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ANIMAL SCIENCE

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**NOTICE:**

Registration and housing forms can be found on the Midwest Meeting Website. You can register online at: http://www.asas.org/midwest/2006 You can print forms off the web site listed above. Information for faxing or mailing can be found on the appropriate form or you can call 217-356-9050 for a printed copy.
REGISTRATION
Convention Center, Lobby
Monday, March 20, 9:30 a.m. – 8:00 p.m.
Tuesday, March 21, 7:00 a.m. – 4:00 p.m.
Wednesday, March 22, 9:00 a.m. – 11:00 a.m.

<table>
<thead>
<tr>
<th>Before March 1</th>
<th>After March 1</th>
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<tbody>
<tr>
<td>ADSA/ASAS Members</td>
<td>$110</td>
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<tr>
<td>Undergraduate Students</td>
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<td>Graduate Student Members</td>
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<td>Post Doctoral Fellows</td>
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<td>ASAS-ADSA Fellows</td>
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<tr>
<td>Nonmembers</td>
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<tr>
<td>Post Doctoral Fellow Nonmembers</td>
<td>***$75</td>
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</tbody>
</table>

***These prices include membership into your choice of ASAS or ADSA.

Cancellation Policy: To be eligible for a 90% refund of meeting registration fees, requests must be received in writing before March 1, 2006. No refunds will be issued on ticketed events.

IMPORTANT PHONE NUMBERS

Meeting Registration Desk: ................................................... 515/242-2528
Renaissance Savery Hotel: ..................................................... 515/244-2151
Holiday Inn Downtown: ...................................................... 515/283-0151
Hotel Fort Des Moines: ....................................................... 515/243-1161
Embassy Suites: ..................................................................... 515/244-1700
Marriott: ............................................................................... 515/245-5500

Registration and housing forms can be found on the web.
www.asas.org/midwest/2006
Appreciation Club Symposia

David H. Baker Symposium
Amino Acid
Sponsored by: David H. Baker Appreciation Club
Chair: L. Lee Southern, Louisiana State University, Baton Rouge
Monday, March 20 - 1:00 p.m.
Room: 204FG

Billy N. Day Symposium
Implications of Prenatal Physiology on Modern Pork Production
Sponsored by: Billy N. Day Appreciation Club
Chair: Stephen K. Webel, JBS United, Inc., Sheridan, IN
Tuesday, March 21 - 8:00 a.m.
Room: 138

Social Events

Reception
Monday, March 20
6:00 p.m. – 8:00 p.m.
Exhibit Hall, Room 206

Academic Quadrathlon - Quiz Bowl
Competition
Monday, March 20
8:00 p.m.
Room 204FG

Reception
Tuesday, March 21
6:00 p.m. – 8:00 p.m.
Exhibit Hall, Room 206

REMINDER
All Food Functions in Room 206
Monday Night Reception
Tuesday Night Reception
Wednesday Morning Awards Breakfast
Looking for a new job?  
Is your company hiring? 

The 2006 Placement Center could be the answer!

If you are interested in advertising open positions in your company or department, or if you’re looking for a position in the animal industry or academia, we encourage you to bring position descriptions and résumés to the Placement Center at the 2006 Midwestern Sectional ASAS/ADSA Annual Meeting.

The Placement Center will be located in the Exhibit Hall, Room 206 at the Convention Center. Sign-up sheets for making “connections” and instructions for use of the Placement Center will be posted.

How to Participate

Students, graduates and experienced professionals are encouraged to post résumés at the Placement Center. Professionals from hundreds of companies, universities, and governmental agencies are represented each year at the Midwest Meeting.

Employers from industry academia and government are encouraged to post position announcements.

What To Bring

Employers are asked to bring 25 to 50 copies of all position announcements.

Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

Job descriptions and résumés can be posted at the Placement Center beginning at 12:00 p.m. on Monday, March 20, 2006.

The Placement Center — New opportunities are waiting!
SCHEDULE OF EVENTS

Monday, March 20, P.M.

8:00 a.m.  ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
1:00 p.m.  David H. Baker Amino Acid Symposium, Room 204FG
1:00 p.m.  Graduate Student Competitive Research Papers, M.S. Division, Room 205IJ
1:00 p.m.  Graduate Student Competitive Research Papers, Ph.D. Division, Room 204AB
2:00 p.m.  ARPAS Exams, Convention Center, Board Room
2:30 p.m.  Undergraduate Student Competitive Research Papers I, Room 138
2:20 p.m.  Undergraduate Student Competitive Research Papers II, Room 140
4:30 p.m.  Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
5:00 p.m.  Career Fair, Convention Center Complex, Exhibit Hall, Room 206
6:00 p.m.  Reception, Convention Center Complex, Exhibit Hall, Room 206
8:00 p.m.  AQ - Quiz Bowl Finals, Room 204FG

Tuesday, March 21, A.M.

8:00 a.m.  Billy N. Day Symposium - Implications of Prenatal Physiology on Modern Pork Production, Room 138
8:00 a.m.  Dairy Extension Symposium - Starch Utilization by Ruminants, Room 136
8:00 a.m.  Growth and Development, Muscle Biology and Meat Science Symposium - Components of Meat Quality, Room 142
8:00 a.m.  Nonruminant Nutrition - Additives and Gut Modifiers, Room 204FG
8:00 a.m.  Odor and Nutrient Management, Swine Extension, Beef Extension Symposium – Understanding Comprehensive Nutrient Manure Planning for Livestock Producers, Room 134
8:00 a.m.  Ruminant Nutrition - Co-Product and Feedstuff Utilization, Room 204AB
8:30 a.m.  Animal Behavior, Housing, Well Being, Room 146
8:30 a.m.  Breeding and Genetics - Genetics of Pigs, Room 140
9:00 a.m.  ARPAS Exams, Convention Center, Board Room
9:30 a.m.  Ruminant Nutrition - Dairy Cattle Nutrition, Room 205IJ
11:30 a.m. Box Lunch, Convention Center Complex, Exhibit Hall

A box lunch will be served in the Exhibit Hall for those individuals who ordered and paid for it on the registration form. (Ticket will be with badge). There will be a limited number of box lunches available for purchase in the Exhibit Hall for those individuals who did not order a lunch in advance. The box lunches for sale will be on a first-come basis.
12:00 p.m. North Central Plains ARPAS Chapter Organizational Meeting, Room 205IJ

**Tuesday, March 21, P.M.**

1:00 p.m. Breeding and Genetics - Symposium: Genetics of Longevity in Food Animals, Room 140
1:00 p.m. Growth and Development, Muscle Biology and Meat Science - Practical aspects of meat quality, Room 205IJ
1:00 p.m. Nonruminant Nutrition - Grow-Finish Nutrition, Room 204FG
1:00 p.m. Odor and Nutrient Management, Room 134
1:00 p.m. Physiology Symposium - Role of the Ovary in Reproduction, Room 138
1:00 p.m. Ruminant Nutrition Symposium - Recent Developments in Trace Mineral Nutrition in Ruminants, Room 204AB
2:00 p.m. ARPAS Exams, Convention Center, Board Room
3:00 p.m. Nonruminant Nutrition - Proteins and Amino Acids, Room 204FG
3:00 p.m. Swine Extension - Swine Management, Room 142
3:15 p.m. Physiology - Topics in Ovarian Physiology - Young Investigators’ Perspective, Room 138
3:30 p.m. Ruminant Nutrition - Forages and Grazing, Room 204AB
4:30 p.m. Poster Presentations, Convention Complex, Exhibit Hall, Room 206
5:00 p.m. Career Fair, Convention Complex, Exhibit Hall, Room 206
6:00 p.m. Reception, Convention Complex, Exhibit Hall, Room 206

**Wednesday, March 22, A.M.**

6:45 a.m. Breakfast, Business Meeting, Awards Program, Convention Center Complex, Exhibit Hall, Room 206
9:00 a.m. Dairy Extension Symposium - Innovations in Dairy Management, Room 136
9:00 a.m. Nonruminant Nutrition - Nutrition of Weanling Pigs, Room 204FG
9:00 a.m. Nonruminant Nutrition - Distillers Dried Grains, Room 205 IJ
9:00 a.m. Physiology - Topics in Physiology, Room 138
9:00 a.m. Ruminant Nutrition - Feedlot Nutrition, Room 204AB
9:00 a.m. Teaching and Career Development Symposium: Learning from Professional Associations and Campus Initiatives to Improve Undergraduate Education, Room 134
9:30 a.m. Breeding and Genetics - Molecular and Quantitative Genetics, Room 140
12:15 p.m. ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
1:00 p.m. Biological Risk Management for Farmers and Ranchers, Sponsored by: Center for Food Security and Public Health, Iowa State University Room 134
Poster Schedule

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

**Monday, March 20**
All authors present from 4:30 – 6:00

Animal Behavior, Housing and Well-Being
Growth and Development, Muscle Biology and Meat Science
Nonruminant Nutrition
Odor and Nutrient Management
Physiology
Ruminant Nutrition
Swine Extension

**Tuesday, March 21**
All authors present from 4:30 – 6:00

Beef Extension
Breeding and Genetics
Growth and Development, Muscle Biology and Meat Science
Nonruminant Nutrition
Ruminant Nutrition
Teaching and Career Development
A SPECIAL THANK YOU
From the Midwestern Section of the American Society of Animal Science and the Midwest Branch of the American Dairy Science Association for support of the 2006 meeting to the following companies:

**Outstanding Young Scientist Awards**
Extension - Land O’Lakes, Purina Feed, LLC
Research - DSM Nutritional Products, Inc.
Teaching – 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**
ExSeed Genetics

**Student Competition Paper Awards**
Graduate M.S. - DeKalb Feeds, Inc.
Graduate Ph.D. - Akey
Undergraduate - Boehringer Ingelheim Vetmedica, Inc.

**Academic Quadrathlon**
Intervet, Inc.
Iowa State University

**Breakfast (Wednesday)**
Cargill Animal Nutrition
Land O’Lakes, Purina Feed, LLC
VetLife

**Cyber Café & Placement Center**
Cargill Animal Health
Feedstuffs Newspaper

**Abstract Book**
Diamond V Mills, Inc.
Fort Dodge Animal Health

**Program Sponsor**
Kemin AgriFoods North America, Inc.

**Poster Sponsor**
Zinpro

**Career Fair**
Elanco Animal Health
Land O’Lakes Purina Feed, LLC

**Symposium: Starch Utilization by Ruminants**
Chr. Hansen, Inc.

**David H. Baker Symposium**
David H. Baker Appreciation Club

**Billy N. Day Symposium**
Billy N. Day Appreciation Club
Symposium: Components of Meat Quality  
Cargell Meat Solutions and Monsanto

Symposium: Understanding Comprehensive Nutrient Manure Planning for Livestock Producers  
JBS United, Inc.

Symposium: Genetics of Longevity in Food Animals  
Newsham Genetics

Symposium: Recent Developments in Trace Mineral Nutrition in Ruminants  
Zinpro

Symposium: Forages and Grazing  
Prince Agri Products, Inc.

Program Sponsors

Co-Product and Feedstuff Utilization  
Prince Agri Products, Inc.

Additives and Gut Modifiers  
Omega Nutrition

Dairy Cattle Nutrition  
Prince Agri Products, Inc.

Grow-Finish Nutrition  
The Kent Group

Proteins and Amino Acids  
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Genetics of Pigs  
Pig Improvement Company

General Meeting  
Agri-Nutrition Services, Inc.
Ajinomoto Heartland LLC
American Angus Association
Babcock Genetics, Inc.
BASF Corporation Animal Nutrition
Danisco Animal Nutrition
DSM Nutritional Products, Inc.
Elanco Animal Health
Feedstuffs Newspaper
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Pfizer Animal Health
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Monsanto
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Pfizer Animal Health
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Ralco-Mix Products
SafAgri
The Kent Group
VetLife
Zinpro

Bronze
Agri-Nutrition Services, Inc.
American Angus Association
Babcock Genetics, Inc.
BASF Corporation Animal Nutrition
Cargill Meat Solutions
Chr. Hansen, Inc.
Danisco Animal Nutrition
DeKalb Feeds, Inc.
ExSeed Genetics
Hormel Foods Corporation
ILC Resources
International Ingredient Corporation
Lucta USA
Micronutrients
Newsham Genetics
Omega Nutrition
Pig Improvement Company

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PREPARATION GUIDELINES FOR ORAL PRESENTATIONS — LCD

NOTE: Program and session chairs must load power point slides via disks in advance.

1. Your session chair may ask you to submit your Microsoft PowerPoint presentation electronically in advance of the meeting so he has sufficient time to load the laptop computer.

2. If your session chair does not require pre-meeting submission, then you must bring your Microsoft PowerPoint (version 97) presentation on a disk that is labeled with: your name, day and time of session, abstract number, time of presentation, title of file, version of software and your location and phone number during the Midwest meeting. The type of disk to use (i.e., CD vs. zip disk vs. USB Stick) should be confirmed with your session chair prior to your arrival at the meeting. This properly labeled disk must be brought to the PowerPoint presentation room by:
   - Monday, March 20 by 11:00 a.m. for Monday afternoon presentations
   - Monday, March 20 by 4:00 p.m. for Tuesday morning presentations
   - Tuesday, March 21 by 8:00 a.m. for Tuesday afternoon presentations
   - Tuesday, March 21 by 12:00 noon for Wednesday morning presentations

3. The program and session chairs will be loading all PowerPoint presentations in advance. Personal laptops will NOT be permitted for use during sessions.

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

POSTERS PRESENTED
- Monday, March 20 - 4:30 - 6:00 PM
- Tuesday, March 21 - 4:30 - 6:00 PM
SCIENTIFIC SESSIONS
Monday, March 20

David H. Baker Amino Acid Symposium
Chair: L. Lee Southern, Louisiana State University, Baton Rouge
Room: 204FG
Sponsored by David H. Baker Appreciation Club

1:00 PM  Introduction. L. Lee Southern.

1:05 PM  (Invited) An incomplete list of key developments in nonruminant nutrition in the final four decades of the 20th century. Robert A. Easter, University of Illinois, Urbana.


2:10 PM  2 Lysine requirements of neonatal pigs fed manufactured liquid diets. H. Lewis1, O. Phillips1, R. Cabrera2, R. Boyd3, J. Usry4, J. Odle1, and R. Harrell*1,

1 North Carolina State University, Raleigh, 2 Ralco Nutrition, Marshall, MN, 3 The Hanor Company, Spring Green, WI, 4 Ajinomoto Heartland, Chicago, IL.

2:25 PM  Break.

2:40 PM  3 (Invited) Towards quantification of amino acid needs for body maintenance functions and growth in the pig. C. de Lange*, University of Guelph, Guelph, ON, Canada.

3:10 PM  21 Dietary L-arginine supplementation improves pregnancy outcome in gilts. R. D. Mateo*1, G. Wu1,2, J. A. Carroll3, I. Shinzato4, and S. W. Kim1,2,

1 Texas Tech University, Lubbock, 2 Texas A&M University, College Station, 3 USDA-ARS-LIRU, Lubbock, TX, 4 Ajinomoto, Tokyo, Japan.

3:25 PM  5 Role of energy and other dietary constituents on the utilization by pigs of free- and protein-bound amino acids. J. F. Patience* and A. D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

3:50 PM  6 Effect of dietary lysine intake on nitrogen balance of gilts during different stages of gestation. P. Srichana*1, A. Gaines1, G. Allee1, and J. Usry2,

1 University of Missouri, Columbia, 2Ajinomoto Heartland LLC, Chicago, IL.

4:05 PM  Discussion.


2:30 PM 13 Effect of corn hybrid and processing method on site and extent of nutrient digestibility using the mobile bag technique. M. Luebbe*, G. Erickson, T. Klopfenstein, and W. Fithian, University of Nebraska, Lincoln. Golden Harvest Seeds, Inc., Waterloo, NE.

2:45 PM Break.


3:15 PM 15 Effect of feeding a byproduct combination at two levels or byproduct alone in feedlot diets. C. D. Buckner*, G. E. Erickson, T. J. Klopfenstein, R. A. Stock, and K. J. Vander Pol, University of Nebraska, Lincoln. Cargill Wet Milling, Blair, NE.
Evaluating in vitro neutral detergent fiber digestibility of high-fiber byproduct feeds and forages. J. Wakker*1, H. G. Jung12, and J. G. Linn1, 
1University of Minnesota, St. Paul, 2USDA-Agricultural Research Service, St. Paul, MN.

Graduate Student Competitive Research Papers, Ph.D. Division
Chair: Ellen Davis, Agtech Products, Waukasha, WI
Room: 204AB
Sponsored by: Akey

Effects of ruminal protein degradability and frequency of supplementation on net flux of N in visceral tissues of lambs fed a low-quality forage. R. L. Atkinson*1, C. D. Toone1, D. L. Harmon2, and P. A. Ludden1, 1University of Wyoming, Laramie, 2University of Kentucky, Lexington.


Effect of diet on apparent intestinal retention of methionine and 2-hydroxy-4-methylthiobutanoic acid in pigs. G. Malik*1, M. D. Drcw1, D. Hochler2, M. Rademacher2, and A. G. Van Kessel1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Degussa Corporation, Kennecaw GA.

Chronic exposure of ruminal fluid cultures to treatments that inhibit methanogenesis. E. Behlke*1, J. Takacs1, S. Ragsdale1, C. McNeff2, P. Newsome3, and J. Miner1, 1University of Nebraska, Lincoln, 2SarTec Corporation, Anoka, MN, 3PharmAgra Labs, Inc., Brevard, NC.

Dietary L-arginine supplementation improves pregnancy outcome in gilts. R. D. Mateo*1, G. Wu12, J. A. Carroll3, I. Shinzato4, and S. W. Kim12, 1Texas Tech University, Lubbock, 2Texas A&M University, College Station, 3USDA-ARS-LIRU, Lubbock, TX, 4Ajinomoto, Tokyo, Japan.

QTL mapping in an F2 Duroc x Pietrain resource population: II. Carcass and meat quality traits. D. B. Edwards*1, C. W. Ernst1, N. E. Raney1, M. E. Doumit1, M. D. Hoge12, and R. O. Bates1, 1Michigan State University, East Lansing, 2Western Illinois University, Macomb.

Differential gene and protein expression in gilt and sow derived oocytes. M. Paczkowski*, D. Terry, C. Bidwell, and R. Krisher, Purdue University, West Lafayette, IN.

Break.

Effects of L-carnitine and gestation length on growth factor messenger RNA (mRNA) expression in maternal tissues. K. R. Brown*1, R. D. Goodband1, M. D. Tokach1, S. S. Dritz1, J. L. Nelssen1, J. E. Minton1, D. M. Grieger1, J. C. Woodworth2, and B. J. Johnson1, 1Kansas State University, Manhattan, 2Lonza, Inc, Allendale, NJ.
### Undergraduate Student Competitive Research Papers I

**Chair:** Arnold Hippen, South Dakota State University, Brookings  
**Room:** 138  
**Sponsored by:** Boehringer Ingelheim Vetmedica, Inc.

**NOTE:** Program order could change depending on AQ participation.

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
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<tbody>
<tr>
<td>2:45 PM</td>
<td>Differences in aggression between commercial pigs from the years 1980 and 2005. J. Young*, D. Hanson, E. van Heugten, M. See, and J. Cassady, North Carolina State University, Raleigh.</td>
</tr>
<tr>
<td>3:15 PM</td>
<td>Effects of estradiol on the uterine environment and trophectoderm in the gilt. T. Wilmoth*, D. Smith, J. Koch, and M. Wilson, West Virginia University, Morgantown.</td>
</tr>
<tr>
<td>3:30 PM</td>
<td>Milk production and pregnancy rate of dairy cows in an in-vitro fertilization embryo transfer program. L. E. Rensink*, J. D. Helmus, D. C. Arnett, J. S. Metzger, G. W. Robinson, and A. N. Scheaffer, 1Northwestern College, Orange City, IA, 2Trans Ova Genetics, Sioux Center, IA.</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>Supplementing of grazing dairy cows with fish oil and sunflower oil enhances milk conjugated linoleic acid without affecting cows performance. L. Holmes*, A. AbuGhazaleh, G. Apgar, and K. Griswold, 1Southern Illinois University, Carbondale, 2Pennsylvania State University, Lancaster.</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<td>4:00 PM</td>
<td>35</td>
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<td>Survey of beef consumers in the Fargo, North Dakota market: Interest in natural and source identified beef. K. A. Cook*, G. P. Lardy¹, K. R. Maddock Carlin¹, T. D. Maddock¹, M. J. Marchello¹, and K. G. Odde¹, ¹North Dakota State University, Fargo, ²Michigan State University, East Lansing.</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>36</td>
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<td>The effects of myostatin on skeletal muscle re-growth following disuse atrophy in mice. M. Grant*, J. Koltes, and J. Reecy, Iowa State University, Ames.</td>
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Undergraduate Student Competitive Research Papers II
Chair: Wendy Powers, Iowa State University, Ames
Room: 140
NOTE: Program order could change depending on AQ participation.

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>2:30 PM</td>
<td>37</td>
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<tr>
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<td>Hormone concentrations of production dairy cows in an <em>in-vitro</em> fertilization embryo transfer program. J. D. Helmus*, L. E. Rensink¹, D. H. Keisler², D. C. Arnett¹, J. S. Metzger³, G. W. Robinson¹, and A. N. Scheaffer¹, ¹Northwestern College, Orange City, IA, ²University of Missouri, Columbia, ³Trans Ova Genetics, Sioux Center, IA.</td>
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<tr>
<td>2:45 PM</td>
<td>38</td>
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<td>Effects of level and source of selenium on maternal jejunal vascularity in growing pregnant ewe lambs. S. Julius*, M. Ward¹, J. Caton¹, J. Taylor², S. Soto-Navarro³, K. Vonnahme¹, T. Neville¹, J. Reed¹, P. Borowicz¹, D. Redmer¹, and L. Reynolds¹, ¹North Dakota State University, Fargo, ²USDA-ARS Sheep Experiment Station, Dubois, ID, ³New Mexico State University, Las Cruces.</td>
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<td>3:00 PM</td>
<td>39</td>
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<td>Effects of maternal undernutrition and high selenium (Se) on mammary gland growth in late pregnant sheep. P. Nester*, J. Reed¹, ², D. Redmer¹, ², L. Reynolds¹, ², K. Vonnahme¹, ², and J. Caton¹, ², ¹Center for Nutrition and Pregnancy, Fargo, ND, ²North Dakota State University, Fargo.</td>
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<td>3:15 PM</td>
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<td>Effects of energy restriction during gilt development on growth, backfat, longissimus muscle development and age at puberty. E. Maricle*, P. Miller, and R. Johnson, University of Nebraska, Lincoln.</td>
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<td>3:30 PM</td>
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<td>3:45 PM</td>
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<td>Effect of egg protein antibody on performance of dairy calves. R. Schnobrich*, H. Chester-Jones², D. Ziegler², R. Larson³, B. Ziegler³, and J. Linn¹, ¹University of Minnesota, St. Paul, ²University of Minnesota, Waseca, ³Hubbard Feeds, Mankato, MN.</td>
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<td>4:00 PM</td>
<td>43</td>
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<td>Assessing farm owners’ attitudes and perceptions about lameness of dairy cattle. A. M. Edgecomb*, C. L. Wickens, and D. K. Beede, Michigan State University, East Lansing.</td>
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<td>4:15 PM</td>
<td>44</td>
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<td>Effect of moisture enhancement on sensory attributes, tenderness, and</td>
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POSTER PRESENTATIONS

Sponsored by: Zinpro

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

Animal Behavior, Housing, Well Being - Posters
Exhibit Hall

45 Effects of space allowance and weight group composition on the performance of grow-finish pigs on fully slatted floors. L. Anil*, S. S. Anil, and J. Deen, University of Minnesota, St. Paul.

46 Effects of space allowance and weight group composition on the welfare of grow-finish pigs on fully slatted floors. L. Anil*, S. S. Anil, and J. Deen, University of Minnesota, St. Paul.


49 Using sow lifts to reduce piglet crushing. R. Walker* and S. Baidoo, University of Minnesota, Waseca.

50 Environmental factors affecting feed intake of steers in different housing systems. H. Koknaroglu1, Z. Otles2, T. Mader3, and M. P. Hoffman*, 1Suleyman Demirel University, Isparta, Turkey, 2Frontier Science and Technology Research Foundation, Madison, WI, 3University of Nebraska, Lincoln, 4Iowa State University, Ames.

Effects of moisture enhancement on tenderness, retail color, and sensory characteristics of beef triceps brachii. A. E. Radunz*1, P. S. Kuber1, H. N. Zerby1, M. D. Vieson1, S. J. Moeller1, A. C. Naber1, K. M. Brueggemeier1, J. L. Bard1, G. R. Dunlap1, and B. L. Gwartney2,1The Ohio State University, Columbus, 2National Cattlemen’s Beef Association, Denver, CO.

Effect of moisture enhancement on sensory attributes, tenderness, and retail color of beef steaks from the rectus femoris. P. S. Kuber*1, A. E. Radunz1, M. D. Vieson1, H. N. Zerby1, S. J. Moeller1, J. L. Bard1, A. C. Naber1, K. M. Brueggemeier1, G. R. Dunlap1, and B. L. Gwartney2,1The Ohio State University, Columbus, 2National Cattlemen’s Beef Association, Centennial, CO.


Effects of breed, aging and muscle location on warner-bratzler shear force in beef longissimus thoracis et lumborum. A. Weaver*, T. Stewart, and D. Gerrard, Purdue University, West Lafayette, IN.

Fetal growth of lambs paternally heterozygous for the callipyge mutation. H. C. Freetly*1, M. B. McDonagh2, and C. L. Ferrell1,1USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2Department of Primary Industries, Victoria, Australia.

Interactions of a novel intermediate filament protein with two costameric proteins in muscle cells. N. Sun* and R. M. Robson, Iowa State University, Ames.

The effect of Optaflexx® dose and feeding duration on growth performance of steers. M. T. Van Koeveering*1, A. L. Schroeder1, G. J. Vogel1, W. J. Platter1, A. A. Aguilar1, D. Mowrey1, S. B. Laudert1, G. E. Erickson2, R. Pritchard3, M. Gaylean4, and L. Berger5,1Elanco Animal Health, Greenfield, IN, 2University of Nebraska, Lincoln, 3South Dakota State University, Brookings, 4Texas Tech University, Lubbock, 5University of Illinois, Urbana.

The effect of Optaflexx® dose and feeding duration on carcass traits of steers. M. T. Van Koeveering*1, A. L. Schroeder1, G. J. Vogel1, W. J. Platter1, A. A. Aguilar1, D. Mowrey1, S. B. Laudert1, G. E. Erickson2, R. Pritchard3, M. Gaylean4, and L. Berger5,1Elanco Animal Health, Greenfield, IN, 2University of Nebraska, Lincoln, 3South Dakota State University, Brookings, 4Texas Tech University, Lubbock, 5University of Illinois, Urbana.

Nonruminant Nutrition - Posters
Exhibit Hall

Determination of bioequivalence ratio of D-A- to DL-A-tocopheryl acetate based on serum and liver A-tocopherol content of swine. H. Yang*¹, D. Mahan², D. Hill³, T. Shipp⁴, and T. Radke¹, ¹ADM Animal Nutrition, Quincy, IL, ²The Ohio State University, Columbus, ³ADM Animal Health and Nutrition, Quincy, IL.

Determination of the optimum dietary lysine concentration for pigs in the weight range 15 to 33 kg. M. K. O'Connell* and P. B. Lynch, Pig Production Department, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

Evaluation of mineral retention and tissue mineral content in finishing pigs fed inorganic and organic trace minerals. A. Balfagón*¹, M. D. Lindemann¹, K. J. Stalder², J. Burkett², J. Pierce³, and G. L. Cromwell¹, ¹University of Kentucky, Lexington, ²Iowa State University, Ames, ³Alltech Inc., Nicholasville, KY.


Effect of feeding reduced phosphorus diets on bone characteristics of swine reared under both research and commercial settings. R. Hinson*, A. Schinckel, A. Sutton, and B. Richert, Purdue University, West Lafayette, IN.

Ingestion of endophyte infested fescue does not affect exercise recovery of horses exercised at a light workload. G. Webb*, S. Webb, and R. Humes, Missouri State University, Springfield.


Evaluation of regional differences in nutrient composition and physical characteristics among six U.S. soybean meal sources. P. E. Urriola*¹, M. H. Whitney², N. S. Muley¹, and G. S. Shurson¹, ¹University of Minnesota, St Paul, ²Extension Regional Center, Mankato, MN.

Odor and Nutrient Management - Posters
Exhibit Hall

Effects of feeding varying concentrations of dry distillers grains with solubles to finishing steers on the nutrient concentration of manure scrapings and soil core samples from an earthen floor feedlot. C. Benson, K. Tjardes, and C. Wright*, South Dakota State University, Brookings, SD, USA.

Effect of feeding a reduced crude protein and phosphorus diet on compartmental and whole body mineral masses of pigs reared under commercial settings. R. Hinson*1, A. Sutton1, A. Schinckel1, B. Richert1, G. Hill2, and J. Link2, 1Purdue University, West Lafayette, IN, 2Michigan State University, East Lansing.

Physiology - Posters
Exhibit Hall

Using ultrasound as a quantitative tool to assess body condition score in Quarter and Thoroughbred horses. B. McCoy1, N. Wheeler*1, J. Willard1, T. Wistuba1, P. Prater1, and B. Sandelin2, 1Morehead State University, Morehead, KY, USA, 2California State Polytechnic University, Pomona.

Fatty acid composition of the pig conceptus and endometrium in response to maternal omega-3 fatty acid supplementation. A. E. Brazle*1, B. J. Johnson1, E. C. Titgemeyer1, S. K. Webel2, and D. L. Davis1, 1Kansas State University, Manhattan, 2JBS United, Inc., Sheridan, IN.

Effect of feed restriction and hypothermia on fetal development of mice. E. Maricle* and W. Lamberson, University of Missouri, Columbia.

Ruminant Nutrition - Posters
Exhibit Hall


Effects of corn supplementation on internal parasite infection of grazing lambs. P. Tirabasso*, S. Loerch, D. Clevenger, and G. Lowe, The Ohio State University, Wooster.

Integration of cool- and warm-season grass pasturing systems into cattle finishing programs. R. A. Edler*1,2, M. P. Hoffman1, and P. Tsengeg1, 1Iowa State University, Ames, 2Boehringer Ingelheim Vetmedica, Ames, IA.

The variance of residual feed intake in purebred Hereford heifers fed a forage diet. L. S. Miller*, M. S. Kerley, and W. H. Kolath, University of Missouri, Columbia.

Effect of barley particle size on intake, growth, and gain efficiency of steers fed growing diets. D. Larson*, M. Bauer, and G. Lardy, North Dakota State University, Fargo.

Effect of pulse grains on rumen fermentation, digestion, and microbial protein synthesis in receiving diets for beef cattle. T. Gilbery*1, G. Lardy1, S. Navarro1, M. Bauer1, and V. Anderson2, 1North Dakota State University, Fargo, 2North Dakota State University, Carrington.

Effects of processing field peas for feedlot diets, creep feed, and gestating beef cows. V. Anderson, J. Schoonmaker, and B. Ilse*, North Dakota State University, Carrington.


The effects of different ruminal degradable protein (RDP) sources on fermentation of corn-based diets in continuous culture. C. J. Fu*, J. H. Porter, and M. S. Kerley, University of Missouri, Columbia.


Swine Extension - Posters
Exhibit Hall


Evaluation of different mixed model nonlinear functions on pigs fed low nutrient excretion diets. A. Schinckel*, M. Einstein, R. Hinson, B. Richert, J. Radcliffe, P. Preckel, and S. Pence, Purdue University, West Lafayette, IN.

Analysis of the association of number of piglets born alive with sow level factors and season of farrowing. S. S. Anil*, L. Anil, and J. Deen, University of Minnesota, St. Paul.

Tuesday, March 21

Billy N. Day Symposium
Implications of Prenatal Physiology on Modern Pork Production
Chair: Stephen K. Webel, JBS United, Inc., Sheridan, IN
Room: 138
Sponsored by: Billy N. Day Appreciation Club

8:00 AM  Introduction. Stephen K. Webel, JBS United, Inc., Sheridan, IN.

8:15 AM  (Invited) What has been learned about uterine capacity in the pig from genetic selection experiments? R. Johnson*, University of Nebraska, Lincoln.

8:55 AM  (Invited) What we have learned about prenatal physiology in the pig from uterine crowding experiments. J. Vallet*, B. Freking, J. P. Kayser, R. Christenson, and K. Leymaster, USDA, ARS, Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, NE.

9:35 AM  Break.

9:50 AM  (Invited) Fetal programming: what do we know and what are the implications for the swine industry? R. Anthony*1,2, 1Colorado State University, Fort Collins, 2University of Colorado Health Sciences Center, Aurora.

10:30 AM  Discussion.

10:45 AM  Panel: Current topics in porcine prenatal physiology. Chair: Timothy J. Safranski, University of Missouri, Columbia.

11:45 AM  Discussion.

Dairy Extension Symposium - Starch Utilization by Ruminants
Chair: J.W. Schroeder, North Dakota State University
Room: 136
Sponsored by: Chr. Hansen, Inc.

8:00 AM  (Invited) Laboratory methods of analysis for feedstuff starch content and availability. M. B. Hall*, U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

8:30 AM  (Invited) Influence of Processing and Grain Type on Site and Extent of Starch Digestion. F. Owens, Pioneer Hi-Bred International, Inc., Johnston, IA.

9:00 AM  (Invited) Applied aspects of starch in dairy cattle feeding programs. R. Shaver and P. Hoffman*, University of Wisconsin, Madison.
Growth and Development, Muscle Biology and Meat Science Symposium - Components of Meat Quality
Chair: Tim Smith, USDA/ARS U.S. Meat Animal Research Center
Room: 142
Sponsored by: Cargill Meat Solutions and Monsanto

8:00 AM 99 (Invited) Crossing the line between muscle and meat: The influence of muscle cell physiology on meat quality. E. Huff-Lonergan* and S. Lonergan, Iowa State University, Ames.

8:40 AM 100 (Invited) Adipose tissue, lipids, and meat quality. S. Smith* and D. Lunt, Texas A&M University, College Station.

9:20 AM 101 (Invited) Intramuscular connective tissue and its role in meat quality. P. Purslow*, University of Guelph, Guelph, Ontario, Canada.

10:00 AM Break.


10:30 AM 103 Relationship between dietary fat and fatty acid composition in backfat of boars and gilts. E. Hallenstvedt*1,2, H. Sterten1,2, and M. Øverland1, 1University of Life Sciences, Ås, Norway, 2Felleskjøpet Forutvikling, Trondheim, Norway.


Nonruminant Nutrition - Additives and Gut Modifiers
Chair: Dari Brown and Chad Hastad, Land O’Lakes, Inc., St. Paul, MN and Omega Nutrition, LLC, Fairmont, MN
Room: 204FG
Sponsored by: Omega Nutrition

8:00 AM 24 Effects of L-carnitine and gestation length on growth factor messenger RNA (mRNA) expression in maternal tissues. K. R. Brown*1, R. D. Goodband1, M. D. Tokach1, S. S. Dritz1, J. L. Nelssen1, J. E. Minton1, D. M. Grieger1, J. C. Woodworth2, and B. J. Johnson1, 1Kansas State University, Manhattan, 2Lonza, Inc., Allendale, NJ.

8:15 AM 106 Influence of L-carnitine on gilt and fetal growth characteristics at three gestation lengths. K. R. Brown*1, R. D. Goodband1, M. D. Tokach1, S. S. Dritz1, J. L. Nelssen1, J. E. Minton1, J. C. Woodworth2, and B. J. Johnson1, 1Kansas State University, Manhattan, 2Lonza, Inc., Allendale, NJ, Allendale, NJ.

8:30 AM 107 Leukocyte proportions and interferon-G concentration in colostrum and milk of lactating sows supplemented with mannan oligosaccharides during gestation and lactation. C. L. Bradley*1, M. E. Davis1, D. C.
Pretreatment of swine jejunal epithelial cells (IPEC-J2) with *Bacillus licheniformis* (BL) prevents *Salmonella enterica* serovar Typhimurium (ST)-induced basolateral interleukin 8 (IL-8) secretion. K. A. Skjolaas*, T. E. Burkey, and J. E. Minton, Kansas State University, Manhattan.

Dietary supplementation with zinc oxide increases IGF-I and IGF-I receptor gene expression in the small intestine of weaning piglets. X. Li, J. Yin, D. Li*, X. Chen, J. Zang, and X. Zhou, National Key Laboratory of Animal Nutrition, Beijing, China.


Effects of supplementing natural vitamin E in the diets or drinking water of weanling pigs. D. Mahan1, E. Wilburn*1, D. Hill2, T. Shipp3, and H. Yang2, 1The Ohio State University, Columbus, 2ADM, Animal Health and Nutrition, Quincy, IL.

High levels of an *E. coli*–derived phytase can fully replace inorganic phosphorus in grow-finish pig diets. N. Augspurger*1, J. Spencer1, D. Webel1, T. Torrance1, and B. Wolter1, 1JBS United, Inc., Sheridan, IN, 2The Maschoff’s, Inc., Carlyle, IL.

Effect of xylanase supplementation on nutrient digestibility of wheat by-products in grower pigs. T. Nortey*1,2, J. Patience1, J. Sands4, and R. Zijlstra4, 1Prairie Swine Centre Inc., Saskatoon, Saskatchewan, Canada, 2University of Saskatchewan, Saskatoon, Saskatchewan, Canada, 4Danisco Animal Nutrition, Marlborough, Wiltshire, U.K, 4University of Alberta, Edmonton, Alberta, Canada.


Growth performance of nursery pigs fed BIOSAF® yeast alone or in combination with in-feed antimicrobial. B. M. Hildabrand*, T. E. Burkey, K. A. Skjolaas, S. S. Dritz, B. J. Johnson, and J. E. Minton, Kansas State University, Manhattan.


Odor and Nutrient Management, Swine Extension, Beef Extension Symposium - Understanding Comprehensive Nutrient Manure Planning for Livestock Producers
Chair: Joel DeRouchey, Kansas State University, Manhattan
Room: 134
Sponsored by: JBS United, Inc.

(Invited) Using CNMPs to meet NPDES permit nutrient management plan requirements. R. Burns*, Iowa State University, Ames.

(Invited) Software tools for nutrient management planning: Where are we now and where are we headed? B. Joern*, P. Hess, and B. Eisenhauer, Purdue University, West Lafayette, IN.

(Invited) Integrating animal feeding strategies into CNMP processes: Role of an updated ASAE standard D384.2. R. K. Koelsch*1, W. Powers2, and A. L. Sutton3, 1University of Nebraska, Lincoln, 2Iowa State University, Ames, 3Purdue University, West Lafayette, IN.

Break.

(Invited) Non-ruminant diet composition effects on land acreage manure application. A. Sutton*, B. Richert, and T. Applegate, Purdue University, West Lafayette.

(Invited) Ruminant diet composition effects on land area used for manure application. G. E. Erickson*1, T. J. Klopfenstein1, R. K. Koelsch1, W. F. Kissinger1, and J. H. Harrison2, 1University of Nebraska, Lincoln, 2Washington State University, Pullman.

Panel Discussion.
Effect of feeding a byproduct combination at two levels or byproduct alone in feedlot diets. C. D. Buckner*, G. E. Erickson¹, T. J. Klopfenstein¹, R. A. Stock², and K. J. Vander Pol¹, ¹University of Nebraska, Lincoln, ²Cargill Wet Milling, Blair, NE.

Optimizing the length of feeding a high distillers dried grains with solubles-soy hull diet to feedlot cattle. J. Homm*, L. Berger¹, L. Forster², and T. Nash¹, ¹University of Illinois, Urbana, IL, ²Archer Daniels Midland Company, Decatur, IL.

Characteristics of fatty acid digestion in finishing diets containing wet distillers grains, a composite, or supplemental corn oil. K. J. Vander Pol*, M. K. Luebbe, G. I. Crawford, G. E. Erickson, and T. J. Klopfenstein, University of Nebraska, Lincoln.

Addition of wet distillers grains plus solubles in cattle finishing diets containing wet corn gluten feed. P. L. Loza*, G. E. Erickson¹, K. J. Vander Pol¹, M. A. Greenquist¹, R. A. Stock², and T. J. Klopfenstein¹, ¹University of Nebraska, Lincoln, ²Cargill Wet Milling, Blair, NE.

Effects of feeding wet corn distiller’s grains with solubles and monensin and tylosin on the prevalence and antibiotic susceptibility of E. coli O157 in feedlot cattle. M. Jacob*, J. T. Fox, S. Narayanan, J. S. Drouillard, and T. G. Nagaraja, Kansas State University, Manhattan.

Effects of high-fat corn condensed distillers’ solubles supplementation on ruminal fermentation, digestion, and in situ disappearance in steers consuming low-quality hay. T. Gilbery*, G. Lardy, S. Navarro, M. Bauer, and J. Caton, North Dakota State University, Fargo.

Impact of fiber types on rumen buoyancy of corn bran. C. D. Buckner*, T. J. Klopfenstein, G. E. Erickson, J. C. MacDonald, and J. R. Benton, University of Nebraska, Lincoln.


Effect of corn processing in finishing diets containing wet distillers grains on feedlot performance and carcass characteristics of finishing steers. K. J. Vander Pol¹, M. A. Greenquist¹, G. E. Erickson¹, T. J. Klopfenstein¹, and T. Robb², ¹University of Nebraska, Lincoln, ²Abengoa Bioenergy, York, NE.

Effect of corn hybrid and processing method on site and extent of nutrient digestibility using the mobile bag technique. M. Luebbe*, G.
Erickson\textsuperscript{1}, T. Klopfenstein\textsuperscript{1}, and W. Fithian\textsuperscript{2}, \textsuperscript{1}University of Nebraska, Lincoln, \textsuperscript{2}Golden Harvest Seeds, Inc., Waterloo, NE.

10:45 AM 135 Influence of corn hybrid on kernel traits and digestibility for cattle. F. W. Harrelson\textsuperscript{*1}, G. E. Erickson\textsuperscript{1}, T. J. Klopfenstein\textsuperscript{1}, L. A. Nelson, and D. S. Jackson, University of Nebraska, Lincoln.

11:00 AM 136 Influence of corn hybrid, kernel traits, and dry rolling or steam flaking on digestibility. F. W. Harrelson\textsuperscript{*1}, G. E. Erickson\textsuperscript{1}, T. J. Klopfenstein\textsuperscript{1}, W. A. Fithian\textsuperscript{2}, P. M. Clark\textsuperscript{3}, and D. S. Jackson\textsuperscript{1}, \textsuperscript{1}University of Nebraska, Lincoln, \textsuperscript{2}Golden Harvest Seeds, Inc., Waterloo, NE, \textsuperscript{3}Kansas State University, Manhattan.

Animal Behavior, Housing, Well Being
Chair: J. Ernest Minton, Kansas State University, Manhattan
Room: 146

8:30 AM 137 Effects of distance moved during loading and transport floor space of market weight pigs on transport losses at the packing plant. M. J. Ritter\textsuperscript{*1}, M. Ellis\textsuperscript{1}, C. R. Bertelsen\textsuperscript{1}, R. Bowman\textsuperscript{2}, J. Brinkmann\textsuperscript{2}, J. M. DeDecker\textsuperscript{1}, K. K. Keffaber\textsuperscript{1}, C. M. Murphy\textsuperscript{1}, B. A. Peterson\textsuperscript{1}, J. M. Schlipf\textsuperscript{1}, and B. F. Wolter\textsuperscript{2}, \textsuperscript{1}University of Illinois, Urbana, \textsuperscript{2}The Maschhoffs, Inc., Carlyle, IL, \textsuperscript{3}ELANCO Animal Health, Greenfield, IN.

8:45 AM 138 Sow and litter performance in individual crate and group bedded hoop barn gestation systems. P.J. Lammers\textsuperscript{*} and M.S. Honeyman, Iowa State University, Ames.

9:00 AM 139 A survey of dairy compost barns in Minnesota. A. Barberg\textsuperscript{*}, M. Endres, and J. Salf\textsuperscript{er}, University of Minnesota, St. Paul.


9:30 AM 141 The relationship between inflammatory condition and liver activity in the puerperium and their consequences on fertility in dairy cows. G. Bertoni\textsuperscript{1}, E. Trevisi\textsuperscript{1}, X. Han\textsuperscript{2}, and M. Bionaz\textsuperscript{*1}, \textsuperscript{1}Istituto di Zootecnica, Universita Cattolica del Sacro Cuore, Piacenza, Italy, \textsuperscript{2}University of Saskatchewan, Saskatoon, Canada.

Breeding and Genetics - Genetics of Pigs
Chair: Ken Stalder, Iowa State University, Ames
Room: 140
Sponsored by: Pig Improvement Company

8:30 AM 143 Phenotypic relationships among pig behavior, growth, LM area, and backfat. J. Cassady*, North Carolina State University, Raleigh.

8:45 AM 144 Estimation of relationships among behavior traits and growth prior to 56 d of age in pigs. B. Velie*, E. Johnson, and J. Cassady, North Carolina State University, Raleigh.

9:00 AM 145 Sex and line differences among feeding behavior traits in pigs. C. Lanier*, D. Casey, M. See, and J. Cassady, North Carolina State University, Raleigh.


9:45 AM Break.

10:00 AM 148 Phenotypic evaluation of selection lines for residual feed intake in Yorkshire swine. W. Cai*, D. Casey, B. Mote, and J. Dekkers, Iowa State University, Ames.


Ruminant Nutrition - Dairy Cattle Nutrition  
Chair: Arnold Hippen, South Dakota State University, Brookings  
Room: 205IJ  
Sponsored by: Prince Agri Products, Inc.

9:30 AM  152  (Invited Young Scholar) Does prepartum rumen epithelial development limit early postpartum performance?  W. Miller* and J. Shirley, Kansas State University, Manhattan.

10:00 AM  153  (Invited Young Scholar) Propionate regulation of feed intake.  B. J. Bradford* and M. S. Allen, Michigan State University, East Lansing.

10:30 AM  154  Milk production of dairy cows fed a wet corn gluten feed during the dry period and lactation.  P. Kononoff*, S. Ivan, W. Matzke, R. Grant, R. Stock, and T. Klopfenstein, 1University of Nebraska, Lincoln, 2Cargill, Inc., Blair, NE, 3Miner Institute, Chazy, NY, 4University of Maryland, College Park.


Breeding and Genetics Symposium - Genetics of Longevity in Food Animals  
Chair: Diane Moody Spurlock, Iowa State University, Ames  
Room: 140  
Sponsored by: Newsham Genetics

1:00 PM  Welcome and Introductions.

Growth and Development, Muscle Biology and Meat Science - Practical Aspects of Meat Quality
Chair: Brad Johnson, Kansas State University, Manhattan
Room: 205IJ

1:00 PM 163 (Invited) Impact of growth promotants on beef and pork quality. F. K. McKeith*, S. F. Holmer, and J. Killefer, University of Illinois, Urbana.

1:40 PM 164 Effects of feeding duration on growth performance and carcass characteristics of feedlot steers. M. Greenquist¹, K. Vander Pol¹, G. Erickson¹, T. Klopfenstein¹, and M. Van Koevering², ¹University of Nebraska, Lincoln, ²Elanco Animal Health, Greenfield, IN.


2:10 PM 166 Effect of Optaflexx dosage and duration of feeding prior to slaughter on growth performance and carcass characteristics. G. I. Crawford¹, G. E. Erickson¹, K. J. Vander Pol¹, M. A. Greenquist¹, J. D. Folmer¹, and M. T. Van Koevering², ¹University of Nebraska, Lincoln, ²Elanco Animal Health, Omaha, NE.

2:25 PM 167 Effects of Optaflexx fed in combination with melengestrol acetate on feedlot performance of heifers. W. A. Griffin¹, G. E. Erickson¹, B. D. Dicke², R. J. Cooper², D. J. Jordan³, J. S. Drouillard³, W. M. Moseley³, D. J. Weigel⁴, and G. E. Sides⁴, ¹University of Nebraska, Lincoln, ²Cattlemen's Nutrition Services LLC, Lincoln, NE, ³Kansas State University, Manhattan, ⁴Pfizer Animal Health, New York, NY.

2:40 PM 168 Evaluation of Synovex Choice/Synovex Choice versus Revalor-IS/Revalor-S implant strategies in beef finishing steers. P. L. Loza¹, G. E. Erickson¹, C. G. Campbell¹, B. D. Dicke⁴, R. J. Cooper⁴, D. J. Jordan⁴, J. S. Drouillard³, and T. J. Klopfenstein³, ¹University of Nebraska, Lincoln, ²Kansas State University, Manhattan, ³Ford Dodge Animal Health, Overland Park, KS, ⁴Cattlemen Nutrition Services, Lincoln, NE.

2:55 PM 169 Break.

3:15 PM 169 The effects of Paylean and lipoic acid on glycogen concentrations in the pork Longissimus muscle during the first 24 h postmortem. G. Rentfrow*, C. C. Carr, D. J. Kemp, C. D. Hardin, and E. P. Berg, University of Missouri, Columbia.
A novel procedure to identify off-flavored beef steaks. B. Jenschke*1, A. Hamling1, J. Hodgen1, J. Meisinger1, D. Moss1, M. Lundesjö Ahnström2, and C. Calkins1, 1University of Nebraska, Lincoln, 2Swedish University of Agricultural Sciences, Uppsala, Sweden.

Protocol for determining volatile compound differences between liver-like and normal beef samples using gas chromatography. J. Hodgen*, C. Calkins, and S. Cuppett, University of Nebraska, Lincoln.

Assessing the foodservice potential for muscles from the chuck. C. Bratcher*, K. Moore, M. Keene, and C. Lorenzen, University of Missouri, Columbia.

Ranking beef muscles for Warner-Bratzler shear force and trained sensory panel ratings. G. Sullivan*1, B. Gwartney2, and C. Calkins1, 1University of Nebraska, Lincoln, 2National Cattlemen’s Beef Association, Centennial, CO.

Concentrate level effects on carcass traits of Boer cross-bred goats. S. Ryan*, J. Unruh, M. Corrigan, J. Drouillard, and M. Seyfert, Kansas State University, Manhattan.

Nonruminant Nutrition - Grow-Finish Nutrition
Chair: Mark Whitney, University of Minnesota, Mankato
Room: 204FG
Sponsored by: The Kent Group

Amino acid compositions of two genotypes of barrows and gilts during the grower finisher period. T. Wiseman*, D. Mahan, J. Peters, N. Fastinger, S. Ching, and Y. Kim, The Ohio State University, Columbus.


The effects of increased dietary energy concentration on the performance and economics of growing-finishing pigs housed in a commercial facility. A. D. Beaulieu*, J. F. Patience, M. Rivard, and D. Gillis, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

Evaluation of yellow field peas in growing-finishing swine diets. G. I. Petersen* and J. D. Spencer, JBS United, Inc., Sheridan, IN.

Hulless barley and hulless oats in piglet diets - effect on growth performance. N. P. Kjos* and M. Øverland, Norwegian University of Life Sciences, Aas, Norway.
Voluntary feed intake and nutritive value of aquatic ferns (*Azolla filiculoides* and *Salvinia molesta*) in swine. P. Leterme*1,2, A. M. Londoño2, D. C. Ordoñez2, J. A. Suarez2, C. A. Bedoya2, L. S. Muñoz2, and A. Buldgen3, 1Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2Universidad Nacional de Colombia, Palmira, Valle, Colombia, 3Faculte des Sciences agronomiques de Gembloux, Gembloux, Belgium.

**Odor and Nutrient Management**  
Chair: Brian Richert, Purdue University, West Lafayette, IN  
Room: 134

1:00 PM Feedlot pen surface conditions and their effect on ammonia emissions using forced-air wind tunnels. D. Sherwood*, G. Erickson, T. Klopfenstein, D. Schulte, and R. Stowell, University of Nebraska, Lincoln.


1:45 PM The effect of inorganic and organic trace mineral supplementation on fecal excretion and apparent digestibility of grow-finish swine. J. Burkett*1, K. Stalder1, W. Powers1, J. Pierce2, C. Schwab1, T. Baas1, and B. Shafer2, 1Iowa State University, Ames, 2Alltech, Inc., Nicholasville, KY.

2:00 PM Reduction of aerial ammonia and amine from manure of pigs fed a probiotic. S. K. Kommera*, R. D. Mateo, C. Lin, and S. W. Kim, Texas Tech University, Lubbock.

**Physiology Symposium - Role of the Ovary in Reproduction**  
Chair: Robert Cushman, U. S. Meat Animal Research Center, Clay Center, NE  
Room: 138

1:00 PM Introduction. Robert Cushman.

1:05 PM (Invited) Patterns of ovarian gene expression in pigs and cattle. M.C. Lucy*, C. Agca, and S.J. Kolath, University of Missouri, Columbia.

1:35 PM (Invited) The physiological significance of the variation in numbers of follicles during follicular waves in cattle. J. Ireland*1, G. Smith1, D. Burns1, F. Jimenez-Krassel1, J. Ireland1, P. Knight2, F. Ward3, P. Lonergan3, and A. Evans3, 1Michigan State University, East Lansing, 2University of Reading, UK, 3University College, Dublin, Ireland.

2:05 PM (Invited) Relationship between follicle size and pregnancy success. G.A. Perry*, South Dakota State University, Brookings.
(Invited) Progesterone protects the corpus luteum from prostaglandin F2A induced luteolytic responses in pig corpora lutea without luteolytic capacity. Francisco Diaz* and Milo Wiltbank, University of Wisconsin, Madison.

Ruminant Nutrition Symposium - Recent Developments in Trace Mineral Nutrition in Ruminants
Chair: Kenneth Kalscheur, South Dakota State University, Brookings
Room: 204AB
Sponsored by: Zinpro

(Invited) Bioavailability of trace minerals in feeds. J. Spears*, North Carolina State University, Raleigh.

(Invited) Effects of trace minerals on metabolic processes. T. Engle*, Colorado State University, Fort Collins.

(Invited) Water quality and trace minerals. C. Wright*1 and J. Linn2, 1South Dakota State University, Brookings, 2University of Minnesota, St. Paul.


Nonruminant Nutrition - Proteins and Amino Acids
Chair: Hans Stein, South Dakota State University, Brookings
Room: 204FG
Sponsored by: Hubbard Feeds Inc.

Effect of diet on apparent intestinal retention of methionine and 2-hydroxy-4-methylthiobutanoic acid in pigs. G. Malik*1, M. D. Drew1, D. Hochler2, M. Rademacher2, and A. G. Van Kessel1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Degussa Corporation, Kennesaw, GA.

Comparison of commercial methionine sources in diets for 9 to 23-kg nursery pigs. R. L. Payne*, D. Hochler, and M. Rademacher, Degussa Corporation, Kennesaw, GA.

Lysine requirement of pigs fed ractopamine HCl in a commercial facility. C. R. Neill*1, S. S. Dritz1, M. D. Tokach1, J. L. Nelssen1, R. D. Goodband1, J. M. DeRouchey1, and J. L. Usry2, 1Kansas State University, Manhattan, KS, 2Ajinomoto Heartland LLC, Chicago, IL.

Comparison of crystalline amino acid additions to swine diets containing yellow dent and NutriDense corn. C. W. Hastad*, R. O. Gottlob, S. K. Linneen, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, J. L. Snow, and C. M. Peter, Kansas State University, Manhattan, ExSeed Genetics L.L.C., Owensboro, KY.

The optimal true ileal digestible lysine and sulfur amino acid requirement for nursery pigs between 10 and 20 kg. J. D. Schneider*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, J. M. DeRouchey, G. F. Yi, K. R. Perryman, and C. D. Knight, Kansas State University, Manhattan, Novus International Inc., St. Louis, MO.


Swine Extension - Swine Management
Chair: Joel DeRouchey, Kansas State University, Manhattan
Room: 142

Assessment of educational needs for the Minnesota pork industry. M. Whitney*, University of Minnesota Extension Service, Mankato, MN.

NATIONAL PORK BOARD EDUCATION AWARD - PorkBridge®: An on-farm delivered extension program. M. Brumm*, D. Levis, D. Ricker, University of Nebraska, Concord, The Ohio State University, Columbus.


Physiology - Topics in Ovarian Physiology- Young Investigators’ Perspective
Chair: Richard Pursley, Michigan State University, East Lansing
Room: 138


Reducing variability in the age and size of the ovulatory follicle may enhance fertility following Ovsynch in lactating dairy cows. N. M. Bello*, J. P. Steibel, and J. R. Pursley, Michigan State University, East Lansing.


4:00 PM 209 Administration of GnRH 5 days after first timed artificial insemination improves fertility in anovular lactating dairy cows. R. A. Sterry*, E. P. B. Silva1, D. Kolb2, and M. L. Welle3, 1University of Wisconsin, Madison, 2Lodi Veterinary Hospital, Lodi, WI, 3Miltrim Farms Inc., Athens, WI.

4:10 PM 210 Vascular development within the perinatal rat ovary is not exclusively regulated through Vascular Endothelial Growth Factor Receptor-2 (VEGFR-2) in rat organ ovarian cultures. R. Ten Broeck*, D. Clopton, R. Bott, M. Baltes, and A. Cupp, University of Nebraska, Lincoln.

4:20 PM 211 Utilization of Vascular Endothelial Growth Factor Receptor 2 (VEGFR-2)/Lac-Z mice to elucidate the role of Vascular Endothelial Growth Factor (VEGF) on vascular development during gonadal morphogenesis. M. Baltes*, R. Bott, D. Clopton, and A. Cupp, University of Nebraska, Lincoln.


4:40 PM 213 Development of methodology for induction of follicular selection, estrus, and ovulation in swine using purified porcine FSH. S. M. Breen* and R. V. Knox, University of Illinois, Urbana.

4:50 PM 23 Differential gene and protein expression in gilt and sow derived oocytes. M. Paczkowski*, D. Terry, C. Bidwell, and R. Krisher, Purdue University, West Lafayette, IN.

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Ruminant Nutrition - Forages and Grazing
Chair: Alvaro Garcia, South Dakota State University, Brookings
Room: 204AB
Sponsored by: Prince Agri Products, Inc.


Dried distillers grains supplementation to calves grazing corn residue. K. Gustad*, T. Klopfenstein, G. Erickson, J. MacDonald, K. Vander Pol, and M. Greenquist, University of Nebraska, Lincoln.

Comparison of in vivo digestibility to in vitro digestibility of five forages fed to steers. B. G. Geisert*, T. J. Klopfenstein, D. C. Adams, and J. C. MacDonald, University of Nebraska, Lincoln.

POSTER PRESENTATIONS
Sponsored by: Zinpro
All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 p.m. until Noon on Wednesday. Authors are to be present on their assigned days from 4:30 p.m. to 6:00 p.m.

Beef Extension - Posters
Chair: Alfredo DiCostanzo, University of Minnesota
Exhibit Hall

Performance variation of ISO 11785 radio frequency cattle transponders and interrogators. A. Bryant*, D. Blasi, B. Barnhardt, M. Epp, and S. Glaenzer, Kansas State University, Manhattan.

Comparison of feed efficiency rankings of beef heifer calves fed low and high energy diets. J. A. Christopher*, T. T. Marston, J. M. Bormann, R. M. Breiner, and D. A. Llewellyn, Kansas State University, Manhattan.

Effects of different selection criteria on profitability in beef bulls. J. Gulas*, J. Warren, and E. Felton, West Virginia University, Morgantown.

Comparison of corn and grain sorghum dried distillers grains as protein supplements for growing beef heifers. K. W. Harborth*, D. A. Llewellyn, and T. T. Marston, Kansas State University, Manhattan.

Effect of time on dry matter yield and forage quality of swathed oat and unharvested corn forages. K. Schulz1, W. Poland*2, L. Tisor2, and S. Turbiville1, 1Dickinson State University, Dickinson, ND, 2North Dakota State University, Dickinson.

Effect of alternative winter feeding methods on cow performance and production costs. S. Turbille1, W. Poland*2, K. Schulz1, and L. Tisor2, 1Dickinson State University, Dickinson, ND, 2North Dakota State University, Dickinson.

Effect of calving date on stocker and feedlot performance of calves born in the Northern Great Plains and finished in the Southern Great Plains. W. A. Phillips*1, E. E. Grings2, R. E. Short2, R. K. Heitschmidt2, and H. S. Mayeux1,
227 Effect of value-added health program and breed on calf prices: Superior Livestock Auction analysis. L. Corah\textsuperscript{1}, M. McCully*\textsuperscript{1}, M. King\textsuperscript{2}, M. Salman\textsuperscript{2}, J. Seeger\textsuperscript{3}, and D. Grotelueschen\textsuperscript{3}, \textsuperscript{1}Certified Angus Beef LLC, Wooster, OH, \textsuperscript{2}Colorado State University, Fort Collins, CO, \textsuperscript{3}Pfizer Animal Health, New York, NY.

228 Dry matter intake prediction of steers and heifers in the feedlot: Effect of initial weight on dry matter intake. H. Koknaroglu\textsuperscript{1}, D. D. Loy\textsuperscript{2}, and M. P. Hoffman*\textsuperscript{2}, \textsuperscript{1}Suleyman Demirel University, Isparta, Turkey, \textsuperscript{2}Iowa State University, Ames.


Breeding and Genetics - Posters

Exhibit Hall

231 The effect of single nucleotide polymorphisms on one-step Tukey’s biweight estimates from affymetrix microarray data. L. Qu, D. Nettleton, and J. C. M. Dekkers*, Iowa State University, Ames.

22 QTL mapping in an F\textsubscript{2} Duroc x Pietrain resource population: I. Growth traits. D. B. Edwards*\textsuperscript{1}, C. W. Ernst\textsuperscript{1}, N. E. Raney\textsuperscript{1}, R. J. Tempelman\textsuperscript{1}, M. D. Hoge\textsuperscript{1,2}, and R. O. Bates\textsuperscript{1}, \textsuperscript{1}Michigan State University, East Lansing, \textsuperscript{2}Western Illinois University, Macomb.

233 QTL mapping in an F\textsubscript{2} Duroc x Pietrain resource population: II. Carcass and meat quality traits. D. B. Edwards*\textsuperscript{1}, C. W. Ernst\textsuperscript{1}, N. E. Raney\textsuperscript{1}, M. E. Doumit\textsuperscript{1}, M. D. Hoge\textsuperscript{1,2}, and R. O. Bates\textsuperscript{1}, \textsuperscript{1}Michigan State University, East Lansing, \textsuperscript{2}Western Illinois University, Macomb.

234 Mapping of the FMO3 gene may explain a QTL for off flavor in pork on SSC9. K. L. Glenn*\textsuperscript{1}, E. McCormick\textsuperscript{2}, A. M. Ramos\textsuperscript{1}, and M. F. Rothschild\textsuperscript{1}, \textsuperscript{1}Iowa State University, Ames, \textsuperscript{2}Mount Mercy College, Cedar Rapids, IA.


237 Estimation of genetic trend in IGF-I concentration and correlated response in growth traits in lines of Angus beef cattle divergently selected for serum
IGF-I concentration. W. C. Huang*, H. C. Hines, and M. E. Davis, The Ohio State University, Columbus.

Breeding for sustainability: effect of breed on cultural energy expenditure of lamb production. H. Koknaroglu¹, A. Ali², D. G. Morrical³, and M. P. Hoffman*², ¹Suleyman Demirel University, Isparta, Turkey, ²Iowa State University, Ames.

Growth and Development, Muscle Biology and Meat Science - Posters Exhibit Hall

Instrument prediction of pork carcass composition. D. Newman*¹, T. B. Schmidt¹, E. L. Walker², C. A. Stahl³, G. K. Rentfrow³, D. L. Meyer³, V. L. Pierce³, M. R. Ellerseick¹, and E. P. Berg¹, ¹University of Missouri, Columbia, ²Missouri State University, Springfield.

Impact of phosphate type and cooking method on the water holding capacity and texture of reheated pre-cooked turkey breast rolls. G. Dunlap*, H. Zerby, and M. Wick, The Ohio State University, Columbus.


Effects of vitamin A supplementation in young lambs on performance, serum lipid, and carcass adipose tissue attributes. A. Arnett*, M. Dikeman, C. Spaeth, B. Johnson, and B. Hildabrand, Kansas State University, Manhattan.


United States pork industry pork quality survey. J. Meisinger* and E. Berg, University of Missouri, Columbia.

Effect of moisture enhancement on sensory attributes, tenderness, and retail color of beef steaks from the vastus lateralis. P. S. Kuber*¹, A. E. Radunz¹, M. D. Vieson¹, H. N. Zerby¹, S. J. Moeller¹, J. L. Bard¹, A. C. Naber¹, K. M. Brueggemeier¹, G. R. Dunlap¹, and B. L. Gwartney², ¹The Ohio State University, Columbus, ²National Cattlemen’s Beef Association, Centennial, CO.

Growth performance profile and carcass characteristics of steers fed Optaflexx®. M.T. Van Koevering*¹, M. A. Greenquist², K. J. Vander Pol², G. E. Erickson², T. J. Klopfenstein², and W. J. Platter¹, ¹Elanco Animal Health, Greenfield, IN, ²University of Nebraska, Lincoln.

Evaluating the tenderness of beef chuck and round muscles enhanced with ammonium hydroxide and salt. A. Hamling* and C. Calkins, University of Nebraska, Lincoln.

40
Off-flavor mitigation in fed and non-fed cow meat through manipulation of bitter taste receptors. D. Moss* and C. Calkins, University of Nebraska, Lincoln.

Nonruminant Nutrition - Posters
Exhibit Hall

Comparative efficacy of commercial dry mold inhibitors as determined by carbon dioxide evolution. M. Burke*, T. Truong, A. Lamptey, S. Moore, and V. Sewalt, Kemin, Des Moines, IA.


Immunomodulatory effects of a Bacillus-based direct-fed microbial and antibiotics on the cytokine profile of nursery pigs. M. E. Davis*, D. C. Brown2, C. V. Maxwell2, T. Rehberger1, and Z. B. Johnson1, Agtech Products, Inc., Waukesha, WI, 2University of Arkansas, Fayetteville.


Supplemental effects of selenium enriched vegetables in broiler diets on growth performance and tissue selenium levels. S. K. Kommera1, C. Lin*1, T. C. Scio2, J. E. Spallholz1, and S. W. Kim1, Texas Tech University, Lubbock, Rural Development Administration, Suwon, Korea.


Impact of weekly random out-of-feed events and feed particle size on grow-finish pig performance. M. Brumm*, S. Colgan1, and K. Bruns2, University of Nebraska, Concord, South Dakota State University, Brookings.

Digestibility of phosphorus in field peas by growing pigs. L. L. Geraets*, M. G. Boersma, C. Pedersen, and H. H. Stein, South Dakota State University, Brookings.


Evaluation of the performance response in different genotypes to ractopamine supplementation. G. Pelger1, T. Armstrong1, C. Parks*1, P. Matzat1, N. Williams2, and D. Mechler4, Elanco Animal Health, Greenfield, IN, PIC, Franklin, KY, Suidae Health and Production, Greenfield, IN.
Ruminant Nutrition - Posters
Exhibit Hall

260 Rumen digestibility of diets containing wheat midds, soybean hulls and corn gluten feed. P. Walker*1, K. Earing2, and J. Ringler2, 1Illinois State University, Normal, 2University of Kentucky, Lexington.

261 Effects of supplemental RDP versus increasing amounts of supplemental RUP on ruminal characteristics and site and extent of digestion in lambs fed a low-quality forage. R. L. Atkinson*, C. D. Toone, and P. A. Ludden, University of Wyoming, Laramie.


263 Utilization of kura clover-reed canarygrass silage vs. alfalfa silage by lactating dairy cows. K. Kammes*, G. Heemink, K. Albrecht, and D. Combs, University of Wisconsin, Madison.

264 Glycerol from soy diesel production as a feed supplement to lactating dairy cows. P. Linke*, A. Hippen, K. Kalscheur, and D. Schingoethe, South Dakota State University, Brookings.

265 The effect of fatty acid source and forage source on trans-C18:1 and conjugated linoleic acid production by ruminal microbes in batch culture. W. Buckles*1, A. AbuGhazaleh1, G. Apgar1, K. Jones1, and K. Griswold2, 1Southern Illinois University, Carbondale, 2Pennsylvania State University, Lancaster.

266 The effect of solid dilution rate and lipid source on trans-C18:1 and conjugated linoleic acid production by ruminal microbes in continuous culture. W. R. Buckles1, A. A. AbuGhazaleh*1, G. A. Apgar1, and K. E. Griswold2, 1Southern Illinois University, Carbondale, 2The Pennsylvania State University, Lancaster.


269 Stability of vitamin liposomes in rumen fluid. A. Cattaneo*1, S. Loerch2, F. Fluharty2, and S. Peters3, 1College of Wooster, Wooster, OH, 2The Ohio State University, Wooster, 3Ingredient Innovations International, Wooster, OH.

Teaching and Career Development - Posters
Exhibit Hall

270 Environmental education targeting high school students and young adults. S. Boyles* and J. Rausch, The Ohio State University, Columbus.
Curricular two-stage learning process to develop persuasive argument and contemporary issue assessment skills in animal science students. B. Skaar*, P. Spike, and M. Kenealy, Iowa State University, Ames.

Scientific teaching centralizes diverse opinions on animal use. C. Jobsis* and M. Cook, University of Wisconsin, Madison.

Wednesday, March 22

Dairy Extension Symposium - Innovations in Dairy Management
Chair: Paul Fricke, University of Wisconsin
Room: 136

9:00 AM 273 (Invited Young Scholar) INNOVATIVE DAIRY RESEARCH AWARD
Effects of varying dry period length on lactation performance, efficiency of production and reproduction and energy status of dairy cattle. R. Rastani* and R. Grummer, University of Wisconsin, Madison.

9:30 AM 274 (Invited Young Scholar) Dry period nutrition and hepatic metabolism of fatty acids and glucose in transition dairy cows. N Litherland*, University of Illinois, Urbana.

10:00 AM 275 Growth parameters and blood profiles for Holstein and crossbred heifers according to phosphorous feeding level and breeding criteria. P.C. Hoffman, C. Simson*, C. Maltecca, K.A. Weigel, P. Pacitto, and T. Worch, University of Wisconsin, Madison.

10:15 AM Break.


11:00 AM 277 (Invited) Feeding Fibrous Residues to Growing Heifers. A. D. Garcia*, South Dakota State University, Brookings.


9:00 AM 280 Use of corn distiller's dried grains and solubles (DDGS) in late nursery pig diets. A. Gaines, B. Ratliff*, P. Srichana, and G. Allee, University of Missouri, Columbia.

9:15 AM 281 Digestible and metabolizable energy in ten samples of corn distillers dried grains with solubles (DDGS) fed to growing pigs. C. Pedersen*, M. G. Boersma, and H. H. Stein, South Dakota State University, Brookings.

9:30 AM 282 The effect of steeping and enzyme supplementation of distillers dried grains with solubles on amino acid and energy digestibility in grower-finisher pigs. N. D. Fastinger*1, C. Moran2, and D. C. Mahan1, 1Ohio State University, Columbus, 2Alltech, Inc., Nicholasville, KY.

9:45 AM 283 Evaluation of reactive lysine (homoarginine) as an in-vitro procedure to predict lysine digestibility of distillers dried grains with solubles by growing pigs. A. A. Pahm*, C. Pedersen, and H. H. Stein, South Dakota State University, Brookings.

10:00 AM 284 Excretion of P by sows fed dried distillers grains with solubles (DDGS) with or without phytase. G. M. Hill*, J. E. Link1, D. L. Kirkpatrick1, M. L. Gibson2, and K. Karges2, 1Michigan State University, East Lansing, 2Dakota Gold Research Association, Sioux Falls, SD.

10:15 AM Break.

10:30 AM 285 Effect of feeding diets containing corn distillers dried grains with solubles (DDGS), and formulating diets on total or available phosphorus basis, on phosphorus retention and excretion in nursery pigs. G. Xu*1, M. H. Whitney2, and G. C. Shurson1, 1University of Minnesota, St. Paul, 2Extension Regional Center, Mankato, MN.

10:45 AM 286 Effect of feeding diets containing corn distillers dried grains with solubles (DDGS), with or without phytase, on nutrient digestibility and excretion in nursery pigs. G. Xu1, G. He2, S. K. Baidoo2, and G. C. Shurson*1, 1University of Minnesota, St. Paul, 2Southern Research and Outreach Center, Waseca, MN.

11:00 AM 287 Effects of Ca:available P ratio on dry matter, nitrogen, phosphorus, calcium and zinc balance and excretion in nursery pigs fed corn-soybean meal based diets containing DDGS and phytase. G. Xu1, G. He2, M. Song1, S. K. Baidoo2, and G. C. Shurson*1, 1University of Minnesota, St. Paul, 2Southern Research and Outreach Center, Waseca, MN.

11:15 AM 288 Effects of feeding diets containing corn distillers dried grains with solubles (DDGS), with or without phytase, on nutrient digestibility and excretion in grow-finish pigs. G. Xu*1, M. H. Whitney2, and G. C. Shurson1, 1University of Minnesota, St. Paul, 2Extension Regional Center, Mankato, MN.
Nonruminant Nutrition - Nutrition of Weanling Pigs
Chair: Steve Dritz, Kansas State University, Manhattan
Room: 204FG

9:00 AM 289 Assessment of lactose levels in Phase 3 nursery diets for young pigs. G. L. Cromwell*¹, G. L. Allee², and D. C. Mahan², ¹University of Kentucky, Lexington, ²University of Missouri, Columbia, ³The Ohio State University, Columbus.


9:30 AM 291 Effect of dietary flaxseed, flax hulls or linseed oil on intestinal microbiota and growth performance in weaned pigs. A. G. Van Kessel*¹, M. D. Drew¹, J. F. Patience¹, and R. T. Zijlstra³, ¹University of Saskatchewan, Saskatoon, SK, Canada, ²Prairie Swine Centre, Inc., Saskatoon, SK, Canada, ³University of Alberta, Edmonton, AB, Canada.

9:45 AM 292 Effects of feeding increased concentrations of vitamin B₁₂ on growth performance in weanling pigs. L. Albrecht*, R. Fischer, and P. Miller, University of Nebraska, Lincoln.

10:00 AM 293 Addition of arginine-HCl did not improve performance in 7-d old milk-fed pigs. R. Cabrera*¹, J. Perez¹, J. Usry¹, R. Harrell¹, J. Vignes¹, M. Johnston¹, and R. Boyd¹, ¹Ralco Nutrition, Marshall, MN, ²Reproductores Porcinos, La Antigua, Guatemala, ³Ajinomoto Heartland, Chicago, IL, ⁴North Carolina State University, Raleigh, NC, ⁵Birthright Animal Nutrition, Delano, MN, ⁶The Hanor Company, Spring Green, WI.


10:30 AM Break.

10:45 AM 295 Additivity of effects of copper from copper sulfate or Availa®Cu and zinc oxide in diets for weaned piglets. V. G. Perez-Mendoza*¹, G. R. Hollis¹, T. M. Fakler², and J. E. Pettigrew³, ¹University of Illinois, Urbana, ²Zinpro Corporation, Eden Prairie, MN.

11:00 AM 296 Meta-analysis of the influence of gender, weaning weight, and weaning age on post-weaning performance in pigs. L. J. M. Jònsson*, D. N. Peters, C. Pedersen, and H. H. Stein, South Dakota State University, Brookings.

11:15 AM 297 Inclusion of zero-tannin fababean and substitution for soybean meal in nursery diets on weaned pig performance. F. Omogbenigun¹, R. Zijlstra², and E. Beltranena*¹, ¹Alberta Agriculture, Food and Rural Development, Edmonton, AB. T6H 5T6, Canada, Edmonton, AB, Canada, ²Department of Agricultural, Food & Nutritional Sciences, The University of Alberta, Edmonton, AB. T6G 2P5, Canada., Edmonton, AB. Canada.

Physiology - Topics in Physiology
Chair: George Perry, South Dakota State University, Brookings
Room: 138


Comparison of fertility, luteal characteristics, and luteal function between unilateral and bilateral double ovulations. R. Cushman*, M. Allan, R. Christenson, and S. Echternkamp, USDA, ARS, Meat Animal Research Center, Clay Center, NE.

Relationship between concentrations of pregnancy-associated glycoproteins (PAG) in maternal blood and fetal number and status in pregnant cows. S. Echternkamp*1, J. Green2, K. Vonnahme3, R. Cushman1, and M. Allan1, 1USDA-ARS, MARC, Clay Center, NE, 2University of Missouri, Columbia, 3North Dakota State University, Fargo.

Proliferation and vascularity of different placentomal types in sheep. W. J. Arndt*1,2, P. P. Borowicz1,2, L. P. Reynolds1,2, and K. A. Vonnahme1,2, 1Center for Nutrition and Pregnancy, Fargo, ND, 2Department of Animal and Range Sciences, Fargo, ND, 3North Dakota State University, Fargo.

Effects of estradiol (E2) and linseed meal (LSM) on jejunal cellular proliferation in ovariectomized (OVX) ewes. M. O’Neil*1,2, G. Lardy1,2, L. Reynolds1,2, J. Caton1,2, and K. Vonnahme1,2, 1Department of Animal and Range Sciences, Fargo, ND, 2North Dakota State University, Fargo.

Effects sustained release growth hormone on lambs at birth. J. Koch* and M. Wilson, West Virginia University, Morgantown.

Effect of nutrient restriction and dietary selenium (Se) on maternal and fetal organ mass in pregnant ewe lambs. R. Reddy*1,2, J. Reed1,2, D. Redmer1,2, L. Reynolds1,2, K. Vonnahme1,2, and J. Caton1,2, 1Center for Nutrition and Pregnancy, Fargo, ND, 2Department of Animal and Range Sciences, Fargo, ND, 3North Dakota State University, Fargo.

Characterization of variation in the weaning to interval for potential use with fixed timed AI. S. M. Breen* and R. V. Knox, University of Illinois, Urbana.

Administration of androgens increase serum concentrations of FSH in gilts. E. Jiménez*, H. Cárdenas, and W. Pope, The Ohio State University, Columbus.

Determining the impact of boar exposure and PG600 on follicle development, estrus and ovulation for potential improvement in estrus synchronization with MATRIX. A. Herdes*1, S. Breen1, C. Francisco2, and R. Knox1, 1University of Illinois, Urbana, 2Intervet, Inc., Millsboro, DE.

Expression of insulin receptor substrate–1 (IRS1) mRNA in hepatic tissue of periparturient Holstein cows. J. Meyer*1, R. Radcliff2, and M. Lucy1, 1University of Missouri, Columbia, 2Marshfield Clinic, Marshfield, WI.

Utilization of dried distillers grains for developing beef heifers. J. Martin*, A. Cupp, R. Rasby, and R. Funston, University of Nebraska, Lincoln.

Ruminant Nutrition - Feedlot Nutrition
Chair: Gene Felton, West Virginia University, Morgantown
Room: 204AB


Supplementation of MINTREX® -Zn, -Cu, and -Mn to feedlot cattle reduced mortality, morbidity and improved carcass quality. M. Vazquez-Anon*1, T. Hampton1, T. Peters2, J. McGrath3, and B. Huedepohl4, 1Novus International, Inc, St Louis, MO, 2DeKalb, Kalona, IA, 3Amana Farms, Amana, IA, 4Veterinary Medical Center, Williamsburg, IA.

The relationship between mitochondrial respiration and residual feed intake in Angus steers. W. Kolath* and M. Kerley, University of Missouri, Columbia.

Comparison of Holstein, Jersey, and crossbred twinner steers. J. Lehmkuhler, M. Ramos*, S. Arp, and J. Claus, University of Wisconsin, Madison.


Summary of manure amounts, characteristics, and nitrogen mass balance for open beef feedlot pens in summer and winter feeding periods. W. F. Kissinger*, G. E. Erickson, and T. J. Klopfenstein, University of Nebraska, Lincoln.

Phosphorus balance in commercial feedlots and cost of distribution. W. F. Kissinger*1, R. E. Massey2, R. K. Koelsch1, T. J. Klopfenstein1, and G. E. Erickson1, 1University of Nebraska, Lincoln, 2University of Missouri, Columbia.

Teaching and Career Development Symposium - Learning from Professional Associations and Campus Initiatives to Improve Undergraduate Education
Chair: Michel Wattiaux, University of Wisconsin, Madison
Room: 134

9:00 AM 322 (Invited) American Society of Animal Science initiatives to support teaching and learning. D. Buchanan*, Oklahoma State University, Stillwater.

9:25 AM (Invited) Learning about teaching as an active member of NACTA: North American Colleges and Teachers of Agriculture. L. C. Martin, Oklahoma State University, Stillwater.

9:45 AM (Invited) What do other professional societies do to help quality of teaching? V. B. Cardwell, University of Minnesota, St. Paul.

10:05 AM 323 The Center for Excellence in Learning and Teaching at Iowa State University. C. Brooke* and B. Skaar, Iowa State University, Ames.

10:20 AM 324 Learning initiatives to improve undergraduate education at a research-oriented institution. R. Rastani* and M. Wattiaux, University of Wisconsin, Madison.

Breeding and Genetics - Molecular and Quantitative Genetics
Chair: Joe Cassady, North Carolina State University, Raleigh
Room: 140

9:00 AM 325 Power and precision of linkage disequilibrium mapping of QTL in outbred populations. H. Zhao*, R. Fernando, and J. Dekkers, Iowa State University, Ames.
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<tbody>
<tr>
<td>10:00 AM</td>
<td></td>
<td>Break.</td>
<td></td>
</tr>
<tr>
<td>10:15 AM</td>
<td>329</td>
<td>Testing for interactions between Calpastatin and M-Calpain markers in beef cattle on tenderness traits.</td>
<td>E. Casas*, S. White¹, T. Wheeler¹, S. Shackelford¹, M. Koohmaraie¹, D. Riley², C. Chase, Jr.², D. Johnson³, and T. Smith¹, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, USDA-ARS, Subtropical Agricultural Research Station (STARS), Brooksville, FL, University of Florida, Gainesville.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>330</td>
<td>Estimates of genetic parameters for carcass traits in calf-fed or yearling-fed Simmental cattle.</td>
<td>R. Tait, Jr.*¹, G. Rouse¹, D. Wilson¹, A. Hassen¹, and E. Pollak², Iowa State University, Ames, Cornell University, Ithaca, NY.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>8</td>
<td>An epidemiological review of a valine-associated scrapie outbreak: Genetic risk and lateral transmission.</td>
<td>J. M. Evoniuk*, C. L. Stoltenow¹, K. I. O'Rourke², B. L. Moore¹, and D. A. Redmer¹, North Dakota State University, Fargo, USDA, ADRU, Pullman, WA.</td>
</tr>
</tbody>
</table>
MIDWEST SECTION ADSA/ASAS
Committee Assignments
2005-2006

PROGRAM COMMITTEES

Animal Behavior, Housing, Well Being
Ernest Minton, Chair
Ed Pajor
Adroaldo Zanella

Breeding and Genetics
Diane Moody, Chair
Ken Stalder
Joseph Cassady

Extension - Beef
Alfredo DiConstando, chair
Jeff Pastoor
Cody Wright

Extension - Swine
Joel DeRouchey, Chair
Marcia Carlson Shannon
Jason Woodworth

Extension - Dairy
Paul Fricke, Chair
Spence Driver
J.W. Schroeder
Patrick Hoffman

Growth, Development, Muscle Biology, and Meat Science
Tim Smith, Chair
Brad Johnson
Ann Waylan

Nonruminant Nutrition
Dale Rozeboom,, Chair
Daniel Nelson
Steve Dritz

Odor and Nutrient Management
Brian Richert, Chair
Gretchen Hill
Marc Bauer

50
Physiology
Richard Pursley, Chair
Robert Cushman
George Perry

Ruminant Nutrition
Kenneth Kalscheur, Chair
Jeff Lehmkuhler
Gene Felton

Teaching
Michel Wattiaux, Chair
Dan Moser
Brad Skaar

Career Fair
Don Orr, Chair
Emily Otto-Tice
Deana L. Hancock
John Killefer

David H. Baker Symposium
Lee Southern, Chair
Mike Edmonds
Kevin Halpin
Doug Webel

Billy Day Symposium
Duane Davis, Co-Chair
Ronald Christenson, Co-Chair
Stephen K. Webel
William R. Lamberson

SPECIAL COMMITTEES

ASAS Nominations
Alan Grant
Jerry Shurson
Cal Ferrell

ADSA Nominations
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David Combs
Sharon Franklin
Academic Quadrathlon
  Matt Wilson, Chair
  Georgia Younglove
  Terry Jobsis
  Dick Cobb
  John Tembei
  Carolyn Komar
  Tony Seykora
  Gary Onan
  Kim Vonnahomie

COMPETITIVE RESEARCH PAPER COMMITTEES

Graduate Student
  Brenda De Rodas, Chair
  Mike Tokach
  Andrea Cupp
  Darrel Kesler
  Matt Wilson
  Don Mahan
  Ellen Davis

Undergraduate
  Arnold Hippen, Chair
  Wendy Powers
  Bob Goodband
  Steven Loerch
  Catherine Ernst
  Gretchen Hill
  Amer AbuGhazaleh

Graduate Student Poster Competition
  Leo Timms, Chair
  Sam Baidoo
  Paul Walker

YOUNG ANIMAL / DAIRY SCIENCE LEADERS
AWARDS COMMITTEES

Extension Award
  Richard Pursley, Chair
  Todd See
  Wendy Powers
  Steve Moeller
Kenneth J. Stalder
Thomas Drendel

**Research Award**
Cindie Luhman, Chair
  Tim Smith
  Mark Engstrom
  Larry Berger
  Catherine Ernst
  Elisabeth Huff-Lonergan

**Teaching Award**
Steven Lonergan, Chair
  Steve Kelm
  Roger Johnson
  Miriam Weber Nielsen
  Don Beitz
  Brian D. Nielsen

**Agribusiness**
John Shirley, Chair
  Joy Campbell
  Doug Webel
  Thomas A. Rathje

**National Pork Board Swine Innovation**
Alan Grant, Chair
  Lee Johnston
  Joe Ford
  Thomas A. Rathje

**Innovation in Dairy Research**
Leo Timms, Chair
  Richard Pursley
  Jim Drackley
  Jeffrey M. DeFrain
PAST RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

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

OUTSTANDING RESEARCHER AWARD

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

OUTSTANDING TEACHER AWARD

1971  B. G. Harmon, University of Illinois
1972  R. E. Hunsley, Purdue University
1974  D. H. Gee, South Dakota State University
1976  T. R. Cline, Purdue University
1977  P. J. Cunningham, University of Nebraska
1978  B. D. Moser, University of Nebraska
1979  C. L. Hausler, Southern Illinois University
1980  T. R. Carr, University of Illinois
1981  M. E. Dikeman, Kansas State University
1982  R. E. Morrow, University of Missouri
1983  D. J. Kesler, University of Illinois
1984  R. A. Easter, University of Illinois
1985  D. F. Parrett, University of Illinois
1986  J. G. Sebranek, Iowa State University
1987  D. R. Brink, University of Nebraska
1988  K. M. Irvin, The Ohio State University
1989  R. P. Lemenager, Purdue University
1990  B. R. Skaar, Iowa State University
1991  D. A. Nichols, Kansas State University
1992  M. A. Russell, Purdue University
1993  D. K. Combs, University of Wisconsin, Madison
1994  L. C. Martin, Kansas State University
1995  M. E. Benson, Michigan State University
1996  B. D. Banks, Michigan State University
1997  H. D. Tyler, Iowa State University
1998  C. R. Younsg, 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

AGRIBUSINESS AWARD

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

PAST WINNERS OF INVITATIONAL
COMPETITIVE RESEARCH PAPER
AWARDS

UNDERGRADUATE STUDENTS

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

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

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

PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION

1998  M. Bode, University of Missouri
       D. Hasekamp, University of Missouri
       J. Rumph, Michigan State University
       M. Schoenfield, University of Minnesota
1999  L. Becker, University of Minnesota
2000  R. Hawkins, North Dakota State University
2001  Discontinued
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. Dinunsson, North Dakota State University
1972  J. F. Lasley, University of Missouri
1973  U. S. Garrigus, University of Illinois
1974-75  V. C. Speer, Iowa State University
1976  H. S. Teague, The Ohio State University
1977  R. M. Luther, South Dakota State University
1978  B. N. Day, University of Missouri
1979-80  D. R. Zimmerman, University of Nebraska
1981  A. L. Pope, University of Wisconsin
1982  R. D. Goodrich, University of Minnesota
1983  E. R. Miller, Michigan State University
1984  W. R. Woods, Purdue University
1985  L. R. Corah, Kansas State University
1986  B. D. Moser, University of Missouri
1987  S. E. Curtis, University of Illinois
1988  R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana
1989  T. J. Klopfenstein, University of Nebraska
1990  J. R. Romans, South Dakota State University
1991  J. E. Pettigrew, University of Minnesota
1992  C. E. Sasse, Cenex/Land O’Lakes
1993  M. G. Hogberg, Michigan State University
1994  G. L. Allee, University of Missouri
1995  S. K. Webel, Purina Mills, Bloomington, IL
1996  D. L. Meeker, National Pork Producers Council, Des Moines, IA
1997  T. S. Stahly, Iowa State University
1998  R. P. Lemenager, Purdue University
1999  S. P. Ford, Iowa State University
2000  J. R. Males, Oregon State University
2001  M. L. Day, The Ohio State University
2002  R. K. Johnson, University of Nebraska
2003  C. L. Ferrell, USDA, Clay Center
2004  G. C. Shurson, University of Minnesota
2005  A. L. Grant, Purdue University

ADSA MIDWEST BRANCH PRESIDENTS

1992  J. F. Keown, University of Nebraska
1993  J. G. Linn, University of Minnesota
1994  D. J. Schingoethe, South Dakota State University
1995  J. L. Morrill, Kansas State University
1996  M. F. Hutjens, University of Illinois
1997  M. A. Faust, Iowa State University
1998 J. K. Drackley, University of Illinois
1999 R. D. Shaver, University of Wisconsin
2000 R. J. Grant, University of Nebraska
2001 M. L. Eastridge, The Ohio State University
2002 J. D. Quigley III, APC, Inc.
2003 S. T. Franklin, University of Kentucky
2004 D. K. Combs, University of Wisconsin
2005 L. L. Timms, Iowa State University

FUTURE MEETINGS

2007 March 19-21
POLK COUNTY CONVENTION COMPLEX
Lower Level
THE SAVERY HOTEL
SECOND FLOOR

[Diagram of the second floor layout of the Savery Hotel]
Room Assignments

**ACTIVITY** | **ROOM**
--- | ---
**Monday p.m.**
David H. Baker Symposium | 204FG
Graduate Student Competitive Papers—M.S. | 205IJ
Graduate Student Competitive Papers—Ph.D. | 204AB
Undergraduate Student Competitive Papers I | 138
Undergraduate Student Competitive Papers II | 140

**Poster Presentations**
Animal Behavior, Housing and Well-Being | Exhibit Hall
Growth and Development, Muscle Biology and Meat Science | Exhibit Hall
Nonruminant Nutrition | Exhibit Hall
Odor and Nutrient Management | Exhibit Hall
Physiology | Exhibit Hall
Ruminant Nutrition | Exhibit Hall
Swine Extension | Exhibit Hall
AQ Quiz Bowl | 204FG

**Tuesday a.m.**
Animal Behavior, Housing, Well-Being | 146
Billy N. Day Symposium | 138
Breeding Genetics | 140
Dairy Extension | 136
Growth and Development, Muscle Biology and Meat Science | 142
Nonruminant Nutrition | 204FG
Odor and Nutrient Management, Swine Extension, Beef Extension | 134
Ruminant Nutrition | 204AB
Ruminant Nutrition | 205IJ

**Tuesday p.m.**
Breeding and Genetics | 140
Growth and Development, Muscle Biology and Meat Science | 205IJ
Odor and Nutrient Management | 134
Nonruminant Nutrition- Grow-Finish Nutrition | 204FG
Nonruminant Nutrition - Proteins and Amino Acids | 204FG
Physiology Symposium - Role of the Ovary in Reproduction 138
Ruminant Nutrition Symposium .............................................. 204AB
Physiology - Topics in Ovarian Physiology ............................. 138
Ruminant Nutrition - Forages and Grazing ............................. 204AB
Swine Extension - Swine Management ..................................... 142

**Poster Presentations**

Beef Extension ................................................................. Exhibit Hall
Breeding and Genetics ......................................................... Exhibit Hall
Growth and Development, Muscle Biology and
    Meat Science .................................................................. Exhibit Hall
Nonruminant Nutrition ....................................................... Exhibit Hall
Ruminant Nutrition ............................................................ Exhibit Hall
Teaching and Career Development ....................................... Exhibit Hall

**Wednesday a.m.**

Dairy Extension ................................................................. 136
Nonruminant Nutrition - Nutrition of Weanling Pigs .......... 204FG
Nonruminant Nutrition - Distillers Dried Grains ............... 205IJ
Physiology ........................................................................ 138
Ruminant Nutrition ............................................................ 204AB
Teaching and Career Development ..................................... 134
Breeding and Genetics ......................................................... 140