center, Waseca, MN, 3West Central Research and Outreach Center, Morris, MN.

2:00 PM 107 Effects of dietary clays on diarrhea of weaned pigs experimentally infected with a pathogenic E. coli. M. Song*, Y. Liu1, J. A. Soares1, T. M. Che1, O. Osuna2, C. W. Maddox1, and J. E. Pettigrew1, 1University of Illinois, Urbana, 2Milwhite, Inc., Brownsville, TX.
Effect of heat stress on oxidative stress status and reproductive performance of sows. Y. Zhao*1, W. L. Flowers1, A. Saraiva1,2, K.-J. Yeum1, and S. W. Kim1, 1North Carolina State University, Raleigh, 2Universidade Federal de Viçosa, Viçosa, MG, Brazil, 3Tufts University, Boston, MA.

Immunological status and metabolite profile of newborn dairy calves when respective dams were fed a stepwise moderate energy diet or a controlled energy diet during the dry period. J. S. Osorio*1, P. Ji1, G. Invernizzi1,2, J. K. Drackley1, and J. J. Loor1, 1University of Illinois, Urbana, 2University of Milan, Milan, Italy.

Effects of haylage and monensin on ruminal metabolism of cattle fed 60% DDGS diets. T. L. Felix* and S. C. Loerch, The Ohio State University, Wooster.

Crystalline amino acid inclusion in a reduced-crude protein diet increases mammary arginine and lysine apparent utilization and maintains sow performance independently of amino acid transporter gene expression. R. Manjarin*1, V. Zamora2, G. Wu3, N. Am-in1, J. P. Steibel1, R. N. Kirkwood1, N. P. Taylor1, J. Liesman1, K. Trifilo1, and N. L. Trotter1, 1Michigan State University, East Lansing, 2Colegio de Postgraduados, Montecillo, Mexico, 3Chulalongkorn University, Bangkok, Thailand, 4Texas A&M University, College Station.

Genetic parameters and markers associated with viremia and growth in pigs infected with porcine reproductive and respiratory virus. N. Boddicker*1, D. J. Garrick1, J. M. Recy1, B. Rowland2, M. F. Rothschild1, J. P. Steibel1, J. K. Lunney1, and J. C. M. Dekkers1, 1Iowa State University, Ames, 2Kansas State University, Manhattan, 3Michigan State University, East Lansing, 4USDA, ARS, BARC, Beltsville, MD.

Maternal exercise alters fetal amino acids in pigs. T. A. Wilmoth*1, E. K. Harris2, T. L. Neville2, E. P. Berg2, K. A. Vonnahme2, and M. E. Wilson1, 1West Virginia University, Morgantown, 2North Dakota State University, Fargo.


Irrespective of differences in weaning weight, feed efficiency is not different among pigs with varying average daily gain. C. K. Jones*, N. K. Gabler, R. G. Main, and J. F. Patience, Iowa State University, Ames.

Reproductive performance of sows is affected by the dietary omega-6 to omega-3 fatty acid ratio. L. Eastwood*1,2, P. Leterme1, and A. D. Beaulieu1,2, 1Prairie Swine Centre Inc, Saskatoon, SK, Canada, 2University of Saskatchewan, Animal and Poultry Science, Saskatoon, SK, Canada, 3Cargill R & D Centre Europe, Havenstraat, Vilvoorde, Belgium.
Animal Behavior, Housing, & Well Being
Animal Pain - The Science and the Issues
Chair: Suzanne Millman, Iowa State University
204 AB
Sponsored by: Boehringer Ingelheim Vetmedica Inc.
Sponsored by: Pig Improvement Company Inc.

1:00 PM 1 (Invited) Animal pain, animal welfare and animal production - what’s on the horizon? S. Millman*, Iowa State University, Ames.

1:45 PM 2 (Invited) Physiological, behavioral and neurological approaches to studying pain in cattle. L. N. Edwards*, J. F. Coetzee, and L. Bergamasco, Kansas State University, Department of Animal Science and Industry, Manhattan, Kansas State University, College of Veterinary Medicine, Manhattan.


2:45 PM 4 (Invited) Surgical procedures in swine. T. M. Widowski*, K. Bovey, and S. Torrey, University of Guelph, Guelph, ON, Canada, Agriculture and Agri-Food Canada, Guelph, ON, Canada.

3:15 PM Break.


4:00 PM 6 (Invited ASAS Animal Science Young Scholar) The impact of environmentally enriched housing on sow motivation, behavior and well-being. M. R. P. Elmore*, J. P. Garner, A. K. Johnson, R. D. Kirkden, B. T. Richert, and E. A. Pajor, Purdue University, West Lafayette, IN, Iowa State University, Ames, University of Cambridge, Cambridge, United Kingdom, University of Calgary, Calgary, AB, Canada.


5:00 PM 8 (Invited ASAS Animal Science Young Scholar) Assessment of sow fear, parity and season on piglet mortality in loose farrowing systems. C. E. Phillips*, Y. Z. Li, J. E. Anderson, L. J. Johnston, G. C. Shurson, and J. Deen, University of Minnesota, St. Paul, West Central Research and Outreach Center, Morris, University of Minnesota, Morris, College of Veterinary Medicine, St. Paul, MN.
David Baker Symposium - Invited Papers Only
Amino Acid Symposium
Chair: Ryan Dilger, University of Illinois
204 FG
Sponsored by: David H. Baker Appreciation Club ASAS Foundation

1:00 PM  
Introduction.  
R. N. Dilger.

1:05 PM  45  
(Invited) Nitrogen-containing nutrients and the developing infant.  
P. Anderson*, *Abbott Nutrition, Columbus, OH.

1:40 PM  46  
(Invited) Utilization of threonine by non-ruminant animals.  
O. Adeola*, Purdue University, West Lafayette, IN.

2:15 PM  47  
Amino acid digestibility and concentration of digestible and metabolizable energy in a threonine co-product fed to weanling pigs.  

2:30 PM  
Break.

2:45 PM  48  
(Invited) Exogenous enzymes and amino acid digestibility.  
A. J. Cowieson*, University of Sydney, Australia.

3:20 PM  49  
Effect of a multi-carbohydrase enzyme on apparent and standardized ileal amino acid digestibility in extruded full fat soybeans fed to finishing pigs.  
D. Ayoade*, E. Kiarie, B. Slominski, and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada.

3:35 PM  50  
(Invited) Amino acid requirements of modern sows.  
R. O. Ball*, University of Alberta, Edmonton, AB, Canada.

4:10 PM  51  
Influence of dietary L-arginine supplementation to sows during late gestation on sow and litter performance during lactation.  

4:25 PM  
Discussion.

Teaching
Enhancement of Student Learning using Activities Outside of the Classroom
Chair: Sylvia Kehoe, University of Wisconsin
140
Sponsored by: Boehringer Ingelheim Vetmedica Inc.

1:00 PM  337  
(Invited) Research-based approaches to developing effective teaching skills.  E. Offerdahl*, North Dakota State University, Fargo.
1:40 PM (Invited) Generational changes (how do different generations of students learn). L. C. Martin.

2:20 PM (Invited) Innovative approaches to teaching critical thinking skills. S. Kelm, University of Wisconsin, River Falls.

3:00 PM (Invited) Teaching techniques for enhancing the learning experience of today’s students: Engaging Students. D. S. Buchanan*, North Dakota State University, Fargo.

3:40 PM (Invited) Employer perspective: What skills should animal and dairy science programs be training their students? D. Lemmon, Land O’Lakes Purina Feeds.


Undergraduate Student Oral Competition
Chair: Ernie Minton, Kansas State University
146 – 148
Sponsored by: Ralco Nutrition Inc.

1:00 PM 340 QTL mapping of coat color traits in an F2 Duroc x Pietrain pig resource population. C. Pike*, R. O. Bates, C. W. Ernst, J. P. Steibel, and D. B. Edwards, Michigan State University, East Lansing.

1:15 PM 341 Effects of gestational energy source on feedlot performance, glucose tolerance, and carcass traits of progeny. L. M. Shoup*, T. L. Felix¹, A. E. Radunz², and S. C. Loerch³,¹The Ohio State University, Wooster, ²University of Wisconsin, Madison.


1:45 PM 343 Analytical and experimental procedure to select reference genes for qPCR normalization data. N. P. Taylor*, R. Manjarin, N. L. Trottier, J. Liesman, and J. P. Steibel, Michigan State University, East Lansing.


2:45 PM 347 Effects of feeding steam-flaked corn, dry-rolled corn, and wet distillers grains plus solubles on variance in cattle intake.

20 Monday PM
POSTER PRESENTATIONS

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

Undergraduate Student Poster Competition
Chair: Ernie Minton, Kansas State University

Sponsored by: ADSA ASAS MW Board

354  RN  Effects of yeast source and viability on acidity and cellulose digestion by rumen fluid in vitro.  C. E. Owens*1 and F. N. Owens2, 1Des Moines Area Community College, Des Moines, IA, 2Pioneer Hi-Bred International, Johnston, IA.
Effects of corn addition to fiber-based supplements on growing cattle performance and forage digestion. S. J. Morine*, M. E. Drewnoski, and S. L. Hansen, Iowa State University, Ames.


Glucose meter accuracy when used on dairy calves. M. R. Stafne* and S. I. Kehoe, University of Wisconsin, River Falls.

Animal Behavior, Housing, & Well Being
Chair: Suzanne Millman, Iowa State University
206
Sponsored by: Zinpro Performance Minerals

Animal-related factors affecting piglet mortality in loose farrowing systems. Y. Z. Li*1, J. E. Anderson2, and L. J Johnston1, 1University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota, Morris.


A comparison of using pen versus individual sow as the experimental unit when evaluating data from sow housing studies. A. R. Hanson*, A. E. DeDecker2, J. L. Salak-Johnson2, and P. M. Walker1, 1Illinois State University, Normal, 2University of Illinois, Urbana.

Comparison of CO$_2$ versus mixed CO$_2$:Argon gas at different flow rates using the Smart Box euthanasia device as a humane and effective method of piglet euthanasia. L. Sadler*, C. Hagen1, C. Wang1, and S. Millman1, 1Iowa State University, Veterinary Diagnostic and Production Animal Medicine, Ames, 2Value-Added Science and Technologies, Ames.

Impact of floor space on the grow-finish performance of barrows and gilts in a commercial facility. C. M. Shull*, M. Ellis1, B.A. Peterson2, B. F. Wolter2, R. Bowman2, C. M. Peterson2, C. L. Puls1, L. Ochoa1, and B. W. Isaacson2, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.
Impact of reduced floor space on the growth response of pigs of two live weights. C. M. Shull*1, M. Ellis1, B.A. Peterson2, B. F. Wolter2, and C. M. Peterson2, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.

Effect of large group size and timing of formation of large groups on the wean-to-finish growth performance and carcass characteristics of pigs housed in a commercial facility. C. M. Shull*1, M. Ellis1, B.A. Peterson2, B. F. Wolter2, R. Bowman2, C. M. Peterson2, and L. Ochoa1, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.

Head-only followed by cardiac arrest electrical stunning is an effective alternative to head-only electrical stunning in pigs. K. D. Vogel*1,2, G. Badtram3, J. R. Claus4, T. Grandin2, S. Turpin4, R. E. Weyker4, and E. Voogd5, 1University of Wisconsin, Department of Animal and Food Science, University of Wisconsin - River Falls, River Falls, 2Colorado State University, Department of Animal Sciences, Fort Collins, 3Wisconsin Department of Agriculture, Trade, and Consumer Protection, Division of Food Safety, Madison, 4University of Wisconsin, Department of Animal Sciences, Madison, 5Voogd Consulting, Inc., West Chicago, IL.

Objective pain assessment in sows with induced transient lameness. K. Tapper*1, A. Johnson2, L. Karriker3, K. Stalder2, J. Coetzee4, R. Parsons1, and S. Millman1,3, 1Iowa State University, Department of Biomedical Sciences, Ames, 2Iowa State University, Department of Animal Sciences, Ames, 3Iowa State University, Department of Veterinary Diagnostic and Production Animal Medicine, Ames, 4Kansas State University, College of Veterinary Medicine, Manhattan.

Breeding and Genetics
Chair: Justin Holl, Smithfield Premium Genetics
206
Sponsored by: Zinpro Performance Minerals

Genome-wide association study for puberty onset and lifetime productivity in sows. J. K. Tart*1, N. N. Ferdinand1, S. D. Kachman1, A. M. McKnite1, X. Wang2, P. S. Miller1, R. K. Johnson1, and D. C. Ciobanu1, 1University of Nebraska, Lincoln, 2University of Tennessee Health Science Center, Memphis.

Differential response to infection in an experimental challenge with porcine circovirus 2b. T. Bohnert*1, A. McKnite1, J. Galeota1, T. Moural1, S. Harris1, S. Brewer1, X. Wang2, M. Rothschild1, S. Kachman1, R. Johnson1, and D. Ciobanu1, 1University of Nebraska, Lincoln, 2University of Wyoming, Laramie, 3University of Tennessee Health Science Center, Memphis, 4Iowa State University, Ames.

Population structure of the American Simmental breed.
L. Whitacre and M. L. Spangler*, University of Nebraska, Lincoln.

An iterative approach for efficient calculation of breeding values and genome-wide association analysis using weighted genomic BLUP.
<table>
<thead>
<tr>
<th>No.</th>
<th>Code</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>117</td>
<td>GDM</td>
<td>Low-fat wet distillers grains and beef quality.</td>
<td>Ad H. Haack*, C. Calkins¹, A. de Mello Jr.¹, S. Pokharel¹, L. Senaratne¹, J. Hergenreder¹, K. Varmond¹, T. Carr¹, G. Erickson¹, and D. Johnson²</td>
<td>University of Nebraska, Lincoln, ¹University of Florida, Gainesville.</td>
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<tr>
<td>119</td>
<td>PHY</td>
<td>Uterine expression of Na⁺/H⁺ antiporters 1, 2, and 4 in beef cows from 60 to 96 hours following CIDR removal.</td>
<td>J. K. Grant* and G. A. Perry</td>
<td>South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>120</td>
<td>NR</td>
<td>Effects of increasing PEP-NS on nursery pig performance.</td>
<td>A. J. Myers*, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, J. M. DeRouchey¹, J. L. Nelissen¹, B. W. Ratliff², D. McKilligan², G. Xu³, and J. Moline³</td>
<td>Kansas State University, Manhattan, ²Tech Mix Inc., Stewart, MN, ³Midwest Ag Enterprises, Marshall, MN.</td>
</tr>
<tr>
<td>123</td>
<td>PHY</td>
<td>Effect of ewe body condition during mid to late gestation on progeny mammary epithelial cell proliferation.</td>
<td>K. E. Boesche*, A. L. Hunter, K. M. O’Diam, S. C. Loerch, and K. M. Daniels</td>
<td>The Ohio State University, Ohio Agricultural Research and Development Center, Wooster.</td>
</tr>
</tbody>
</table>
An assessment of four components of sow lifetime nonproductive days on high-, intermediate- and low-performance commercial breeding farms. Y. Sasaki* and Y. Koketsu, Meiji University, Kawasaki, Kanagawa, Japan.

Effects of plant extracts on cytokine production of porcine alveolar macrophages. Y. Liu*1, T. M. Che1, D. Bravo2, and J. E. Pettigrew1, 1University of Illinois, Urbana, 2Pancosma SA, Geneva, Switzerland.

Circulating concentrations of progesterone in ovariectomized beef heifers receiving a new, once-used, or twice-used CIDR for 5 days. P. J. Gunn*1 and G. A. Bridges2, 1Purdue University, West Lafayette, IN, 2University of Minnesota, Grand Rapids.

Efficacy of yeast based feed additives to reduce the effects of chronic exposure to deoxynivalenol and zearalenone on internal organ health of pigs. A. C. Chaytor*1, M. T. See1, J. A. Hansen2,3, D. C. Kendall2, T. F. Middleton2, P. R. O’Quinn3, and S. W. Kim1, 1North Carolina State University, Raleigh, 2Murphy-Brown, LLC, Rose Hill, NC, 3Ag ProVision, LLC, Kenansville, NC, 4Prestage Farms, Inc, Clinton, NC.


Oxidation of U-13C-α-linolenic acid is low and independent of body weight and previous nutrition in pigs fed flaxseed containing diets. H. R. Martinez-Ramirez* and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.

Characterization of nucleotide and predicted amino acid sequence of a porcine Interleukin-1 beta (IL1B) variant expressed in elongated porcine embryos. D. J. Mathew*1, E. M. Newsom1, R. D. Geisert1, J. A. Green1, C. K. Tuggle2, and M. C. Lucy1, 1University of Missouri, Columbia, 2Iowa State University, Ames.
Evaluation of a commercial ozone treatment system to reduce swine slurry odor. A. R. Omer* and P. M. Walker, Illinois State University, Normal, IL.

Effects of estradiol-17β treatment on the specific activity of kallikrein in ovarioctomized ewes. L. A. Lekatz*,1 J. S. Haring2, C. O. Lemley1, G. P. Dorsam2, and K. A. Vonnahme1, 1North Dakota State University, Center for Nutrition and Pregnancy, Department of Animal Sciences, Fargo, 2North Dakota State University, Department of Chemistry and Biochemistry, Fargo.


Effects of dietary selenium and nutritional plane during gestation on placental size at term and serum growth hormone in ewe lambs during pregnancy and lactation. O. Lemley*,1 A. M. Meyer1, T. L. Neville1, D. M. Halford2, D. A. Redmer1, L. P. Reynolds1, J. S. Caton1, and K. A. Vonnahme1, 1North Dakota State University, Fargo, 2New Mexico State University, Las Cruces, NM.


Intracellular signaling cascades induced by relaxin in the stimulation of capacitation and acrosome reaction in fresh and frozen-thawed bovine spermatozoa. A. G. Miah*,1 U. Salma1, M. Höcker1, D. Tesfaye1, H. Tsuji1, and K. Schellander1, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2Shinshu University, Interdisciplinary Graduate School of Science and Technology, Nagano, Japan.
Successes and failures of outcome/assessment activities in animal sciences at Purdue University. M. A. Diekman*, Q. D. Ford, and M. E. Einstein, *Purdue University, West Lafayette, IN.

Tuesday, March 15

SYMPOSIA AND ORAL SESSIONS

Billy Day Symposium
The Replacement Gilt
Chair: Tim Safranski, University of Missouri

Sponsored by: Billy N. Day Appreciation Club ASAS Foundation
Sponsored by: JBS United Inc.

8:00 AM 19  (Invited) Genetics and development of replacement gilts. R. K. Johnson* and P. Miller, *University of Nebraska, Lincoln.


9:30 AM  Break.

9:45 AM 21  (Invited) Preweaning management of replacement gilts and sow longevity. W. L. Flowers*, *North Carolina State University, Raleigh.

10:30 AM 22  Danbred North America. T. T. Stumpf*, T. A. Rathje, and J. P. Sonderman, Danbred North America, Columbus, NE.

10:45 AM 23  Changes in the productivity of the PIC gilt. A. M. Williams and N. H. Williams*, *PIC North America, Hendersonville, TN.

11:00 AM 24  Gilt productivity based on her mother’s experiences. M. J. Estienne*, *Virginia Tech, Blacksburg.

11:15 AM  Panel Discussion.
Breeding and Genetics
Chair: Jennifer Minick Bormann, Kansas State University

8:00 AM 29 Persistence of accuracy of estimated breeding values in layers using marker and pedigree based relationship matrices. A. Wolc*1,2, J. Arango1, P. Settar2, J. E. Fulton3, N. P. O’Sullivan3, R. Preisinger4, D. Habier2, R. Fernando2, D. J. Garrick2, S. J. Lamont2, and J. C. M. Dekkers5, 1Department of Genetics and Animal Breeding, Poznan University of Life Sciences, Poznan, Poland, 2Iowa State University, Department of Animal Science, Ames, 3Hy-Line International, Dallas Center, IA, 4Lohmann Tierzucht GmbH, Germany.

8:15 AM 30 Accuracy of genomic EBV using an evenly spaced, low-density SNP panel in broiler chickens. C. Wang*1, D. Habier1, A. Kranis2, K. A. Watson2, S. Avendano2, D. J. Garrick1, R. Fernando1, S. J. Lamont1, and J. C. M. Dekkers1, 1Iowa State University, Department of Animal Science, Ames, 2Aviagen Ltd., Newbridge, United Kingdom.

8:30 AM 31 Accuracy of genomic prediction using a threshold model to analyze categorical traits in purebred and crossbred beef cattle populations. K. Kizilkaya*1,2, R. L. Fernando1, and D. Garrick1, 1Iowa State University, Ames, 2Adnan Menderes University, Aydin, Turkey.

8:45 AM 32 Accuracy of genomic breeding values in Hereford beef cattle using k-means clustering method for cross-validation. M. Saatchi*1, D. J. Garrick1, and J. Ward2, 1Iowa State University, Ames, 2American Hereford Association, Kansas City, MO.

9:00 AM 33 A genome-wide association study for perinatal suckling behavior in cattle. K. L. Parker*, J. P. Cassady, and C. Maltecca, North Carolina State University, Raleigh.


9:30 AM 35 Imputation of single nucleotide polymorphism genotypes of Hereford cattle: Reference panel size and relationship. Y. Huang*, C. Maltecca1, M. D. MacNeil2, V. L. Leesburg2, and J. P. Cassady1, 1North Carolina State University, Raleigh, 2USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT.

9:45 AM 36 Differences in hair coat shedding, and effects on calf weaning weight and BCS among angus dams. K. A. Gray*, T. Smith2, C. Maltecca1, P. Overton1, J. A. Parish2, and J. P. Cassady1, 1North Carolina State University, Raleigh, 2Mississippi State University, Mississippi State.

10:00 AM Break.

Heritability of hepatic expression of apoptosis genes affected in pigs fed aflatoxin B₁. K. S. Roberts¹, S. M. Rustemeyer², M. M. Rolff, K. M. Cammack², and W. R. Lamberson³, ¹University of Missouri, Columbia, ²University of Wyoming, Laramie.

Genetic and phenotypic correlations for maternal and post-weaning traits from a commercial swine breeding system. C. E. Abell*, K. J. Stalder, and J. W. Mabry, Iowa State University, Ames.

Extension Dairy
Chair: Noah Litherland, University of Minnesota

8:00 AM 61 Distance coverage study of the self–powered sensor based smart wireless identification and tracking tag for production agriculture application. K. Dhakal*¹, T. Ma², M. Hempel², J. F. Keown¹, and H. Sharifi², ¹University of Nebraska, Department of Animal Science, Lincoln, ²University of Nebraska, Department of Computer and Electronics Engineering, Lincoln.

8:15 AM 62 (Invited ADSA Young Dairy Scholar) On heterogeneous associations between milk production and reproduction in dairy cows. N. M. Bello*¹, J. P. Steibel², R. J. Erskine², and R. Tempelman², ¹Kansas State University, Manhattan, ²Michigan State University, East Lansing.

8:45 AM 63 Does size of a dairy farm affect its carbon footprint? J. Paulson*¹, T. Olson¹, and G. Thoma², ¹University of Minnesota, St.Paul, ²University of Arkansas, Fayetteville.

9:00 AM 64 (Invited ADSA Young Dairy Scholar) The effect of dietary trace minerals source and amount during the dry period on health and performance of the dam and progeny. G. L. Golombeski*¹, J. Linn¹, H. Chester-Jones², M. Socha³, and M. Raeth-Knight¹, ¹University of Minnesota, St. Paul, ²University of Minnesota, Southern Research and Outreach Center, Waseca, ³Zinpro Corporation, Eden Prairie, MN.

9:30 AM 65 Calculating starch digestibility by lactating dairy cows from starch concentrations in feed and feces. F. N. Owens* and A. T. Hassen, Pioneer Hi-Bred International, Johnston.

Extension Swine
Chair: Chad Hastad, Swine Nutrition Services

8:00 AM 73 Effectiveness of the National Swine Nutrition Guide educational initiative in enhancing pork industry professionals’ understanding of nutrition. R. C. Thaler*¹, M. S. Carlson², S. D. Carter³, G. Dahlke⁴,
Effects on performance characteristics of immunologically castrated male pigs using different levels of lysine in the diets.
1 Kansas State University, Manhattan, 2 Pfizer Animal Health, Kalamazoo, MI.

Graduate Student Symposium
Tips on How to Navigate the Job Search and Interview Process for Animal Science Students
Chair: Tara Felix, The Ohio State University
205 IJ
Sponsored by: ASAS

Tips on how to navigate the job search and interview process for animal science students. D. Simmons*, Continental Search & Outplacement, Inc.


You got the interview, now what? - Part 2: How to interview for an industry position successfully. G. Weilbaker*, Career Solutions, Fort Wayne, IN.

Growth, Development, Muscle Biology, and Meat Science
Role of Adipose Tissue in Skeletal Muscle
Chair: Tara McDaneld, USDA-ARS
140
Sponsored by: Boehringer Ingelheim Vetmedica Inc.

(Invited) Dietary fat and meat quality. J. K. Apple*, University of Arkansas, Department of Animal Science, Fayetteville.

Endocrine and immunological roles of adipose tissue, and their relationship to muscle growth and development.

M. Spurlock*, Iowa State University, Ames.

Nonruminant Nutrition

Amino Acids

Chair: John Thomson, Evonik

204 AB

Sponsored by: Alltech Inc.

Determination of the SID lysine requirement of the 7 to 12 kilogram pig under commercial conditions. J. Matthews*1, C. Neill1, L. Greiner2, N. Williams1, G. Allee1, J. Connor3, S. Jungst1, and A. Sosnicki1, 1PIC North America, Hendersonville, TN, 2Innovation Swine Solutions, LLC, Carthage, IL, 3PorkTech, LLC, Columbia, MO.

Determination of Lys and Trp requirements in 10 to 20 kg pigs. G. I. Petersen* and H. H. Stein, University of Illinois, Urbana.


Determination of standardized ileal digestible (SID) valine and isoleucine requirements in corn and soybean meal (C-SBM) diets for 20- to 50-kg pigs. A. M. Waguespack*1, T. D. Bidner1, R. L. Payne2, and L. L. Southern1, 1Louisiana State University, Agricultural Center, Baton Rouge, 2Evonik-Degussa Corp., Kennesaw, GA.


The amino acid requirements of finisher pigs are higher for entire male than for female pigs between 50 and 100 kg live weight. K. L. Moore1, B. P. Mullan*,1 and R. G. Campbell1, 1Department of Agriculture and Food Western Australia, Perth, Western Australia, Australia, 2Pork Co-Operative Research Centre, Willaston, South Australia, Australia.

The evaluation of lysine requirements in third parity lactating sow diets. L. Greiner*,1, J. Usry2, C. Neill1, N. Williams3, J. Soto1, J. Connor1, and G. Allee4,1, 1Innovative Swine Solutions, LLC, Carthage, IL, 2Ajinomoto Heartland, LLC, Chicago, IL, 3PIC, Hendersonville, TN, 4PorkTech, LLC, Columbia, MO.

The use of crystalline amino acids in lactating sow diets. L. Greiner*,1, J. Usry2, C. Neill1, N. Williams3, J. Soto1, J. Connor1, and G. Allee4,1, 1Innovative Swine Solutions, LLC, Carthage, IL, 2Ajinomoto Heartland, LLC, Chicago, IL, 3PIC, Hendersonville, TN, 4PorkTech, LLC, Columbia, MO.
Drying method does not appear to alter nitrogen or energy concentrations in pig feces and urine, or poultry excreta. B. M. Jacobs*1, J. F. Patience1, W. A. Dozier1, K. J. Stalder1, and B. J. Kerr1, 1Iowa State University, Ames, 2Auburn University, Auburn, AL, 3USDA-ARS-NLAE, Ames, IA.

Dietary tryptophan requirement for growing pigs during high immune stress. R. D. Boyd*1, C. E. Zier-Rush1, R. Martin2, R. Palan1, and S. Smith1, 1The Hanor Company, Franklin, KY, 2Ralco Nutrition, Marshall, MN.

Ruminant Nutrition
By-product Utilization (Distillers Grains)
Chair: Paul Walker, Illinois State University
146 - 148

Use of dry rolled corn, dry or wet distillers grains plus solubles as an energy source in high forage diets for growing cattle. N. A. Ahern*, B. L. Nuttelman, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.


Effects of feeding increasing levels of corn condensed distillers solubles on performance of feedlot cattle. A. C. Pesta*, B. L. Nuttelman, G. E. Erickson, T. J. Klopfenstein, and W. A. Griffin, University of Nebraska, Lincoln.

Effects of different ratios of steam-flaked corn and dry-rolled corn on finishing performance and carcass traits of feedlot cattle fed distillers grains with solubles. C. A. Nichols*, K. H. Jenkins, G. E. Erickson, S. A. Furman, and T. J. Klopfenstein, 1University of Nebraska, Lincoln, 2University of Nebraska Panhandle Research and Extension Center, Scottsbluff.

Effects of feeding a combination of modified distillers grains plus solubles and wet corn gluten feed compared to forage for grain adaptation to finishing diets on performance. M. G. Dib*, B. L. Nuttelman, W. A. Griffin, G. E. Erickson, T. J. Klopfenstein, and R. U. Lindquist, 1University of Nebraska, Lincoln, 2Archer Daniels Midland, Columbus, NE.

Effect of feeding micro-aid® in diets containing wet distillers grains plus solubles to finishing cattle on performance and nutrient mass balance. A. J. Doerr*, W. A. Griffin, B. L. Nuttelman, G. E. Erickson, T. J. Klopfenstein, J. R. Benton, and M. J. Rincker, 1University of Nebraska, Lincoln, 2DPI Global, Porterville, CA.
9:30 AM 302  Comparison of bunk and ground feeding of distillers dried grains to growing cattle. W. J. Sexten*, C. C. Stith, and R. L. Kallenbach, University of Missouri, Columbia.

9:45 AM  Break.

10:00 AM 303  Comparing different drying methods for distillers grains and its effects on feedlot cattle performance. B. L. Nuttelman*, W. A. Griffin, G. E. Erickson, and T. J. Klopfenstein, University of Nebraska, Lincoln.


10:45 AM 306  Comparison of feedlot cattle performance when fed silage and grain from second-generation insect-protected corn (MON 89034), parental line, or reference hybrids. B. M. Weber*, B. L. Nuttelman, G. E. Erickson, T. J. Klopfenstein, W. A. Griffin, J. R. Benton, and T. H. Klusmeyer, University of Nebraska, Lincoln, 2Monsanto Company, St. Louis, MO.

11:00 AM 307  Performance of growing cattle fed corn silage from second-generation insect-protected corn (MON 89034) compared to parental line or reference hybrids. B. M. Weber*, B. L. Nuttelman, G. E. Erickson, T. J. Klopfenstein, W. A. Griffin, J. R. Benton, and T. H. Klusmeyer, University of Nebraska, Lincoln, 2Monsanto Company, St. Louis, MO.


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**Ruminant Nutrition**

**Excess Dietary Nitrogen - Effects on Metabolism, Productivity, the Environment and Future Regulations Symposium**

**Chair:** Joel DeRouchey, Amer AbuGhazaleh, Kansas State University, Southern Illinois University  
142 - 144

9:00 AM 291  (Invited) Future direction of water and air regulations for livestock facilities. D. Porter*, Environmental Protection Agency, Kansas City, KS.

10:15 AM  
Break.

10:30 AM  
(Invited) Nutrition - an effective tool for mitigating ammonia emissions from dairy and feedlot operations. A. N. Hristov*, M. Hanigan*, A. Cole†, R. Todd‡, T. A. McAllister†, P. M. Ndegwa†, and A. Rotz*, †Pennsylvania State University, University Park, ‡Virginia Polytechnic Institute and State University, Blacksburg, †USDA-ARS, Bushland, TX, ‡Lethbridge Research Centre, Lethbridge, Canada, †Washington State University, Pullman, †USDA-ARS, University Park, PA.

11:15 AM  

12:00 PM  
(Invited ADSA Young Dairy Scholar) Mitigation strategies to reduce ammonia and methane emission from dairy farms. M. J. Aguerre*, M. A. Wattiaux*, J. M. Powell‡, and C. Arndt*, †University of Wisconsin, Department of Dairy Science, Madison, ‡U.S. Dairy Forage Research Center, Madison, WI.

Nonruminant Nutrition
Nursery Nutrition
Chair: Joel Spencer, JBS United, Inc.
205 IJ
Sponsored by: JBS United Inc.

9:30 AM  

9:45 AM  

10:00 AM  
An evaluation of Peptone products on nursery pig performance. A. J. Myers*, M. D. Tokach†, R. D. Goodband†, S. S. Dritz†, J. M. DeRouchey†, J. L. Nelssen†, B. W. Ratliff‡, D. M. McKilligan‡, G. Xu‡, J. Moline‡, and M. Steidinger‡, †Kansas State University, Manhattan, ‡Tech Mix Inc., Stewart, MN, ‡Midwest Ag Enterprises, Marshall, MN, ‡Swine Nutrition Service, Anchor, IL.

10:15 AM  
Effects of Liquitein on weanling pigs administered a porcine circovirus type 2 (PCV2) and Mycoplasma hyopneumoniae (M.hyo) vaccine strategy. A. J. Myers*, M. D. Tokach†, R. D. Goodband†, S. S. Dritz†, J. M. DeRouchey†, J. L. Nelssen†, B. W. Ratliff‡, D. M. McKilligan‡, G. Xu‡, and J. Moline‡, †Kansas State University, Manhattan, ‡Tech Mix Inc., Stewart, MN, ‡Midwest Ag Enterprises, Marshall, MN.
Nonruminant Nutrition
Minerals
Chair: Russel Fent, Ralco Nutrition Inc.
204 AB
Sponsored by: Alltech Inc.

10:30 AM 176 Effect of zinc level and source on pig postweaning growth performance and tissue mineral content. J. S. Jolliff*, D. C. Mahan¹, G. M. Hill², and J. E. Link², ´The Ohio State University, Columbus, ²Michigan State University, East Lansing.

10:45 AM 177 Organic and inorganic Zn impact on antioxidant enzymes and metallothionein in nursery pigs. G. M. Hill*, J. E. Link¹, and D. C. Mahan², ´Michigan State University, E. Lansing, ²The Ohio State University, Columbus.

11:00 AM 178 Impact of zinc source on grow-finish performance, carcass composition and locomotion score. J. F. Patience*, A. Chipman¹, T. L. Ward², and M. E. Wilson², ´Iowa State University, Ames, ²Zinpro Corp., Eden Prairie, MN.


11:30 AM 180 Effect of phosphorus and calcium depletion-repletion periods on the digestive and metabolic utilization of dietary phosphorus and calcium in growing pigs. M. P. Létourneau-Montminy*, P. A. Lovatto², and C. Pomar¹, ´Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²University Federal of Santa Maria, Santa Maria, Brazil.

11:45 AM 181 The effect of a novel E Coli phytase (Quantum™) on the growth performance of nursery pigs. P. Wilcock*, M. R. Bedford¹, C. L. Walk¹, B. Bass², and C. V. Maxwell², ´AB Vista, Marlborough, United Kingdom, ²University of Arkansas, Fayetteville.

12:00 PM 182 Nutrients changes in fetal and maternal tissues of gilts fed organic selenium during gestation. Y. L. Ma*, M. D. Lindemann¹, J. M. Urnir¹, J. L. Pierce², and G. L. Cromwell¹, ´University of Kentucky, Lexington, ²Alltech Inc., Nicholasville KY.

Breeding and Genetics
The Genetics of Disease Resistance Symposium
Chair: Matt Spangler, University of Nebraska-Lincoln
136 - 138
Sponsored by: Boehringer Ingelheim Vetmedica Inc.

1:00 PM 40 (Invited) Exploring the genetics of vaccine response in cattle. M. Gonda*, South Dakota State University, Brookings.

2:00 PM 42  (Invited) Genetic dissection of disease susceptibility in swine. D. Ciobanu* and R. Johnson, University of Nebraska, Lincoln.


3:00 PM  Break.

3:15 PM 84  BVDV2 titer level relationships with growth and body composition traits in Angus calves. E.D. Downey.

3:30 PM 44  PRRS host genetics consortium: Background and current progress. J. K. Lunney*, N. Boddicker2, J. C. M. Dekkers2, D. J. Garrick2, S. Abrams1, J. P. Steibel2, J. M. Reecy2, E. Fritz2, M. Rothschild2, M. Kerrigan3, B. Trible4, and R. R. R. Rowland4, 1USDA, ARS, BARC APDL, Beltsville, MD, 2Iowa State University, Department of Animal Science, Ames, 3Michigan State University, Department of Animal Science, Fisheries and Wildlife, East Lansing, 4Kansas State University, Department Diagnostic Medicine and Pathobiology, Manhattan.

4:00 PM 112  Genetic parameters and markers associated with viremia and growth in pigs infected with porcine reproductive and respiratory virus. N. J. Boddicker.

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Extension - Beef/Small Ruminant Symposium: Beef Cattle Reproduction Management NCERA-087 Beef Cow-Calf Nutrition and Management Chair: Kent Tjardes, Land O’Lakes Purina Feed 146 - 148

1:00 PM 52  (Invited) Impact of bull development on reproductive success. G. A. Perry*, G. P. Rupp2, and R. A. Cushman1, 1South Dakota State University, Brookings, 2University of Nebraska, GPVEC, Clay Center, 3USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.

1:45 PM 53  (Invited) Impact of heifer development on reproductive success. D. J. Patterson*, University of Missouri, Columbia.

2:30 PM  Break.

2:45 PM 54  (Invited) The 5 day CO-Synch + CIDR Protocol for facilitating timed-AI in cattle. G. A. Bridges*, P. J. Gunn2, and M. L. Day3, 1University of Minnesota, Grand Rapids, 2Purdue University, West Lafayette, IN, 3The Ohio State University, Columbus.

Extension Dairy
Using Computerized Tools in Dairy Management
Chair: Tamilee Nennich, Purdue University

Sponsored by: Agri-King Inc.

1:00 PM  Introduction. T. Nennich.

1:05 PM 66  (Invited) Exploring methods to assess the economic value of dairy cattle reproductive programs. V. E. Cabrera*, University of Wisconsin, Madison.

1:50 PM 67  (Invited) Linear programming to evaluate the economics of reproductive efficiency and sexed semen considering herd constraints. A. De Vries*, University of Florida, Gainesville.

2:35 PM  Break.

2:50 PM 68  (Invited) Stochastic modeling of the economic and biological risks associated with Precision Dairy Farming investment decisions. J. M. Bewley*, University of Kentucky, Lexington.

3:35 PM 69  (Invited) Modeling and implementing feed management decisions into whole farm nutrient management. J. Harrison*1 and A. Rotz2, 1Washington State University, Puyallup, 2USDA / Agricultural Research Service, State College, PA.

4:20 PM  Discussion.

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

Sponsored by: Elanco Animal Health

1:00 PM 138  Effect of feeding 25-hydroxycholecalciferol on gilt performance. J. D. Coffey*1, E. A. Hines1, M. A. Vaughn1, C. W. Starkey1, T. K. Chung2, and J. D. Starkey1, 1Texas Tech University, Lubbock, 2DSM Nutritional Products Asia Pacific Pte. Ltd., Singapore.

1:15 PM 139  Effect of feeding 25-hydroxycholecalciferol on prenatal porcine skeletal muscle development. E. A. Hines*1, J. D. Coffey1, M. A. Vaughn1, C. W. Starkey1, T. K. Chung2, and J. D. Starkey1, 1Texas Tech University, Lubbock, 2DSM Nutritional Products Asia Pacific Pte. Ltd., Singapore.

1:30 PM 140  Effect of average litter weight on progeny performance, organ and myofiber characteristics. G. Bee*1, S Muller1, and P. Camilo1,2, 1Agroscope Liebefeld Posieux, Posieux, Switzerland, 2Institute of Plant, Animal and Agroecosystem Sciences, Zurich, Switzerland.

Effects of supplementing dried distillers grains with solubles to heavy, yearling stocker cattle during the last 90 days of grazing to improve meat quality traits when utilizing a short feeding protocol. A. Stickel*, T. Houser, J. Drouillard, K.C. Olson, B. Gerlach, L. Weber, B. Goehring, G. Skaar, M. Dikeman, and J. Unruh, Kansas State University, Manhattan.

(Invited ASAS Animal Science Young Scholar) Effects of immunological castration on boar taint, pork quality, cutting yields, and further processed products. D. D. Boler* and J. Killefer, University of Illinois, Urbana.

Array analysis of mucosal gene expression in the intestine of rats following ingestion of OmniGen-AF. B. R. Ou2,1, A. Rowson*1, S. Puntenney1, and N. E. Forsberg1, 1OmniGen Research, Corvallis, OR, 2Tunghai University, Tunghai, Taiwan ROC.

Nonruminant Nutrition
Co-product Feedstuffs
Chair: Matt Kochler, The Maschhoffs, Inc.
142 - 144
Sponsored by: Alltech Inc.


Effects of corn dried distillers grains with solubles (DDGS) and increasing wheat middlings on growth performance, carcass traits, and fat quality in growing-finishing pigs. J. A. Barnes*, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, Kansas State University, Manhattan.

Effects of tallow and DDGS on pig performance and carcass characteristics. J. M. Pomerenke*, G. C. Shurson1, S. K. Baidoo2, and L. J. Johnston1, 1University of Minnesota, St. Paul, 2Southern Research and Outreach Center, Waseca, MN, 3West Central Research and Outreach Center, Morris, MN.


Effects of increasing distillers dried grains with solubles (DDGS) on nutrient excretion during the finishing phase. H. J. Kim*, S. Carter, T. Walraven, and M. Bible, Oklahoma State University, Stillwater.
Impact of DDGS particle size on nutrient digestibility, DE and ME content, and flowability in diets for growing pigs. P Liu*1, L. W. O. Souza1, S. K. Baidoo2, and G. C. Shurson1, 1University of Minnesota, Saint Paul, 2Southern Research and Outreach Center, Waseca, MN.


Energy, CP, and AA digestibility of wheat, triticale, and corn distillers dried grains with solubles and digesta and feces VFA content in grower-finisher pigs. K. Kandel*1, E. Beltranena1,2, J. Yanez1, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2Alberta Agriculture and Rural Development, Edmonton, AB, Canada.


Dry fractionation creates highly digestible fractions of wheat DDGS for grower pigs. J. Yáñez*1,2, E. Beltranena1, J. Hernández1, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2Universidad Autónoma de Tlaxcala, Tlaxcala, México, 3Alberta Agriculture and Rural Development, Edmonton, AB, Canada.

Feeding increasing canola meal levels with wheat distillers dried grains with solubles to grower-finisher pigs. R. Seneviratne1,2, M. Young2, G. Lanz2, N. Campbell2, R. Zijlstra1, and E. Beltranena*1,3, 1Alberta Agriculture and Rural Development, Edmonton, AB, Canada, 2Gowans Feed Consulting, Wainwright, AB, Canada, 3University of Alberta, Edmonton, AB, Canada.

Increasing inclusion of wheat distillers dried grains with solubles (DDGS) in diets for grower finisher pigs: growth performance, carcass traits, dissected pork yield, loin and belly quality. M. Oryschak1, J. Aalhus2,4, M. Dugan2, M. Young1, N. Campbell1, R. Zijlstra1, and E. Beltranena*1,3, 1Alberta Agriculture and Rural Development, Edmonton, AB, Canada, 2Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 3Gowans Feed Consulting Ltd., Wainwright, AB, Canada, 4University of Alberta, Edmonton, AB, Canada.

Amino acid digestibility and energy content of copra expellers, palm kernel expellers, palm kernel meal, and soybean meal fed to growing pigs. R. C. Sulabo*, W. S. Ju, and H. H. Stein, University of Illinois, Urbana.

Phosphorus and amino acid digestibility in fermented and conventional soybean meal fed to weanling pigs. O. J. Rojas* and H. H. Stein, University of Illinois, Urbana.
4:45 PM 166 Digestibility of AA in canola-, cotton-, and sunflower-products fed to finishing pigs. J. C. Gonzalez* and H. H. Stein, University of Illinois, Urbana.

Nonruminant Nutrition
Quantifying Feed Ingredient Quality
Chair: Nathan Augspurger, Chad Hastad, JBS United Inc., Swine Nutrition Services
204 AB
Sponsored by: JBS United Inc.

1:00 PM 183 (Invited) Methodology for valuing quality of feedstuffs. H. H. Stein*, University of Illinois, Urbana.


2:00 PM 185 (Invited) Evaluating the nutrient quality of co-product feedstuffs. R. T. Zijlstra*1 and E. Beltranena1,2, 1University of Alberta, Edmonton, AB, Canada, 2Alberta Agriculture and Rural Development, Edmonton, AB, Canada.

2:30 PM Break.

2:45 PM 186 (Invited) Factors affecting the quality and energy content of fats. M. A. Dasari*, Feed Energy, Des Moines, IA.


Physiology
Physiology Symposium: Factors Influencing Female Reproductive Efficiency
Chair: Jeremy Miles, USDA-ARS
204 FG
Sponsored by: Boehringer Ingelheim Vetmedica Inc.

1:00 PM 275 (Invited) Advancement in understanding the central pathways that underlie the effects of exteroceptive signals on the gonadotropin axis of the female for initiation of puberty and maintenance of normal reproductive cycles. C. A. Lents*, USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE.

1:40 PM 276 (Invited) The oocyte molecular phenotype: Influence of the follicular environment and body condition. J. R. Wood*, University of Nebraska, Lincoln.
2:20 PM 277  (Invited) Pregnancy losses in domestic animals.  
D. L. Davis*, Kansas State University, Manhattan.

3:00 PM  
Break.

3:15 PM 278  (Invited) Transgenic alteration of milk composition and milk performance in livestock.  
M. B. Wheeler*, University of Illinois, Urbana.

3:55 PM 279  (Invited) Influence of metabolic pathways on dam longevity.  
L. A. Rempel*, USDA, ARS, USMARC, Clay Center, NE.

4:35 PM 280  (Invited) Economic returns at varying levels of reproductive efficiency.  
K. Dhuyvetter*, Kansas State University, Manhattan.

Ruminant Nutrition I  
Chair: Aimee Wertz, South Dakota State University

205 IJ

1:00 PM 309  (Invited ASAS Animal Science Young Scholar) Factors influencing sulfur toxicity in ruminants fed distillers dried grains with solubles.  
B. W. Neville*, G. P. Lardy¹, K. K. Karges¹, P. T. Berg¹, and C. S. Schauer², ¹North Dakota State University, Department of Animal Sciences, Fargo, ²Hettinger Research Extension Center, North Dakota State University, Hettinger, ND, ³Dakota Gold Research Association, Sioux Falls, SD.

1:30 PM 310  Factors affecting ruminal hydrogen sulfide concentration of cattle.  

1:45 PM 311  Determining a safe level of ruminal hydrogen sulfide gas.  

2:00 PM 312  In vitro effect of starch and sulfur on rumen gas production and hydrogen sulfide release.  

2:15 PM 313  High dietary sulfur modifies volatile fatty acid profiles and increases hydrogen sulfide gas production.  
E. L. Richter*, M. E. Drewnoski¹, C. J. Ziemer², and S. L. Hansen¹, ¹Iowa State University, Ames, ²USDA-ARS, Ames, IA.

2:30 PM  
Break.

2:45 PM 314  Chemical treatment to enhance crop residue use in finishing cattle diets.  
A. L. Shreck*, B. L. Nuttleman¹, W. A. Griffin¹, G. E. Erickson¹, T. J. Klopfenstein¹, and M. J. Cecava², ¹University of Nebraska, Lincoln, ²ADM Research, Decatur, IL.
Apparent digestibilities of nutrients in lactating dairy cows fed a hemicellulose extract.
K. J. Herrick*1, M. Abdullah2, A. R. Hippen1, K. F. Kalscheur1, D. J. Schingoethe1, and R. S. Patton1, 1South Dakota State University, Brookings, 2University of Veterinary and Animal Sciences, Lahore, Pakistan, 3Temple Inland, Inc.

In Vitro digestibility of crop residues and plant parts after chemical treatment and anaerobic storage.
A. L. Shreck*, C. D. Buckner1, G. E. Erickson1, T. J. Klopfenstein1, and M. J. Cecava2, 1University of Nebraska, Lincoln, 2ADM Research, Decatur, IL.

Determining accurate NDF Values for corn and distillers grains plus solubles.
C. D. Buckner*, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.

Access time to hay feeder by gestating beef cows affects dry matter intake and hay waste.
J. Jaderborg*, G. Crawford, and A. DiCostanzo, University of Minnesota, St. Paul.

Feeding frequency an arcane strategy: Early lactation cow production.
S. M. Karimzadeh and A. Nikkhah*, University of Zanjan, Zanjan, Iran.

Predictors of transition cow success from a voluntary milking system.

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

Extension - Beef/Small Ruminant
Chair: Kent Tjardes, Land O’ Lakes Purina Feed
206
Sponsored by: Zinpro Performance Minerals

Comparison of top versus bottom strata of tall fescue interseeded with Kura-clover pastures.
M. H. Ramos*1 and J. W. Lehmkuhler2, 1University of Missouri, Columbia, 2University of Kentucky, Lexington.

Comparison of dry matter intake of cattle grazing cool season grasses receiving nitrogen or interseeded with legumes.
M. H. Ramos*1 and J. W. Lehmkuhler2, 1University of Missouri, Columbia, 2University of Kentucky, Lexington.
Pasture supplementation: variation in feed efficiency and average daily gain. M. H. Ramos* and M. S. Kerley, University of Missouri, Columbia.

Sheep nutrition companion module to BRaNDS. G. Gahlke*, D. Morrical, and D. Dewitt, Iowa State University, Ames.

Extension Swine
Chair: Chad Hastad, Swine Nutrition Services
206
Sponsored by: Zinpro Performance Minerals

Effect of season of farrowing on litter size and lactation feed intake in gilts. L. Anil*1, S. S. Anil2, S. K. Baidoo1, and J. A. Jendza1, 1University of Minnesota, Waseca, 2University of Minnesota, St Paul.

Effect of NuPro™ on performance of weaned piglets. P. Spring1, T. McArdle2, J. Boyd3, S. Wilson1, J. A. Taylor-Pickard*2, and K. Jacques4, 1Swiss College of Agriculture, Zollikofen, Switzerland, 2Alltech, Lincolnshire, United Kingdom, 3BOCM PAULS, Norfolk, United Kingdom, 4Alltech, Nicholasville, KY.

Pork information gateway (PIG) provides scientific, peer-reviewed, and reliable information to producers, educators, students and industry professionals. D. J. Meisinger*1, K. Mescher Collins1, M. T. See2, T. J. Baas3, E. Cortus4, P. J. Holden5, R. Knox6, K. Leedom6, Y. Li6, M. Morrow7, S. Moeller7, D. Newman8, S. Pohl1, B. Richert9, J. Sterle10, 1US Pork Center of Excellence, Ames, IA, 2North Carolina State University, Raleigh, 3Iowa State University, Ames, 4South Dakota State University, Brookings, 5University of Illinois, Urbana, 6University of Minnesota, St. Paul, 7Ohio State University, Columbus, 8North Dakota State University, Fargo, 9Purdue University, W. Lafayette, IN, 10Texas A&M University, College Station.

Effect of crossfostering on survival and growth of swine from birth through nursery. J. A. Bishop*1, J. P. Cassady1, J. W. Holf1, W. O. Herring2, M. S. Culbertson2, and M. T. See1, 1North Carolina State University, Raleigh, 2Smithfield Premium Genetics, Rose Hill, NC.

Impact of immune system stimulation and dietary protein intake on expression of reference genes in liver, small intestine and spleen of growing pigs. A. Rakhshandeh*, J. Zhang, and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.

Comparative efficacy of LincoMix® and Tylan® for the control Of ileitis in a commercial swine farm. T. Hoover*1, J. Hicks2, D. Amodie1, and M. Senn1, 1Pfizer Animal Health, New York, NY, 2Leading Edge Advanced Research, Carroll, IA.
Growth, Development, Muscle Biology, and Meat Science
Chair: Ryan Cox, University of Minnesota
206
Sponsored by: Zinpro Performance Minerals

The effects of dietary astaxanthin, ractopamine HCl, and gender on the growth, carcass, and pork color characteristics of finishing pigs.

The effects of dietary astaxanthin and ractopamine HCl on the growth and carcass characteristics of finishing pigs, and the color shelf-life of longissimus chops from barrows and gilts.

Corn distillers solubles does not affect beef quality.

Effect of feeding diets containing corn dried distillers grains with solubles (DDGS) with and without tallow on bacon yield and quality.

Effect of low fat dried distillers grains on consumer sensory characteristics of Longissimus strip steaks and cooked sausage.

Effect of intermittent feeding of diets containing 40% corn dried distillers grains with solubles (DDGS) to growing-finishing pigs on bacon yield and quality.
R. J. LaBerge*, K. M. McClelland1, A. M. Hilbrands2, L. J. Johnston2, G. C. Shurson1, P. C. Nelson1, T. J. McNamara1, and R. B. Cox1, 1University of Minnesota, St. Paul, 2University of Minnesota, West Central Research and Outreach Center, Morris.

Nonruminant Nutrition
Chair: Nathan Augsburger, JBS United Inc.
206
Sponsored by: Zinpro Performance Minerals

Sow fertility is improved by feeding diets supplemented with omega 3 fatty acids from fish oil during lactation through to early pregnancy.
R. J. Smits*, M. Mitchell2, B. G. Luxford1, and M. B. Nottle2, 1Rivalea Australia Pty Ltd, Corowa, NSW, Australia, 2Robinson Institute and School of Paediatrics and Reproductive Health, The University of Adelaide, Adelaide, SA, Australia.
Enterosorption therapy provided by Calibrin-Z enterosorbent after pigs were intoxicated by zearalenone. J. P. Wang*, I. H. Kim†, S.W. Choi‡, J. Broomhead§, and F. Chi¶, 1Dankook University, Cheonan, Choongnam, South Korea, 2CTC Bio, Seoul, South Korea, 3Amlan International, Chicago, IL.

The effects of diet modifications and flow agent on growth performance of nursery pigs fed high levels of deoxynivalenol. E. D. Frugé*, E. L. Hansen‡, S. A. Hansen†, M. D. Tokach§, and H. L. Frobose¶, 1Hubbard Feeds Inc., Mankato, MN, 2New Fashion Pork, Jackson, MN, 3Kansas State University, Manhattan.

The effects of pelleting, increased nutrient density, and a flow agent on growth performance of nursery pigs fed high levels of deoxynivalenol. E. D. Frugé*, E. L. Hansen‡, S. A. Hansen†, M. D. Tokach§, and H. L. Frobose¶, 1Hubbard Feeds Inc., Mankato, MN, 2New Fashion Pork, Jackson, MN, 3Kansas State University, Manhattan.

Actigen increases serum levels of cytokines and haptoglobin in pigs experimentally infected with porcine reproductive and respiratory syndrome virus (PRRSV). T. M. Che*, M. Song†, R. W. Johnson†, K. W. Kelley‡, W. G. Van Alstine‡, K. A. Dawson§, and J. E. Pettigrew¶, 1University of Illinois, Department of Animal Science, Urbana, 2Purdue University, Animal Disease and Diagnostic Laboratory, West Lafayette, IN, 3Research, Alltech Biotechnology Center, Nicholasville, KY.

Effects of actigen in nursery pig diets under commercial conditions. J. A. Soares*, M. Song, T. M. Che, and J. E. Pettigrew, University of Illinois, Urbana.


Influence of herbal powder on growth performance, nutrient digestibility, blood characteristics, and meat quality in finishing pigs. Q. W. Meng*, I. H. Kim, J. H. Jung, B. U. Yang, and P. Y. Zhao, Dankook University, Department of Animal Resource & Science, Cheonan, Choongnam, South Korea.


The effects of Biomin Product A and vomitoxin on growth performance of nursery pigs. H. L. Frobose*1, M. D. Tokach1, K. Soltwedel2, J. M. DeRouchey1, S. S. Dritz1, R. D. Goodband1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2Biomin USA, San Antonio, TX.

The effects of feed budgeting, complete diet blending, and corn supplement blending on finishing pig growth performance in a commercial environment. H. L. Frobose*1, J. M. DeRouchey1, D. Ryder2, M. D. Tokach1, S. S. Dritz1, R. D. Goodband1, and J. L. Nelssen1, 1Kansas State University, Manhattan, 2Feedlogic Corp., Willmar, MN.

Effect of increasing concentrations of two thermal stable strains of beta-mannanase in corn-soybean meal based diets on individually housed nursery pig performance. Z. Rambo*1, J. Ferrel2, D. Anderson2, D. Kelly1, and B. Richert1, 1Purdue University, West Lafayette, IN, 2ChemGen Corp, Gaithersburg, MD.


Determining the optimum dietary SID isoleucine and valine to lysine ratios in weaned pigs. S. A. Hansen*1, E. L. Hansen2, and K. A. Frerichs1, 1Hubbard Feeds Inc., Mankato, MN, 2New Fashion Pork, Jackson, MN.


Effect of dietary leucine and isoleucine levels on amino acid serum concentration and expression of an intestinal amino acid transporter in pigs. V. Méndez1, A. Morales1, M. Cervantes*1, A. B. Araiza1, M. Barrera2, and D. González3, 1ICA, Universidad Autónoma de Baja California, Mexicali, Baja California, México, 2Universidad Autónoma de Sonora, Hermosillo, Son, México.
Effects of diet change and digestibility of corn distillers dried grains with solubles (DDGS) on growth performance and carcass characteristics of growing-finishing pigs. A. M. Hilbrands*1,2, L. J. Johnston1,2, G. C. Shurson1, S. K. Baidoo1,3, and L. W. O. Souza1, 1University of Minnesota, St. Paul, 2West Central Research and Outreach Center, Morris, MN, 3Southern Research and Outreach Center, Waseca, MN.

Nutrient digestibility and performance of weaned pigs fed soybean meal processed using fermentation or extrusion. J. D. Lee*, J. P. Holt, and K. W. Tudor, Illinois State University, Normal.


Supplementation of lysine, threonine, methionine, and leucine to wheat-based diets on serum concentration of GH and IGF-1 in growing pigs. K. Minero, A. Morales*, H. García, E. Avelar, M. Cervantes, and B. A. Araiza, ICA, Universidad Autónoma de Baja California, Mexicali, Baja California, México.

The effects of increasing threonine to lysine ratio on growth and carcass characteristics of 83 to 117 kg pigs fed ractopamine. J. W. Bundy*1, P. S. Miller1, R. L. Payne2, T. E. Burkey1, E. E. Hinkle1, and H. Tran1, 1University of Nebraska, Lincoln, 2Evonik-Degussa Corporation, Kennesaw, GA.

Effects of dietary inclusion level of two corn co-products [distillers dried grains with solubles (DDGS) and high-protein distillers dried grains (HP-DDG)] on the growth performance and carcass characteristics of wean-to-finish pigs. A. Rojo*1, C. L. Puls1, M. Ellis1, A. M. Gaines2, B. A. Peterson2, B. F. Wolter2, M. Kocher2, and C. M. Peterson2, 1University of Illinois, Urbana, 2The Maschhoffs, Carlyle, IL.

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


Standardized ileal amino acid digestibility of high protein distillers’ dried grains with or without solubles for laying hens, turkey poults and broiler chicks. P. M. Banks*, T. J. Applegate, and O. Adeola, Purdue University, West Lafayette, IN.

Replacing conventional soybean meal with low-oligosaccharide soybean meal has minimal effect on early piglet performance.
223 Effect of increasing concentrations of two thermal stable strains of beta-mannanase in corn-soybean meal diets on grower pig performance. Z. Rambo*1, J. Ferrel2, D. Anderson2, D. Kelly1, and B. Richert1, 1Purdue University, West Lafayette, IN, 2ChemGen Corp., Gaithersburg, MD.

224 Effect of increasing concentrations of two thermal stable strains of beta-mannanase in corn-soybean meal diets on nursery pig performance. Z. Rambo*1, J. Ferrel2, D. Anderson2, D. Kelly1, and B. Richert1, 1Purdue University, West Lafayette, IN, 2ChemGen Corp., Gaithersburg, MD.

225 Standardized total tract digestibility of P in blood products fed to weanling pigs. F. N. Almeida* and H. H. Stein, University of Illinois, Urbana.


227 Effect of dietary phosphorus concentration on growth performance, phosphorus and calcium digestive and metabolic utilization in pigs from 20 to 100 kg BW. M. P. Létourneau-Montminy*1, J. Y. Dourmad2, C. Jondreville3, and C. Pomar1, 1Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2INRA UMR1079, St-Gilles, France, 3INRA USC340, Nancy, France.

228 The effects of supplementing dietary organic trace minerals to gestating and lactating rations on mineral concentrations of the liver and plasma of reproductive swine. C. L. Bradley*1, B. E. Bass1, J. G. Powell1, E. B. Kegley1, Z. B. Johnson1, C. V. Maxwell1, M. E. Wilson2, and T. L. Ward2, 1University of Arkansas, Fayetteville, 2Zinpro, Inc., Eden Prairie, MN.

229 Effect of organic trace minerals (copper, manganese and zinc) on performance and carcass characteristics of grow-finish pigs. J. Graham*1, G. Walker2, K. Ridenour2, and C. Hostetler1, 1South Dakota State University, Brookings, 2Global Animal Products, Inc., Amarillo, TX.

230 Meta-analysis of phosphorus utilization by broilers: effect of dietary calcium concentration and microbial phytase supply. X. Rousseau*1,2, M. P. Létourneau-Montminy3, N. Meme1, M. Magnin2, Y. Nys1, and A. Narcy1, 1INRA UR83 Poultry Research, Nouzilly, France, 2BNA Animal Nutrition, Château-Gontier, France, 3Agriculture and Agri-food Canada, Sherbrooke, QC, Canada.

Digestibility of GE and TDF in diets containing novel carbohydrates fed to growing pigs. S. K. Cervantes-Pahm* and H. H. Stein, University of Illinois, Urbana.

Carcass measurements and predicted carcass lean percentage of pigs fed diets with high or low metabolizable and net energy concentration. A. P. Schinckel*, M. E. Einstein1, S. Jungst2, B. Fields2, N. Matthews2, C. Fralick3, A. Sosnicki2, and R. D. Boyd4, 1Purdue University, West Lafayette, IN, 2PIC North America, Hendersonville, TN, 3Swine Tek, LLC, Convoy, OH, 4Hanor Companies, Franklin, KY.

Daily feed intake, energy intake and growth rate of pigs fed diets with high or low metabolizable and net energy concentrations. A. P. Schinckel*, M. E. Einstein1, S. Jungst2, C. Booher2, T. Dreadin2, C. Fralick3, E. Wilson2, and R. D. Boyd4, 1Purdue University, West Lafayette, IN, 2PIC North America, Hendersonville, TN, 3Swine Tek, LLC, Convoy, OH, 4Hanor Companies, Franklin, KY.

The impact of feeding diets of high or low metabolizable and net energy concentration of weight of primal and subprimal lean cuts. A. P. Schinckel*, M. E. Einstein1, S. Jungst2, C. Booher2, B. Fields2, N. Matthews2, C. Fralick3, A. Sosnicki2, and R. D. Boyd4, 1Purdue University, West Lafayette, IN, 2PIC North America, Hendersonville, TN, 3Swine Tek, LLC, Convoy, OH, 4Hanor Companies, Franklin, KY.

Is starch an essential nutrient for growing pigs? X. Zeng*1,2 and A. D. Beaulieu1, 1Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada.


Effect of gestation housing systems on reproductive performance and oxidative status of sows during gestation and lactation. Y. Zhao*1, W. L. Flowers1, A. Saraiva1,2, K.-J. Yeum1, and S. W. Kim1, 1North Carolina State University, Raleigh, 2Universidade Federal de Viçosa, Viçosa, MG, Brazil, 3Tufts University, Boston, MA.

Effect of increasing feeding levels in sows during late gestation on piglet birth weights. J. Soto*, L. Greiner1, 1Innovative Swine Solutions, LLC, Carthage, IL, 2PorkTech, LLC, Columbia, MO.

Umami taste stimulation improves the performance of weanling pigs. G. Tedó*, C. Risley2, and I. Ipharraguerre1, 1Lucta S.A., Barcelona, Spain, 2Lucta USA Inc., Libertyville, IL.

Effect of determining baseline plasma urea nitrogen (PUN) concentrations on subsequent post-treatment PUN in 20- to 50-kg pigs. A. M. Waguespack*, M. L. Roux¹, A. Donsbough¹, S. Powell¹, T. D. Bidner¹, R. L. Payne², and L. L. Southern¹, ¹Louisiana State University, Agricultural Center, Baton Rouge, ²Evonik-Degussa Corp., Kennesaw, GA.

Effect of non-essential amino acid supplementation in low crude protein amino acid supplemented diets for late finishing pigs. A. Rojo*, L. Ochoa¹, Z. Li¹, W. Xiao¹, O. F. Mendoza¹, J. Charal¹, M. Ellis¹, and A. M. Gaines², ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL.

The effect of heat stress on intestinal bacterial translocation and intestinal mucosal immune in rats. A. Lu*, X. Liu¹, F. Liu¹,³, and J. Xu¹,³, ¹Beijing University of Agriculture, CAU-BUA TCVM Teaching & Research Team, College of Animal Science and Technology, Beijing, ²China Agricultural University, College of Veterinary Medicine, ³Beijing Key Laboratory of TCVM, CAU-BUA TCVM Teaching & Research Team, Beijing, ⁴China Agricultural University, TCVM Laboratory, CAU-BUA TCVM Teaching & Research Team, College of Veterinary Medicine.

Ruminant Nutrition

Chair: Amer AbuGhazaleh, Southern Illinois University

Sponsored by: Zinpro Performance Minerals

Value of a novel distiller’s grain as a protein supplement for gestating beef cows. N. L. Hojer*, M. B. Hubert¹, D. L. Gay¹, V. N. Owens¹, A. D. Ressett¹, R. H. Pritchard¹, K. Karges², and K. C. Olson¹, ¹South Dakota State University, Brookings, ²Poet Nutrition, Sioux Falls, SD.

A comparison of fecal nitrogen, phosphorous and E.coli concentrations from steers fed 0, 25, 40, or 70% modified wet distillers grains. J. L. Veracini*, P. M. Walker¹, R. L. Atkinson², J. M. Carmack¹, B. J. Barham¹, and L. A. Forster¹, ¹Illinois State University, Normal, IL, ²Southern Illinois University, Carbondale, IL, ³Archer Daniels Midland Co., Decatur, IL.

Effects of forage type and inclusion level of dried distillers grains plus solubles on feedlot cattle performance and carcass characteristics. R. L. Burgett*, D. M. Schaefer, and A. E. Radunz, University of Wisconsin, Madison.


Supplementing the diets of early lactation Holstein dairy cows with ground field peas. J. Schroeder*, North Dakota State University, Fargo.
Frequency of TMR delivery and feeding behavior of individually fed early-lactation cows. A. Nikkhah* and S. M. Karimzadeh, University of Zanjan, Zanjan, Iran.

Ground wheat grain major inclusion in dairy diets: Challenging a conventional wisdom. A. Nikkhah*, F. Amiri, and H. Amanlou, University of Zanjan, Zanjan, Iran.

Mixed or organic vs inorganic forms of selenium (Se) differentially affect tissue Se concentrations of growing beef heifers. J. C. Matthews*1, D. C. Mahan2, K. M. Brennan3, S. F. Liao1, W. R. Burris2, and J. A. Boling3. 1University of Kentucky, Lexington, 2The Ohio State University, Columbus, 3Alltech Inc., Nicholasville, KY.

Relationship between polymorphisms in the prolactin promoter and cytochrome P450 genes, and feedlot performance by steers weaned from wild-type or non-toxic endophyte-infected tall fescue pastures. M. Ata*1, K. P. Coffey1, J. D. Caldwell1, E. B. Kegley1, M. L. Looper1, A. N. Young1, D. Philipp1, D. S. Hubbell, III1, and C. F. Rosenkrans, Jr1. 1University of Arkansas, Fayetteville, 2USDA-ARS, Booneville, AR.

Wednesday, March 16

SYMPOSIA AND ORAL SESSIONS

Extension Dairy
Controlling Infectious Claw Lesions with Footbaths and Potential Environmental Implications
Chair: Mike Socha, Zinpro Corporation 136 - 138

9:00 AM Introduction. M. Socha.

9:05 AM (Invited) Insights into the interactions between host and pathogen during the course of digital dermatitis in cattle – implications for the control of an endemic disease. D. Dopfer.


10:45 AM Break.
11:00 AM 71 (Invited) Copper accumulation in dairy forage production systems. T. Downing, K. Stiglbauer, M. Gamroth*, and J. Hart, Oregon State University, Corvallis.


12:40 PM Discussion.

Nonruminant Nutrition
Energy
Chair: Tom Weber, USDA-ARS
204 AB

9:00 AM 245 Energy Partitioning in Modern Meat Type Pigs. A.B. Strathe*1, H. Jørgensen2, J.A. Fernández2, E. Kebreab1, and A. Danfær2, 1Department of Animal Science, University of California, Davis, CA, United States, 2Department of Animal Health and Bioscience, Faculty of Agricultural Sciences, Aarhus University, Tjele, Denmark.

9:15 AM 246 Varying corn particle size distribution affects the digestibility of energy for the growing pig. J.F. Patience*, A.L. Chipman1, C.K. Jones1, and T. Scheer2, 1Iowa State University, Ames, IA USA, 2Farmers’ Cooperative Company, Ames, IA USA.

9:30 AM 247 Practical method for productive energy (NEm+g) estimation of soybean meal for growing pigs. R.D. Boyd*, C.E. Zier-Rush, and M. McGrath, The Hanor Company, Franklin, KY, USA.

9:45 AM 248 Increasing protease supplementation on two different types of sorghum in young male pigs. D. J. Cadogan*1 and A. M. Finn2, 1Feedworks, Romsey, VIC, Australia, 2DEEDI, Wacol, QLD, Australia.

10:00 AM 249 Effect of feeding spring triticale cultivars and low-protein feed wheat on growth performance and nutrient digestibility in weaned pigs. R. Seneviratne1,2, R. Zijlstra2, and E. Beltranena*, 1Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada, 2University of Alberta, Edmonton, Alberta, Canada.

10:15 AM 250 Artificial sweeteners included in piglets’ diet enhance the capacity of their intestine to absorb dietary sugars. A Moran*, D Batchelor1, C Ionescu1, D Bravo1, and S Shirazy-Beechey1, 1University of Liverpool, Liverpool, UK, 2Pancosma, Geneva, Switzerland.

10:30 AM 251 Evaluation of fermentation characteristics and volatile fatty acids production of unique fiber and starch sources using an in vitro model of the pig large intestine. R. Jha* and R. T. Zijlstra, University of Alberta, Edmonton, AB, Canada.

10:45 AM 252 Digesta characteristics, plasma metabolites, and short term metabolism of piglets fed a conventional or a supra dose of xylanase.
in a wheat-based diet. E. Kiarie*, L. Romero‡, P. H. Simmins‡, and C. M. Nyachoti*, 1University of Manitoba, Winnipeg, Manitoba, Canada, 2Danisco Animal Nutrition, Marlborough, UK.

11:00 AM 253 (Invited ASAS Animal Science Young Scholar) Digestibility of dietary fiber in growing pigs. P. E. Urriola* and H. H. Stein, University of Illinois, Urbana, IL.

11:30 AM 254 The effects of feed-withdrawal time on finishing-pig characteristics in a commercial environment. H. L. Frobose¹, N. W. Shelton*, S. S. Dritz¹, L. N. Edwards¹, K. J. Prusa², M. D. Tokach¹, J. M. DeRouche², R. D. Goodband¹, and J. L. Nelssen¹, 1Kansas State University, Manhattan, KS, USA, 2Iowa State University, Ames, IA, USA.


12:00 PM 256 (Invited ASAS Animal Science Young Scholar) The effects of a wet-dry vs. a conventional dry feeder, and feeder management strategies, on the growth performance and carcass characteristics of finishing pigs. J. R. Bergstrom*, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouche², and R. D. Goodband, Kansas State University, Manhattan.

12:30 PM 257 Both weaning weight and post-weaning growth performance affect nutrient digestibility and energy utilization in pigs. C.K. Jones*, R.G. Main, N.K. Gabler, and J.F. Patience, Iowa State University, Ames, IA, USA.

Nonruminant Nutrition
Feed and Water Additives
Chair: Nathan Augsburger, JBS United, Inc.

Sponsored by: JBS United Inc.

9:00 AM 258 Evaluation of a commercial mycotoxin binder (ETX-5™) on performance of growing pigs in a 7-day feeding trial using diets with or without deoxynivalenol (DON) contamination. P. Williams¹ and M. D. Sims²*, 1Feedworks USA Ltd., Cincinnati, OH, 2Virginia Diversified Research Corp., Harrisonburg, CA.

:15 AM 259 Efficacy of feed additives to reduce the effects of chronic exposure to deoxynivalenol and zearalenone on growth and immune status of pigs. A. C. Chaytor*, M. T. See¹, J. A. Hansen², D. C. Kendall², T. F. Middleton², P. R. O’Quinn², and S. W. Kim¹, 1North Carolina State University, Raleigh, 2Murphy-Brown, LLC, Rose Hill, NC, 3Ag ProVision, LLC, Kenansville, NC, 4Prestage Farms, Inc, Clinton, NC.

9:30 AM 260 Effects of ractopamine dose on growth performance traits of finishing pigs raised and marketed under U.S. commercial conditions.
Evaluation of ractopamine HCl feeding methods on growth performance and carcass characteristics of finishing pigs.

Effect of mix time for diets with ractopamine when fed to finishing pigs. C. B. Paulk*, L. J. McKinney, J. D. Hancock, S. M. Williams, S. Issa, and T. L. Gugle, Kansas State University, Manhattan.


Actigen improves growth efficiency and immune responses in pigs experimentally infected with porcine reproductive and respiratory syndrome virus (PRRSV). T. M. Che*, M. Song, R. W. Johnson, K. W. Kelley, W. G. Van Alstine, K. A. Dawson, and J. E. Pettigrew, University of Illinois, Department of Animal Sciences, Urbana, Purdue University, Animal Disease and Diagnostic Laboratory, West Lafayette, IN, Research, Alltech Biotechnology Center, Nicholasville, KY.


Physiology
Chair: Jason Ross, Iowa State University

(Invited ADSA Young Dairy Scholar) Pyruvate carboxylase: A coordinator of energy metabolism. H. M. White* and S. S. Donkin, Purdue University, West Lafayette, IN.
9:30 AM 282 Efficacy of using gender selected semen in fixed-time AI protocols in dairy heifers. D. A. Mallory*, S. L. Lock2, D. C. Woods2, S. E. Poock1, and D. J. Patterson1, 1University of Missouri, Columbia, 2Genex Cooperative, Inc, Shawano, WI.

9:45 AM 283 Transcript abundance of hormone receptors, glucose transporters, mTOR pathway related kinases and ligand, and milk protein-encoding genes in mammary tissue of peri-parturient, lactating and post-weaned sows. R. Manjarin*, J. P. Steibel, R. N. Kirkwood, N. P. Taylor, and N. L. Trottier, Michigan State University, East Lansing.

10:00 AM 284 The ontogeny of intestinal carbohydrate digestive, absorptive and nutrient sensing proteins in pigs. M. Al-Rammahi*, A. Moran1, D. Batchelor1, P. Sangild2, C. Ionescu2, D. Bravo3, and S.. Shirazy-Beechey1, 1University of Liverpool, Liverpool, United Kingdom, 2University of Copenhagen, Frederiksberg, Denmark, 3Pancosma, Geneva, Switzerland.

10:15 AM 285 Maintenance energy requirements of gestating beef cows and plasma concentration of thyroxine and triiodothyronine. T. A. Pye*, B. H. Boehmer, and R. P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater, OK.

10:30 AM Break.

10:45 AM 286 Fasting induced adipocyte factor increases with reduced energy balance in lactating Holstein cows. D. A. Koltes* and D. M. Spurlock, Iowa State University, Ames.

11:00 AM 287 Adipose triglyceride lipase protein abundance decreases following growth hormone administration and feed restriction in lactating Holstein cows. M. P. Faylon* and D. M. Spurlock, Iowa State University, Ames.

11:15 AM 288 Effect of ambient temperature on ruminal temperature in beef cows. B. H. Boehmer*, T. A. Pye, and R. P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater; OK.

11:30 AM 289 Mitigation of effects of heat stress in mice by Artemisia sp. C. C. Selby*, K. S. Roberts1, T. M. Taxis1, D. Fisher2, and W. R. Lamberson1, 1University of Missouri, Columbia, 2University of Western Cape, Cape Town, South Africa.


Ruminant Nutrition II
Chair: Lance Baumgard, Iowa State University.
204 FG
Sponsored by: JBS United Inc.

9:00 AM 330 Effects of lactobacillus acidophilus and yucca schidigera on finishing performance and carcass traits of feedlot cattle.
C. A. Nichols*1, K. H. Jenkins2, J. T. Vasconcelos2, G. E. Erickson1, S. A. Furman2, and S. R. Goodall3, 1University of Nebraska, Lincoln, 2University of Nebraska Panhandle Research and Extension Center, Scottsbluff, 3Microbial Technologies, Omaha, NE.

9:15 AM 331 Vitamin D3 effect on performance and meat tenderness in steers fed zilpaterol hydrochloride. K. T. Korn*, M. C. Claeys, R. P. Lemenager, and J. P. Schoonmaker, Purdue University, West Lafayette, IN.

9:30 AM 332 Effects of haylage and monensin on performance, mineral status, and carcass characteristics of feedlot cattle fed diets containing 60% DDGS. T. L. Felix* and S. C. Loerch, The Ohio State University, Wooster.

9:45 AM 333 Relationship of gain and quality grade to feedlot profitability. S. T. Walter*1, R. L. Hale1, and L. R. Corah2, 1Professional Cattle Consultants, Weatherford, OK, 2Certified Angus Beef LLC, Wooster, OH.

10:00 AM 334 (Invited ASAS Animal Science Young Scholar) Developmental programming and the ruminant small intestine: Responses of the dam and offspring to alterations in gestational nutrition. A. M. Meyer*1, K. A. Vonnahme1, D. A. Redmer1, L. P. Reynolds1, B. W. Hess2, and J. S. Caton1, 1North Dakota State University, Center for Nutrition and Pregnancy, Department of Animal Sciences, Fargo, 2University of Wyoming, Department of Animal Science, Laramie.

10:30 AM 335 Influence of maternal high intake, estrogen replacement, and intrauterine growth restriction (IUGR) on fetal intestinal mass and vascularity. R. D. Yunusova*1, R. P. Aitken2, J. M. Milne2, A. M. Meyer1, P. P. Borowicz1, A. T. Grazul-Bilska1, L. P. Reynolds1, D. A. Redmer1, J. S. Caton1, and J. M. Wallace2, 1North Dakota State University, Department of Animal Sciences, Fargo, 2Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen, Scotland, United Kingdom.

10:45 AM 336 (Invited ADSA Young Dairy Scholar) Metabolic and inflammation indexes, blood neutrophil function, and gene expression profiles in transition dairy cows in response to prepartal dietary energy level and early postpartal mammary E. coli lipopolysaccharide challenge. D. E. Graugnard*1, M. Bionaz1, E. Trevisi2, S. L. Rodriguez-Zas1, R. E. Everts1, H. A. Lewin1, J. K. Drackley1, G. Bertoni1, and J. J. Loor1, 1University of Illinois, Urbana, 2Universita Cattolica del Sacro Cuore, Piacenza, Italy.
MIDWEST SECTION ADSA/ASAS
Committee Assignment

Program Committees

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Lily Edwards

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Matt Spangler
J.R. Tait

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Amy Radunz

Extension – Dairy
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Tara McDaneld, Chair
Eric Berg
Scott Carr

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Jason Ross
Allen Bridges

Ruminant Nutrition
Amer AbuGhazaleh, Chair
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1976 R. J. Vatthauer, University of Wisconsin
1977 R. J. Epley, University of Minnesota
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1980 L. R. Corah, Kansas State University
1981 M. G. Hogberg, Michigan State University
1982 C. W. Spaeth, Kansas State University
1983 L. H. Thompson, University of Illinois
1984 M. F. Hutjens, University of Illinois
1985 G. L. Kuhl, Kansas State University
1986 D. D. Simms, Kansas State University
1987 F. K. Brazle, Kansas State University
1988 S. B. Laudert, Kansas State University
1989 M. A. Russell, Purdue University
1990 D. F. Parrett, University of Illinois
1991 D. B. Faulkner, University of Illinois
1992 J. L. Nelssen, Kansas State University
1993 A. P. Schinckel, Purdue University
1994 D. A. Funk, University of Wisconsin, Madison
1995 G. C. Shurson, University of Minnesota
1996 R. D. Shaver, University of Wisconsin, Madison
1997 R. D. Goodband, Kansas State University
1998 Not given
1999 M. D. Tokach, Kansas State University
2000 J. F. Smith, Kansas State University
2001 W. O. Herring, University of Missouri
2002 M. J. Brouk, Kansas State University
2003 W. J. Powers, Iowa State University
2004 S. J. Moeller, The Ohio State University
2005 K. J. Stalder, Iowa State University
2006 P. M. Fricke, University of Wisconsin
2007 G. C. Lamb, University of Minnesota
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2009 P. S. Kuber, The Ohio State University
2010 Cody L. Wright, South Dakota State University

OUTSTANDING RESEARCHER AWARD

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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
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2009  G. E. Erickson, University of Nebraska
2010  Joel DeRouchey, Kansas State University

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1974  D. H. Gee, South Dakota State University
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1978  B. D. Moser, University of Nebraska
1979  C. L. Hauser, Southern Illinois University
1980  T. R. Carr, University of Illinois
1981  M. E. Dikeman, Kansas State University
1982  R. E. Morrow, University of Missouri
1983  D. J. Kesler, University of Illinois
1984  R. A. Easter, University of Illinois
1985  D. F. Parrett, University of Illinois
1986  J. G. Sebranek, Iowa State University
1987  D. R. Brink, University of Nebraska
1988  K. M. Irvin, The Ohio State University
1989  R. P. Lemenager, Purdue University
1990  B. R. Skaar, Iowa State University
1991  D. A. Nichols, Kansas State University
1992 M. A. Russell, Purdue University
1993 D. K. Combs, University of Wisconsin, Madison
1994 L. C. Martin, Kansas State University
1995 M. E. Benson, Michigan State University
1996 B. D. Banks, Michigan State University
1997 H. D. Tyler, Iowa State University
1998 C. R. Youngs, Iowa State University
1999 J. N. Spain, University of Missouri
2000 M. E. Doumit, Michigan State University
2001 S. M. Lonergan, Iowa State University
2002 W. N. Osburn, Michigan State University
2003 S. C. Kelm, University of Wisconsin-River Falls
2004 M. S. Weber Nielsen, Michigan State University
2005 B. D. Nielsen, Michigan State University
2006 B. A. Reiling, University of Nebraska
2007 K. W. Bruns, South Dakota State University
2008 H. N. Zerby, The Ohio State University
2009 B. R. Wiegand, University of Missouri
2010 Kimberly A. Vonnahme, North Dakota State University

OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD
1995 P. L. Houghton, Heartland Cattle Co., McCook, Nebraska
1996 J. A. Barmore, Vita Plus Corp., Madison, Wisconsin
1997 D. E. Dill, Dairy Strategies, Mendota Heights, MN
1998 C. M. Luham, Land O’lakes Research Farm, Webster City, IA
1999 Not Given
2000 D. L. Hancock, Elanco Animal Health, Greenfield, IN
2001 J. M. Lynch, Heartland Cattle Co., McCook, NE
2002 Not Given
2003 J. M. Campbell, APC, Inc., IA
2004 D. M. Webel, United Feeds, IN
2005 T. A. Rathje, Danbred North America, Columbus, NE
2006 T. E. Sauber, Pioneer, A Dupont Company
2007 M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008 J. C. Woodworth, Lonza Inc.
2009 Not given
2010 Daryl H. Kleinschmit, Agri-King, Inc.
2010 Joel Spencer, JBS United 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. MacDondald, North Dakota State University
1993 B. L. Dunn, Kansas State University
1994 S. M. Nelson, University of Nebraska
1995  L. J. Trinity, Iowa State University
1996  M. E. Cunningham, Oklahoma State University
1997  C. E. Sorenson, South Dakota State University
1998  J. L. Strickland, University of Nebraska
1999  B. A. DeMontigny, North Dakota State University
2000  K. S. Freise, University of Illinois
2001  K. R. Nollette, University of Nebraska
2002  B. Meyer, University of Nebraska
2003  A. Harvey, South Dakota State University
2004  L. H. Bach, Michigan State University
2005  A. M. Meyer, Michigan State University
2006  L. D. Holmes, Southern Illinois University
       R. Schnobrich, University of Minnesota
2007  B. H. Godsey, Kansas State University
2008  B. L. Varnes, Michigan State University
2009  H. L. Frobose, Kansas State University
2010  S. I. Fry, North Dakota State University

UNDERGRADUATE STUDENTS - POSTER
2009  E. I. Ince, University of Wisconsin
2010  D. P. Strassburg, University of Wisconsin

GRADUATE STUDENTS - ORAL
1976  D. G. Haught, Iowa State University
1977  L. L. Berger, University of Nebraska
1978  G. F. Collings, Michigan State University
1979  R. D. Boyd, University of Nebraska
1980  D. G. Cieslak, University of Wisconsin
1981  W. F. Pope, University of Nebraska
1982  P. F. Saenger, Purdue University
1983  D. A. Redmer, University of Missouri
1984  W. F. Brown, University of Nebraska
1985  J. H. Brendemuhl, University of Nebraska
1986  P. L. Houghton, Purdue University
1987  M. H. Wilde, The Ohio State University
1988  T. R. Radke, University of Nebraska
1989  K. K. Kreikemeier, Kansas State University
1990  R. A. Nold, Kansas State University
1991  M. D. Tokach, University of Minnesota
1992  G. F. Louis, University of Nebraska
1993  B. T. Larson, University of Missouri
1994  L. H. Anderson, The Ohio State University
1995  M. L. Augenstien, 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. Kiariie, University of Manitoba, Winnipeg, Canada**
2009  L. A. Lekatz, North Dakota State University*
       D. M. Gorbach, Iowa State University**
2010  H. L. Evans, University of Missouri*
       R. C. Sulabo, Kansas State University**

GRADUATE STUDENTS - POSTER

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       N. DiLorenzo, University of Minnesota**
2008  N. R. Bork, North Dakota State University*
       B. A. Peterson, University of Illinois**
2009  P. Gunn, Purdue University*
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*M.S. Division
**Ph.D. Division

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       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
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       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
2009
R. A. Nafikov, Iowa State University
2010
B. J. Heins, University of Minnesota
C. O. Lemley, West Virginia University
C. D. Mikolayunas, University of Wisconsin
K. Mjoun, South Dakota State University

ASAS YOUNG ANIMAL SCHOLARS

2010
J. Atkins, University of Missouri
T. M. Che, University of Illinois
S. Hooda, University of Alberta
J. A. Jendza, Purdue University
J. S. Jennings, South Dakota State University
V. G. Perez, University of Illinois
R. Poletto, Purdue University

TIM S. STAHLY OUTSTANDING SWINE NUTRITION MIDWEST GRADUATE STUDENT AWARD

2009
T. M. Che, University of Illinois
2010
R. Hinson, University of Missouri

ASAS MIDWESTERN SECTION PRESIDENTS

1963 O. G. Bentley, University of Illinois
1964-65 R. H. Grummer, University of Wisconsin
1966-67 G. R. Johnson, The Ohio State University
1968 R. J. Meade, University of Minnesota
1969 J. A. Hoefer, Michigan State University
1970-71 W. E. Dinusson, North Dakota State University
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1973 U. S. Garrigus, University of Illinois
1974-75 V. C. Speer, Iowa State University
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1977 R. M. Luther, South Dakota State University
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1981 A. L. Pope, University of Wisconsin
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1983  E. R. Miller, Michigan State University
1984  W. R. Woods, Purdue University
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1986  B. D. Moser, University of Missouri
1987  S. E. Curtis, University of Illinois
1988  R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana
1989  T. J. Klopfenstein, University of Nebraska
1990  J. R. Romans, South Dakota State University
1991  J. E. Pettigrew, University of Minnesota
1992  C. E. Sasse, Cenex/Land O’Lakes
1993  M. G. Hogberg, Michigan State University
1994  G. L. Allee, University of Missouri
1995  S. K. Webel, Purina Mills, Bloomington, IL
1996  D. L. Meeker, National Pork Producers Council, Des Moines, IA
1997  T. S. Stahly, Iowa State University
1998  R. P. Lemenager, Purdue University
1999  S. P. Ford, Iowa State University
2000  J. R. Males, Oregon State University
2001  M. L. Day, The Ohio State University
2002  R. K. Johnson, University of Nebraska
2003  C. L. Ferrell, USDA, Clay Center
2004  G. C. Shurson, University of Minnesota
2005  A. L. Grant, Purdue University
2006  D. L. Hancock, Elanco Animal Health, Greenfield, IN
2007  R. L. Moser, JBS United, Inc., Sheridan, IN
2008  M. K. Nielsen, University of Nebraska
2009  M. E. Spurlock, Iowa State University
2010  T. D. Crenshaw, University of Wisconsin

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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
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