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NOTICE:

Registration and housing forms can be found on the Midwest Meeting Website. You can register on line 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.

	Before March 1	After March 1
ADSA/ASAS Members	\$110	\$160
Undergraduate Students	\$10	\$10
Graduate Student Members	\$20	\$30
Post Doctoral Fellows	\$20	\$30
ASAS-ADSA Fellows	\$0	\$0
Nonmembers	***\$220	\$260
Graduate Student Nonmembers	***\$40	\$50
Post Doctoral Fellow Nonmembers	***\$75	\$85

***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.
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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

Cargill 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

Hubbard Feeds Inc.

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.

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Feedstuffs Newspaper

Hormel Foods Corporation

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International Ingredient Corporation
Lucta USA
Micronutrients
Newsham Genetics
Omega Nutrition
Pig Improvement Company

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*.
- 1:40 PM 1 (Invited) Apparent, standardized, and true ileal digestibility of amino acids: What is the difference and practical significance? H. H. Stein*, *South Dakota State University, Brookings*.
- 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. Wu^{1,2}, J. A. Carroll³, I. Shinzato⁴, and S. W. Kim^{1,2}, 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*, ²*Ajinomoto Heartland LLC, Chicago, IL*.
- 4:05 PM Discussion.

Graduate Student Competitive Research Papers, M.S. Division
Chair: Brenda De Rodas, Land O'Lakes, Gray Summit, MO
Room: 205IJ
Sponsored by: DeKalb Feeds, Inc.

- 1:00 PM 7 **Effects of melengestrol acetate on L-selectin and B2-integrin expression of polymorphonuclear leukocytes from heifers challenged with lipopolysaccharide.** M. Corrigan*, J. Drouillard, C. Wyatt, E. Loe, B. Depenbusch, A. Webb, M. Quinn, and H. Wang, *Kansas State University, Manhattan.*
- 1:15 PM 8 **An epidemiological review of a valine-associated scrapie outbreak: Genetic risk and lateral transmission.** J. M. Evoniuk*¹, C. L. Stoltenow¹, K. I. O'Rourke², B. L. Moore¹, and D. A. Redmer¹, ¹*North Dakota State University, Fargo*, ²*USDA, ADRU, Pullman, WA.*
- 1:30 PM 9 **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, ¹*Iowa State University, Ames*, ²*Alltech, Inc., Nicholasville, KY.*
- 1:45 PM 10 **A SNP in the bovine leptin gene: effect on gain and carcass characteristics.** D. Larson*, M. Bauer, E. DeVuyst, P. Berg, and J. Bullinger, *North Dakota State University, Fargo.*
- 2:00 PM 11 **Use of infrared thermography to non-invasively determine surface temperatures of limbs of non-lame dairy cows.** B. A. Munsell*, A. Ragavendran, D. K. Beede, and A. J. Zanella, *Michigan State University, East Lansing.*
- 2:15 PM 12 **Effect of Amaferm supplementation to concentrate or forage based diets on growth performance and carcass characteristics of finishing lambs.** J. L. Bard*¹, F. L. Fluharty¹, S. C. Loerch¹, P. S. Kuber¹, G. D. Lowe², D. D. Clevenger², and H. N. Zerby¹, ¹*The Ohio State University, Columbus*, ²*Ohio Agricultural Research and Development Center, Wooster, OH.*
- 2:30 PM 13 **Effect of corn hybrid and processing method on site and extent of nutrient digestibility using the mobile bag technique.** M. Luebbecke*¹, G. Erickson¹, T. Klopfenstein¹, and W. Fithian², ¹*University of Nebraska, Lincoln*, ²*Golden Harvest Seeds, Inc., Waterloo, NE.*
- 2:45 PM **Break.**
- 3:00 PM 14 **Growth and performance of Holstein dairy calves fed distillers grains.** M. Thomas*, A. R. Hippen, K. F. Kalscheur, and D. J. Schingoethe, *South Dakota State University, Brookings.*
- 3:15 PM 15 **Effect of feeding a byproduct combination at two levels or byproduct alone in feedlot diets.** C. D. Buckner*¹, G. E. Erickson¹, T. J. Klopfenstein¹, R. A. Stock², and K. J. Vander Pol¹, ¹*University of Nebraska, Lincoln*, ²*Cargill Wet Milling, Blair, NE.*

- 3:30 PM 16 **Evaluating in vitro neutral detergent fiber digestibility of high-fiber byproduct feeds and forages.** J. Wakker*¹, H. G. Jung^{1,2}, and J. G. Linn¹, ¹*University of Minnesota, St. Paul*, ²*USDA-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

- 1:00 PM 17 **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, ¹*University of Wyoming, Laramie*, ²*University of Kentucky, Lexington*.
- 1:15 PM 18 **Dietary supplementation of oregano essential oils (OEO) on the performance of nursery pigs.** C. Ariza-Nieto*, S. K. Baidoo, and R. Walker, *University of Minnesota, St. Paul*.
- 1:30 PM 19 **Effect of diet on apparent intestinal retention of methionine and 2-hydroxy-4-methylthiobutanoic acid in pigs.** G. Malik*¹, M. D. Drew¹, D. Hoehler², M. Rademacher², and A. G. Van Kessel¹, ¹*University of Saskatchewan, Saskatoon, SK, Canada*, ²*Degussa Corporation, Kennesaw GA*.
- 1:45 PM 20 **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, ¹*University of Nebraska, Lincoln*, ²*SarTec Corporation, Anoka, MN*, ³*PharmAgra Labs, Inc., Brevard, NC*.
- 2:00 PM 21 **Dietary L-arginine supplementation improves pregnancy outcome in gilts.** R. D. Mateo*¹, G. Wu^{1,2}, J. A. Carroll³, I. Shinzato⁴, and S. W. Kim^{1,2}, ¹*Texas Tech University, Lubbock*, ²*Texas A&M University, College Station*, ³*USDA-ARS-LIRU, Lubbock, TX*, ⁴*Ajinomoto, Tokyo, Japan*.
- 2:15 PM 22 **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. Hoge^{1,2}, and R. O. Bates¹, ¹*Michigan State University, East Lansing*, ²*Western Illinois University, Macomb*.
- 2:30 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*.
- 2:45 PM **Break.**
- 3:00 PM 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, ¹*Kansas State University, Manhattan*, ²*Lonza, Inc, Allendale, NJ*.

- 3:15 PM 25 **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.*
- 3:30 PM 26 **Diurnal and dietary impacts on purine derivative excretion from spot samples of urine in finishing heifers.** G. I. Crawford*, K. J. Vander Pol, J. C. MacDonald, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 3:45 PM 27 **Diets containing low vitamin A and roasted soybeans affect adipose cellularity and muscle fatty acid profile of beef cattle.** M. Gorocica-Buenfil*, C. Reynolds, F. Fluharty, and S. Loerch, *The Ohio State University, Wooster.*
- 4:00 PM 28 **Genetic background alters gene expression in response to dietary phosphorus in porcine muscle.** A. Qu*, M. Rothschild, and C. Stahl, *Iowa State University, Ames.*

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.

- 2:30 PM 29 **A serum free culture for the study of ex-vivo porcine cartilage metabolism.** J. Wheeler*¹, J. Rush², J. Spencer², P. Wolf¹, and M. Orth¹, ¹*Michigan State University, East Lansing*, ²*JBS United, Inc., Sheridan, IN.*
- 2:45 PM 30 **Differences in aggression between commercial pigs from the years 1980 and 2005.** J. Young*, D. Hanson, E. van Heugten, M. See, and J. Cassidy, *North Carolina State University, Raleigh.*
- 3:00 PM 31 **A comparison of bygholm sieve to standard particle size analysis techniques.** C. Benz*, M. Tokach, C. Groesbeck, S. Dritz, R. Goodband, J. Nelssen, and J. DeRouchey, *Kansas State University, Manhattan.*
- 3:15 PM 32 **Effects of estradiol on the uterine environment and trophoblast in the gilt.** T. Wilmoth*, D. Smith, J. Koch, and M. Wilson, *West Virginia University, Morgantown.*
- 3:30 PM 33 **Milk production and pregnancy rate of dairy cows in an *in-vitro* fertilization embryo transfer program.** L. E. Rensink*¹, J. D. Helmus¹, D. C. Arnett¹, J. S. Metzger², G. W. Robinson², and A. N. Scheaffer¹, ¹*Northwestern College, Orange City, IA*, ²*Trans Ova Genetics, Sioux Center, IA.*
- 3:45 PM 34 **Supplementing of grazing dairy cows with fish oil and sunflower oil enhances milk conjugated linoleic acid without affecting cows performance.** L. Holmes*¹, A. AbuGhazaleh¹, G. Apgar¹, and K. Griswold², ¹*Southern Illinois University, Carbondale*, ²*Pennsylvania State University, Lancaster.*

- 4:00 PM 35 **Survey of beef consumers in the Fargo, North Dakota market: Interest in natural and source identified beef.** K. A. Cook*^{1,2}, G. P. Lardy¹, K. R. Maddock Carlin¹, T. D. Maddock¹, M. J. Marchello¹, and K. G. Odde¹, ¹*North Dakota State University, Fargo*, ²*Michigan State University, East Lansing*.
- 4:15 PM 36 **The effects of myostatin on skeletal muscle re-growth following disuse atrophy in mice.** M. Grant*, J. Koltcs, and J. Reecy, *Iowa State University, Ames*.

Undergraduate Student Competitive Research Papers II

Chair: Wendy Powers, Iowa State University, Ames

Room: 140

Sponsored by: Boehringer Ingelheim Vetmedica, Inc.

NOTE: Program order could change depending on AQ participation.

- 2:30 PM 37 **Hormone concentrations of production dairy cows in an *in-vitro* fertilization embryo transfer program.** J. D. Helmus*¹, L. E. Rensink¹, D. H. Keisler², D. C. Arnett¹, J. S. Metzger³, G. W. Robinson³, and A. N. Scheaffer¹, ¹*Northwestern College, Orange City, IA*, ²*University of Missouri, Columbia*, ³*Trans Ova Genetics, Sioux Center, IA*.
- 2:45 PM 38 **Effects of level and source of selenium on maternal jejunal vascularity in growing pregnant ewe lambs.** S. Julius*¹, M. Ward¹, J. Caton¹, J. Taylor², S. Soto-Navarro³, K. Vonnahme¹, T. Neville¹, J. Reed¹, P. Borowicz¹, D. Redmer¹, and L. Reynolds¹, ¹*North Dakota State University, Fargo*, ²*USDA-ARS Sheep Experiment Station, Dubois, ID*, ³*New Mexico State University, Las Cruces*.
- 3:00 PM 39 **Effects of maternal undernutrition and high selenium (Se) on mammary gland growth in late pregnant sheep.** P. Nester*^{1,2}, J. Reed^{1,2}, D. Redmer^{1,2}, L. Reynolds^{1,2}, K. Vonnahme^{1,2}, and J. Caton^{1,2}, ¹*Center for Nutrition and Pregnancy, Fargo, ND*, ²*North Dakota State University, Fargo*.
- 3:15 PM 40 **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*.
- 3:30 PM 41 **The use of infrared thermography of the eye to assess pain in lame dairy cows.** J. R. Crossgrove*, B. A. Munsell, and A. J. Zanella, *Michigan State University, East Lansing*.
- 3:45 PM 42 **Effect of egg protein antibody on performance of dairy calves.** R. Schnobrich*¹, H. Chester-Jones², D. Ziegler², R. Larson³, B. Ziegler³, and J. Linn¹, ¹*University of Minnesota, St. Paul*, ²*University of Minnesota, Waseca*, ³*Hubbard Feeds, Mankato, MN*.
- 4:00 PM 43 **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*.
- 4:15 PM 44 **Effect of moisture enhancement on sensory attributes, tenderness, and**

retail color of beef steaks from the *gluteus medius*. M. D. Vieson*¹, P. S. Kuber¹, H. N. Zerby¹, A. E. Radunz¹, S. J. Moeller¹, J. L. Bard¹, A. C. Naber¹, K. M. Brueggemeier¹, G. R. Dunlap¹, and B. L. Gwartney², ¹*The Ohio State University, Columbus*, ²*National Cattlemen's Beef Association, Centennial, CO*.

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.*
- 47 **Evaluating finishing pig growth, loin muscle area, and backfat accretion during summer and winter for bedded hoop and confinement barns.** J. R. Morrical, M. S. Honeyman*, J. D. Harmon, T. J. Baas, and C. R. Schwab, *Iowa State University, Ames.*
- 48 **Effects of crossfostering on growth rate and within litter variability at weaning.** D. N. Peters*, L. J. M. Jönsson, C. Pedersen, and H. H Stein, *South Dakota State University, Brookings.*
- 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. Otlis², T. Mader³, and M. P. Hoffman*⁴, ¹*Suleyman Demirel University, Isparta, Turkey*, ²*Frontier Science and Technology Research Foundation, Madison, WI*, ³*University of Nebraska, Lincoln*, ⁴*Iowa State University, Ames.*
- 51 **Partial reduction of fescue toxicosis during heat stress using a supplemental yeast cell wall polymer.** R. M. Heilman*¹, P. A. Eichen¹, L. E. Wax¹, T. Bramble², G. E. Rottinghaus¹, and D. E. Spiers¹, ¹*University of Missouri, Columbia*, ²*Alltech, Inc., Nicholasville, KY.*

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

- 52 **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, ¹*The Ohio State University, Columbus*, ²*National Cattlemen's Beef Association, Denver, CO*.
- 53 **Effect of moisture enhancement on sensory attributes, tenderness, and retail color of beef steaks from the *rectus femoris*.** P. S. Kuber*¹, A. E. Radnuz¹, 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, ¹*The Ohio State University, Columbus*, ²*National Cattlemen's Beef Association, Centennial, CO*.
- 54 **Effect of dietary fat source on fatty acid composition of backfat from growing-finishing swine.** J. K. Apple*, C. V. Maxwell, D. L. Galloway, S. Hutchison, and J. T. Sawyer, *University of Arkansas, Fayetteville*.
- 55 **Effect of dietary fat source on the polyunsaturated fatty acid (PUFA) composition of backfat from growing-finishing swine.** J. K. Apple*, C. V. Maxwell, D. L. Galloway, S. Hutchison, and J. T. Sawyer, *University of Arkansas, Fayetteville*.
- 56 **Classification of pork loin based on intramuscular lipid content to predict sensory and texture of fresh pork.** S. Lonergan*, K. Stalder, E. Huff-Lonergan, T. Knight, R. Goodwin, K. Prusa, and D. Beitz, *Iowa State University, Ames*.
- 57 **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*.
- 58 **Fetal growth of lambs paternally heterozygous for the *callipyge* mutation.** H. C. Freely*¹, M. B. McDonagh², and C. L. Ferrell¹, ¹*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*, ²*Department of Primary Industries, Victoria, Australia*.
- 59 **Interactions of a novel intermediate filament protein with two costameric proteins in muscle cells.** N. Sun* and R. M. Robson, *Iowa State University, Ames*.
- 60 **The effect of Optaflexx® dose and feeding duration on growth performance of steers.** M. T. Van Koeveing*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, ¹*Elanco Animal Health, Greenfield, IN*, ²*University of Nebraska, Lincoln*, ³*South Dakota State University, Brookings*, ⁴*Texas Tech University, Lubbock*, ⁵*University of Illinois, Urbana*.
- 61 **The effect of Optaflexx® dose and feeding duration on carcass traits of steers.** M. T. Van Koeveing*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, ¹*Elanco Animal Health, Greenfield, IN*, ²*University of Nebraska, Lincoln*, ³*South Dakota State University, Brookings*, ⁴*Texas Tech University, Lubbock*, ⁵*University of Illinois, Urbana*.

- 62 **Unique interaction of intermediate filaments with A-actinin in skeletal muscle cells.** S. E. Veneziano*, R. C. Bhosle, and R. M. Robson, *Iowa State University, Ames.*

Nonruminant Nutrition - Posters Exhibit Hall

- 63 **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. Shipp³, and T. Radke¹, ¹*ADM Animal Nutrition, Quincy, IL*, ²*The Ohio State University, Columbus*, ³*ADM Animal Health and Nutrition, Quincy, IL.*
- 64 **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.*
- 65 **Evaluation of mineral retention and tissue mineral content in finishing pigs fed inorganic and organic trace minerals.** A. Balfagon*¹, M. D. Lindemann¹, K. J. Stalder², J. Burkett², J. Pierce³, and G. L. Cromwell¹, ¹*University of Kentucky, Lexington*, ²*Iowa State University, Ames*, ³*Alltech Inc., Nicholasville, KY.*
- 66 **Effect of dietary trace minerals on pig growth and mineral excretion.** T. S. Stahly*, T. R. Lutz, and R. D. Clayton, *Iowa State University, Ames.*
- 67 **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.*
- 68 **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.*
- 69 **Oregano essential oils (OEO) supplementation and its effect on reproductive performance of sows, growth pattern of piglets and their immune measurements.** C. Ariza-Nieto*, S. K. Baidoo, M. Bandrick, and T. W. Molitor, *University of Minnesota, St. Paul.*
- 70 **Effects of increasing oregano oil in nursery pig diets.** C. R. Neill*, J. L. Nelssen, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. M. DeRouchey, *Kansas State University, Manhattan.*
- 71 **Effect of whey protein concentrate source on growth performance of nursery pigs.** R. O. Gottlob*, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, J. L. Nelssen, C. R. Neill, and C. W. Hastad, *Kansas State University, Manhattan.*
- 72 **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, ¹*University of Minnesota, St Paul*, ²*Extension Regional Center, Mankato, MN.*

- 73 **Effect of feed intake level, body weight and pig genotype on the distribution of dissectible lean and fat tissue in finishing gilts.** H. R. Martínez-Ramírez*, T. D. Woods, and C. F. M. de Lange, *University of Guelph, Guelph, Ontario, Canada.*

Odor and Nutrient Management - Posters Exhibit Hall

- 74 **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.*
- 75 **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, ¹*Purdue University, West Lafayette, IN,* ²*Michigan State University, East Lansing.*

Physiology - Posters Exhibit Hall

- 76 **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, ¹*Morehead State University, Morehead, KY, USA,* ²*California State Polytechnic University, Pomona.*
- 77 **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. Weibel², and D. L. Davis¹, ¹*Kansas State University, Manhattan,* ²*JBS United, Inc., Sheridan, IN.*
- 78 **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

- 79 **Effect of imprinting lambs to corn supplementation pre-weaning on post-weaning grazing performance.** G. Lowe*, S. Loerch, D. Clevenger, and P. Tirabasso, *The Ohio State University, Wooster.*
- 80 **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.*
- 81 **Integration of cool- and warm-season grass pasturing systems into cattle finishing programs.** R. A. Edler*^{1,2}, M. P. Hoffman¹, and P. Tsengge¹, ¹*Iowa State University, Ames,* ²*Boehringer Ingelheim Vetmedica, Ames, IA.*

- 82 **Effect of stocking rate and corn gluten feed supplementation on the performance of young beef cows grazing winter stockpiled tall fescue-red clover.** R. Driskill, J. R. Russell*, D. R. Strohbehn, and D. G. Morrical, *Iowa State University, Ames.*
- 83 **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.*
- 84 **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.*
- 85 **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, ¹*North Dakota State University, Fargo,* ²*North Dakota State University, Carrington.*
- 86 **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.*
- 87 **Feeding dried distillers grains with solubles as a replacement for soybean meal and a portion of the corn in finishing wether diets.** T. J. Huls*, A. J. Bartosh, J. A. Daniel, R. D. Zelinsky, J. E. Held, and A. E. Wertz-Lutz, *South Dakota State University, Brookings.*
- 88 **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.*
- 89 **Effect of heat stress on rumen microbial growth and efficiency in vitro.** D. Srichana*, J. H. Porter, M. S. Kerley, M. R. Ellersieck, and J. N. Spain, *University of Missouri, Columbia.*

Swine Extension - Posters Exhibit Hall

- 90 **Michigan swine finishing management program.** T. Guthrie*, R. Bates, D. Rozeboom, G. May, and B. Straw, *Michigan State University, East Lansing.*
- 91 **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.*
- 92 **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.*
- 93 **Effect of feeding LuctaPlus in improving performance of weaned pig diets.** A. L. Smith*, K. J. Stalder, T. V. Serenius, T. J. Baas, and J. W. Mabry, *Iowa State University, Ames.*

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 94 (Invited) What has been learned about uterine capacity in the pig from genetic selection experiments? R. Johnson*, *University of Nebraska, Lincoln.*
- 8:55 AM 95 (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 96 (Invited) Fetal programming: what do we know and what are the implications for the swine industry? R. Anthony*^{1,2}, ¹*Colorado State University, Fort Collins*, ²*University 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 97 (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 98 (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-Lonergeran* 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.**
- 10:15 AM 102 **Effect of aging on tenderness of pork loin rib chops derived from Berkshire swine.** A. C. Naber*, K. M. Brueggemeier, S. J. Moeller, and H. N. Zerby, *The Ohio State University, Columbus.*
- 10:30 AM 103 **Relationship between dietary fat and fatty acid composition in backfat of boars and gilts.** E. Hallenstvedt*^{1,2}, H. Sterten^{1,2}, and M. Øverland¹, ¹*University of Life Sciences, Ås, Norway*, ²*Felleskjøpet Forutvikling, Trondheim, Norway.*
- 10:45 AM 10 **A SNP in the bovine leptin gene: effect on gain and carcass characteristics.** D. Larson*, M. Bauer, E. DeVuyst, P. Berg, and J. Bullinger, *North Dakota State University, Fargo.*

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, ¹*Kansas State University, Manhattan*, ²*Lonza, 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, ¹*Kansas State University, Manhattan*, ²*Lonza, 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.

Brown¹, C. V. Maxwell¹, Z. B. Johnson¹, R. Musser², and R. Dvorak³,
¹University of Arkansas, Fayetteville,, ²Hubbard Feeds, Inc., Mankato, MN,
³Alltech, Inc., Nicholasville, KY.

- 8:45 AM 25 **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.*
- 9:00 AM 109 **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.*
- 9:15 AM 110 **Comparison of water-based and in-feed antimicrobials for growth performance enhancement of weanling pigs.** R. O. Gottlob*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, J. L. Nelssen, C. W. Hastad, C. N. Groesbeck, and C. R. Neill, *Kansas State University, Manhattan.*
- 9:30 AM 111 **Effect of intermittent usage of water-based neomycin sulfate on the growth performance of weanling pigs.** R. O. Gottlob*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, J. L. Nelssen, C. R. Neill, C. N. Groesbeck, K. R. Brown, and N. Z. Frantz, *Kansas State University, Manhattan.*
- 9:45 AM 112 **Effects of supplementing natural vitamin E in the diets or drinking water of weanling pigs.** D. Mahan¹, E. Wilburn*¹, D. Hill², T. Shipp², and H. Yang², ¹The Ohio State University, Columbus, ²ADM, Animal Health and Nutrition, *Quincy, IL.*
- 10:00 AM **Break.**
- 10:15 AM 113 **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. Wolter², ¹JBS United, Inc., Sheridan, IN, ²The Maschoff's, Inc., Carlyle, IL.
- 10:30 AM 114 **Effect of xylanase supplementation on nutrient digestibility of wheat by-products in grower pigs.** T. Nortey*^{1,2}, J. Patience¹, J. Sands³, and R. Zijlstra⁴, ¹Prairie Swine Centre Inc., Saskatoon, Saskatchewan, Canada, ²University of Saskatchewan, Saskatoon, Saskatchewan, Canada, ³Danisco Animal Nutrition, Marlborough, Wiltshire, U.K, ⁴University of Alberta, Edmonton, Alberta, Canada.
- 10:45 AM 115 **The effect of feed antimicrobial on the prevention and treatment of *E. coli* K88 diarrhoea in young piglets.** F. Omogbenigun and E. Beltranena*, *Alberta Agriculture, Food and Rural Development, Edmonton, AB, Canada, Edmonton, AB, Canada.*
- 11:00 AM 116 **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.*

- 11:15 AM 117 **Growth performance of nursery pigs fed BIOSAF® in combination with in-feed antimicrobials.** B. M. Hildabrand*, T. E. Burkey, K. A. Skjolaas, S. S. Dritz, B. J. Johnson, and J. E. Minton, *Kansas State University, Manhattan.*
- 11:30 AM 118 **Application of 2-hydroxy-4-(methylthio)butanoic acid (HMTBa) containing ACTIVATE® nutritional feed acid blends in the nursery pig feeding program of North America.** G. F. Yi*, C. D. Knight, C. S. Schasteen, J. Wu, and K. R. Perryman, *Novus International, Inc., St. Charles, MO.*
- 11:45 AM 119 **Evaluation of 2-hydroxy-4-(methylthio)butanoic acid (HMTBa) containing ACTIVATE® nutritional feed acid blends in different nursery pig feeding programs.** G. F. Yi*, S. P. Fiene, R. L. Anderson, C. S. Schasteen, K. R. Perryman, and C. D. Knight, *Novus International, Inc., St. Charles, MO.*

**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.

- 8:00 AM 120 **(Invited) Using CNMPs to meet NPDES permit nutrient management plan requirements.** R. Burns*, *Iowa State University, Ames.*
- 8:40 AM 121 **(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.*
- 9:20 AM 122 **(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, ¹*University of Nebraska, Lincoln*, ²*Iowa State University, Ames*, ³*Purdue University, West Lafayette, IN.*
- 10:00 AM **Break.**
- 10:15 AM 123 **(Invited) Non-ruminant diet composition effects on land acreage manure application.** A. Sutton*, B. Richert, and T. Applegate, *Purdue University, West Lafayette.*
- 10:55 AM 124 **(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, ¹*University of Nebraska, Lincoln*, ²*Washington State University, Pullman.*
- 11:35 AM **Panel Discussion.**

Ruminant Nutrition - Co-Product and Feedstuff Utilization
Chair: Jeff Lehmkuhler, University of Wisconsin, Madison
Room: 204AB

Sponsored by: Prince Agri Products, Inc.

- 8:00 AM 15 **Effect of feeding a byproduct combination at two levels or byproduct alone in feedlot diets.** C. D. Buckner*¹, G. E. Erickson¹, T. J. Klopfenstein¹, R. A. Stock², and K. J. Vander Pol¹, ¹*University of Nebraska, Lincoln*, ²*Cargill Wet Milling, Blair, NE*.
- 8:15 AM 126 **Optimizing the length of feeding a high distillers dried grains with solubles-soy hull diet to feedlot cattle.** J. Homm*¹, L. Berger¹, L. Forster², and T. Nash¹, ¹*University of Illinois, Urbana, IL*, ²*Archer Daniels Midland Company, Decatur, IL*.
- 8:30 AM 127 **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*.
- 8:45 AM 128 **Addition of wet distillers grains plus solubles in cattle finishing diets containing wet corn gluten feed.** P. L. Loza*¹, G. E. Erickson¹, K. J. Vander Pol¹, M. A. Greenquist¹, R. A. Stock², and T. J. Klopfenstein¹, ¹*University of Nebraska, Lincoln*, ²*Cargill Wet Milling, Blair, NE*.
- 9:00 AM 129 **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*.
- 9:15 AM 130 **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*.
- 9:30 AM 131 **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*.
- 9:45 AM **Break.**
- 10:00 AM 132 **Effect of corn density on finishing steer intake, performance, and carcass characteristics.** D. Larson, R. Duvall*, M. Bauer, and G. Lardy, *North Dakota State University, Fargo*.
- 10:15 AM 133 **Effect of corn processing in finishing diets containing wet distillers grains on feedlot performance and carcass characteristics of finishing steers.** K. J. Vander Pol*¹, M. A. Greenquist¹, G. E. Erickson¹, T. J. Klopfenstein¹, and T. Robb², ¹*University of Nebraska, Lincoln*, ²*Abengoa Bioenergy, York, NE*.
- 10:30 AM 13 **Effect of corn hybrid and processing method on site and extent of nutrient digestibility using the mobile bag technique.** M. Luebbe*¹, G.

Erickson¹, T. Klopfenstein¹, and W. Fithian², ¹*University of Nebraska, Lincoln*,
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*, G. E. Erickson, T. J. Klopfenstein, 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*¹, G. E. Erickson¹, T. J. Klopfenstein¹, W. A. Fithian², P. M. Clark³, and D. S. Jackson¹, ¹*University of Nebraska, Lincoln*, ²*Golden Harvest Seeds, Inc., Waterloo, NE*, 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*¹, M. Ellis¹, C. R. Bertelsen¹, R. Bowman², J. Brinkmann², J. M. DeDecker¹, K. K. Keffaber³, C. M. Murphy¹, B. A. Peterson¹, J. M. Schlipf¹, and B. F. Wolter², ¹*University of Illinois, Urbana*, ²*The Maschhoff's, Inc., Carlyle, IL*, 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* and M.S. Honeyman, *Iowa State University, Ames*.

9:00 AM 139 **A survey of dairy compost barns in Minnesota.** A. Barberg*, M. Endres, and J. Salfer, *University of Minnesota, St. Paul*.

9:15 AM 11 **Use of infrared thermography to non-invasively determine surface temperatures of limbs of non-lame dairy cows.** B. A. Munsell*, A. Ragavendran, D. K. Beede, and A. J. Zanella, *Michigan State University, East Lansing*.

9:30 AM 141 **The relationship between inflammatory condition and liver activity in the puerperium and their consequences on fertility in dairy cows.** G. Bertoni¹, E. Trevisi¹, X. Han², and M. Bionaz*¹, ¹*Istituto di Zootecnica, Universita Cattolica del Sacro Cuore, Piacenza, Italy*, ²*University of Saskatchewan, Saskatoon, Canada*.

9:45 AM 7 **Effects of melengestrol acetate on L-selectin and B2-integrin expression of polymorphonuclear leukocytes from heifers challenged with lipopolysaccharide.** M. Corrigan*, J. Drouillard, C. Wyatt, E. Loe, B. Deppenbusch, A. Webb, M. Quinn, and H. Wang, *Kansas State University, Manhattan*.

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*¹, D. Casey², M. See¹, and J. Cassady¹, ¹*North Carolina State University, Raleigh*, ²*Pig Improvement Company, Franklin, KY.*
- 9:15 AM 30 **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.*
- 9:30 AM 147 **Structural correctness and mobility of 1980 vs. 2005 pigs when fed 1980 and 2005 feeding programs.** J. Fix*, D. Hanson, E. van Heugten, K. Lovercamp, J. Cassady, and M. See, *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*¹, D. Casey², B. Mote¹, and J. Dekkers¹, ¹*Iowa State University, Ames*, ²*Pig Improvement Company, Franklin, KY.*
- 10:15 AM 149 **NATIONAL PORK BOARD RESEARCH AWARD - Selection for intramuscular fat in Duroc swine: Correlated response in eating quality traits.** N. Berry*, C. Schwab, T. Baas, and K. Stalder, *Iowa State University, Ames.*
- 10:30 AM 150 **Genetic change in intramuscular fat: Correlated responses in performance and meat quality traits.** C. Schwab*, N. Berry, T. Baas, and K. Stalder, *Iowa State University, Ames.*
- 10:45 AM 151 **Molecular dissection of porcine chromosome 17 QTL for meat quality: From genome scan to sequence information.** A. Ramos*¹, Z. Hu¹, S. Humphray², J. Rogers², J. Reecy¹, and M. Rothschild¹, ¹*Iowa State University, Ames*, ²*The Wellcome Trust Sanger Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge, UK.*

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*¹, S. Ivan⁴, W. Matzke¹, R. Grant³, R. Stock², and T. Klopfenstein¹, ¹*University of Nebraska, Lincoln*, ²*Cargill, Inc., Blair, NE*, ³*Miner Institute, Chazy, NY*, ⁴*University of Maryland, College Park.*
- 10:45 AM 155 Lactational performance of dairy cows fed wet corn distillers grains for the entire lactation. G. S. Mpapho*, A. R. Hippen, K. F. Kalscheur, and D. J. Schingoethe, *South Dakota State University, Brookings.*
- 11:00 AM 156 Influence of plane of nutrition on growth of dairy calves. J. A. Stamey*¹, R. L. Wallace¹, K. R. Grinstead², D. R. Bremmer², and J. K. Drackley¹, ¹*University of Illinois, Urbana*, ²*Vita Plus, Madison, WI.*
- 11:15 AM 157 Effect of supplementing a medicated intensive milk replacer and calf starter with Apex. R. Costello*¹, B. Corners¹, S. Moreland², and J. Coalson¹, ¹*Merrick Animal Nutrition, Inc., Union Center, WI*, ²*BFI Innovations, Elgin, IL.*
- 11:30 AM 14 Growth and performance of Holstein dairy calves fed distillers grains. M. Thomas*, A. R. Hippen, K. F. Kalscheur, and D. J. Schingoethe, *South Dakota State University, Brookings.*
- 11:45 AM 16 Evaluating in vitro neutral detergent fiber digestibility of high-fiber byproduct feeds and forages. J. Wakker*¹, H. G. Jung^{1,2}, and J. G. Linn¹, ¹*University of Minnesota, St. Paul*, ²*USDA-Agricultural Research Service, St. Paul, MN.*

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.
- 1:05 PM 160 (Invited) Evaluation, interpretation and relevance of stayability in beef cattle genetic improvement. D. Garrick*, *Colorado State University, Fort Collins.*

- 1:55 PM 161 **(Invited) Genetically improving the productive lives of dairy cows: It can be done faster than most people think is possible.** L. B. Hansen*, *University of Minnesota, St. Paul.*
- 2:45 PM **Break.**
- 3:05 PM 162 **(Invited) Longevity in pigs: Perspectives on genetics and production.** S. Newman*, *Sygen International, Franklin, KY.*
- 3:55 PM **Discussion.**

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. Greenquist*¹, K. Vander Pol¹, G. Erickson¹, T. Klopfenstein¹, and M. Van Koevering², ¹*University of Nebraska, Lincoln*, ²*Elanco Animal Health, Greenfield, IN.*
- 1:55 PM 165 **Effects of feeding a beta-agonist on longissimus muscle fiber area and diameter, and fiber associated nuclei in cull beef cows.** J. Gonzalez*, J. Carter, D. Johnson, and S. Johnson, *University of Florida, Gainesville.*
- 2:10 PM 166 **Effect of Optaflexx dosage and duration of feeding prior to slaughter on growth performance and carcass characteristics.** G. I. Crawford*¹, G. E. Erickson¹, K. J. Vander Pol¹, M. A. Greenquist¹, J. D. Folmer¹, and M. T. Van Koevering², ¹*University of Nebraska, Lincoln*, ²*Elanco Animal Health, Omaha, NE.*
- 2:25 PM 167 **Effects of Optaflexx fed in combination with melengestrol acetate on feedlot performance of heifers.** W. A. Griffin*¹, G. E. Erickson¹, B. D. Dicke², R. J. Cooper², D. J. Jordan², J. S. Drouillard³, W. M. Moseley⁴, D. J. Weigel⁴, and G. E. Sides⁴, ¹*University of Nebraska, Lincoln*, ²*Cattlemen's Nutrition Services LLC, Lincoln, NE*, ³*Kansas State University, Manhattan*, ⁴*Pfizer 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. Loza*¹, G. E. Erickson¹, C. G. Campbell³, B. D. Dicke⁴, R. J. Cooper⁴, D. J. Jordan⁴, J. S. Drouillard², and T. J. Klopfenstein³, ¹*University of Nebraska, Lincoln*, ²*Kansas State University, Manhattan*, ³*Ford Dodge Animal Health, Overland Park, KS*, ⁴*Cattlemen Nutrition Services, Lincoln, NE.*
- 2:55 PM **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.*

- 3:30 PM 170 **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, ¹*University of Nebraska, Lincoln*, ²*Swedish University of Agricultural Sciences, Uppsala, Sweden*.
- 3:45 PM 171 **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*.
- 4:00 PM 172 **Assessing the foodservice potential for muscles from the chuck.** C. Bratcher*, K. Moore, M. Keene, and C. Lorenzen, *University of Missouri, Columbia*.
- 4:15 PM 173 **Ranking beef muscles for Warner-Bratzler shear force and trained sensory panel ratings.** G. Sullivan*¹, B. Gwartney², and C. Calkins¹, ¹*University of Nebraska, Lincoln*, ²*National Cattlemen's Beef Association, Centennial, CO*.
- 4:30 PM 174 **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

- 1:00 PM 175 **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*.
- 1:15 PM 176 **The effect of diet on the occurrence of osteochondrosis dissecans and cartilage properties in pigs.** N. Frantz*, J. Nelssen, G. Andrews, M. Tokach, S. Dritz, T. Loughin, R. Goodband, and J. DeRouchey, *Kansas State University, Manhattan*.
- 1:30 PM 177 **Effects of continuous or intermittent ractopamine HCl feeding on late finishing pig growth performance.** C. N. Neill*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, J. M. DeRouchey, C. N. Groesbeck, and K. R. Brown, *Kansas State University, Manhattan, KS*.
- 1:45 PM 178 **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*.
- 2:00 PM 179 **Evaluation of yellow field peas in growing-finishing swine diets.** G. I. Petersen* and J. D. Spencer, *JBS United, Inc., Sheridan, IN*.
- 2:15 PM 180 **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*.

- 2:30 PM 181 **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, ¹*Prairie Swine Centre Inc., Saskatoon, SK, Canada*, ²*Universidad Nacional de Colombia, Palmira, Valle, Colombia*, ³*Faculte des Sciences agronomiques de Gembloux, Gembloux, Belgium.*

Odor and Nutrient Management

Chair: Brian Richert, Purdue University, West Lafayette, IN

Room: 134

- 1:00 PM 182 **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.*
- 1:15 PM 183 **Influence of dietary manipulation on DM, N, and P excretion of pigs during an entire finishing period.** M. Lachmann*, S. Carter, T. Buhay, S. Jenkins, and Z. Marable, *Oklahoma State University, Stillwater.*
- 1:30 PM 184 **Influence of diet on macro- and micro-mineral excretion of pigs during an entire finishing period.** M. Lachmann*, S. Carter, T. Buhay, S. Jenkins, and Z. Marable, *Oklahoma State University, Stillwater.*
- 1:45 PM 9 **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, ¹*Iowa State University, Ames*, ²*Alltech, Inc., Nicholasville, KY.*
- 2:00 PM 186 **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 187 **(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 188 **(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, ¹*Michigan State University, East Lansing*, ²*University of Reading, UK*, ³*University College, Dublin, Ireland.*
- 2:05 PM 189 **(Invited) Relationship between follicle size and pregnancy success.** G.A. Perry*, *South Dakota State University, Brookings.*

- 2:35 PM 190 (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

- 1:00 PM 191 (Invited) Bioavailability of trace minerals in feeds. J. Spears*, *North Carolina State University, Raleigh*.
- 1:35 PM 192 (Invited) Effects of trace minerals on metabolic processes. T. Engle*, *Colorado State University, Fort Collins*.
- 2:10 PM 193 (Invited) Water quality and trace minerals. C. Wright*¹ and J. Linn², ¹*South Dakota State University, Brookings*, ²*University of Minnesota, St. Paul*.
- 2:45 PM 194 (Invited) Increasing selenium in meat and milk through nutrition. J. Caton*, M. Ward, T. Lawler-Neville, M. Marchello, L. Reynolds, and G. Lardy, *North Dakota State University, Fargo*.

Nonruminant Nutrition - Proteins and Amino Acids

Chair: Hans Stein, South Dakota State University, Brookings

Room: 204FG

Sponsored by: Hubbard Feeds Inc.

- 3:00 PM 19 Effect of diet on apparent intestinal retention of methionine and 2-hydroxy-4-methylthiobutanoic acid in pigs. G. Malik*¹, M. D. Drew¹, D. Hoehler², M. Rademacher², and A. G. Van Kessel¹, ¹*University of Saskatchewan, Saskatoon, SK, Canada*, ²*Degussa Corporation, Kennesaw, GA*.
- 3:15 PM 196 Comparison of commercial methionine sources in diets for 9 to 23-kg nursery pigs. R. L. Payne*, D. Hoehler, and M. Rademacher, *Degussa Corporation, Kennesaw, GA*.
- 3:30 PM 197 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, ¹*Kansas State University, Manhattan, KS*, ²*Ajinomoto Heartland LLC, Chicago, IL*.
- 3:45 PM 198 Effects of crystalline amino acids, ractopamine, and sodium bicarbonate on physiological pH in swine. K. Dorton*, T. Engle, R. Enns, and D. Anderson, *Colorado State University, Fort Collins*.

- 4:00 PM 199 **Comparison of crystalline amino acid additions to swine diets containing yellow dent and NutriDense corn.** C. W. Hastad*¹, R. O. Gottlob¹, S. K. Linneen¹, M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, J. L. Nelssen¹, J. L. Snow², and C. M. Peter², ¹*Kansas State University, Manhattan*, ²*ExSeed Genetics L.L.C., Owensboro, KY*.
- 4:15 PM 200 **The optimal true ileal digestible lysine and sulfur amino acid requirement for nursery pigs between 10 and 20 kg.** J. D. Schneider*¹, M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, J. L. Nelssen¹, J. M. DeRouchey¹, G. F. Yi², K. R. Perryman², and C. D. Knight², ¹*Kansas State University, Manhattan*, ²*Novus International Inc., St. Louis, MO*.
- 4:30 PM 201 **Determining the optimal lysine:calorie ratio for growth performance of 10 to 25 kg nursery pigs.** J. D. Schneider*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, and J. M. DeRouchey, *Kansas State University, Manhattan*.

Swine Extension - Swine Management

Chair: Joel DeRouchey, Kansas State University, Manhattan

Room: 142

- 3:00 PM 202 **Assessment of educational needs for the Minnesota pork industry.** M. Whitney*, *University of Minnesota Extension Service, Mankato, MN*.
- 3:15 PM 203 **NATIONAL PORK BOARD EDUCATION AWARD - PorkBridge®: An on-farm delivered extension program.** M. Brumm*¹, D. Levis^{1,2}, and D. Ricker², ¹*University of Nebraska, Concord*, ²*The Ohio State University, Columbus*.
- 3:30 PM 204 **Effect of weaning age on nursery pig performance.** A. L. Smith*, K. J. Stalder, T. V. Serenius, T. J. Baas, and J. W. Mabry, *Iowa State University, Ames*.

Physiology - Topics in Ovarian Physiology- Young Investigators' Perspective

Chair: Richard Pursley, Michigan State University, East Lansing

Room: 138

- 3:15 PM **Introduction.** Richard Pursley.
- 3:20 PM 205 **Ovulatory response of beef heifers to GnRH: Effect of stage of the estrous cycle.** J. A. Atkins*, D. C. Busch, J. F. Bader, D. J. Schafer, M. C. Lucy, D. J. Patterson, and M. F. Smith, *University of Missouri, Columbia*.
- 3:30 PM 206 **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*.

- 3:40 PM 207 **The influence of preovulatory estradiol concentrations on uterine function in beef cattle.** G. A. Bridges*, M. L. Mussard, D. E. Grum, L. A. Helser, C. L. Gasser, D. M. Dauch, J. L. Pate, and M. L. Day, *The Ohio State University, Columbus.*
- 3:50 PM 208 **Effect of GnRH after timed AI on conception rates in lactating dairy cows.** A. Cunha*, A. Souza, E. Silva, D. Brusveen, C. Silva, J. Powell, J. Guenther, and M. Wiltbank, *University of Wisconsin, Madison.*
- 4:00 PM 209 **Administration of GnRH 5 days after first timed artificial insemination improves fertility in anovular lactating dairy cows.** R. A. Sterry*¹, E. P. B. Silva¹, D. Kolb², and M. L. Welle³, ¹*University of Wisconsin, Madison,* ²*Lodi Veterinary Hospital, Lodi, WI,* ³*Miltrim 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.*
- 4:30 PM 212 **Expression of anti-angiogenic Vascular Endothelial Growth Factor (VEGF) 164b during rat ovarian morphogenesis: Potential regulation of VEGF angiogenic isoform function.** R. A. Longfellow*, R. M. Pohlmann, M. M. Baltes, D. T. Clopton, and A. S. 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. Krisner, *Purdue University, West Lafayette, IN.*

Ruminant Nutrition - Forages and Grazing

Chair: Alvaro Garcia, South Dakota State University, Brookings

Room: 204AB

Sponsored by: Prince Agri Products, Inc.

- 3:30 PM 17 **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, ¹*University of Wyoming, Laramie,* ²*University of Kentucky, Lexington.*
- 3:45 PM 216 **Winter grazing systems for gestating ewes.** S. Loerch*, D. Clevenger, P. Tirabasso, and G. Lowe, *The Ohio State University, Wooster.*

- 4:00 PM 217 **Effects of annual versus perennial grass pastures on animal carrying capacity and performance of lactating ewes.** D. Clevenger*, S. Loerch, G. Lowe, and P. Tirabasso, *The Ohio State University, Wooster.*
- 4:15 PM 218 **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.*
- 4:30 PM 219 **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**

- 220 **Performance variation of ISO 11785 radio frequency cattle transponders and interrogators.** A. Bryant*, D. Blasi, B. Barnhardt, M. Epp, and S. Glaenger, *Kansas State University, Manhattan.*
- 221 **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.*
- 222 **Effects of different selection criteria on profitability in beef bulls.** J. Gulas*, J. Warren, and E. Felton, *West Virginia University, Morgantown.*
- 223 **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.*
- 224 **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, ¹*Dickinson State University, Dickinson, ND,* ²*North Dakota State University, Dickinson.*
- 225 **Effect of alternative winter feeding methods on cow performance and production costs.** S. Turbille¹, W. Poland*², K. Schulz¹, and L. Tisor², ¹*Dickinson State University, Dickinson, ND,* ²*North Dakota State University, Dickinson.*
- 226 **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,

¹USDA-ARS Grazinglands Research Laboratory, El Reno,OK, ²USDA-ARS Livestock and Range Research Laboratory, Miles City, MT.

- 227 **Effect of value-added health program and breed on calf prices: Superior Livestock Auction analysis.** L. Corah¹, M. McCully*¹, M. King², M. Salman², J. Seeger³, and D. Grotelueschen³, ¹*Certified Angus Beef LLC, Wooster, OH*, ²*Colorado State University, Fort Collins, CO*, 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. Koknaroglu¹, D. D. Loy², and M. P. Hoffinan*², ¹*Suleyman Demirel University, Isparta, Turkey*, ²*Iowa State University, Ames*.
- 229 **Survey of cattle backgrounding and finishing feedlots in North Dakota.** T. G. Rime, K. R. Maddock Carlin*, W. D. Eide, G. P. Lardy, and K. G. Odde, *North Dakota State University, Fargo*.
- 230 **Survey of small meat processors in North Dakota.** T. G. Rime, K. R. Maddock Carlin*, W. D. Eide, T. D. Maddock, P. T. Berg, M. J. Marchello, G. P. Lardy, and K. G. Odde, *North Dakota State University, Fargo*.

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 F₂ Duroc × Pietrain resource population: I. Growth traits.** D. B. Edwards*¹, C. W. Ernst¹, N. E. Raney¹, R. J. Tempelman¹, M. D. Hoge^{1,2}, and R. O. Bates¹, ¹*Michigan State University, East Lansing*, ²*Western Illinois University, Macomb*.
- 233 **QTL mapping in an F₂ Duroc × Pietrain resource population: II. Carcass and meat quality traits.** D. B. Edwards*¹, C. W. Ernst¹, N. E. Raney¹, M. E. Doumit¹, M. D. Hoge^{1,2}, and R. O. Bates¹, ¹*Michigan State University, East Lansing*, 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*¹, E. McCormick², A. M. Ramos¹, and M. F. Rothschild¹, ¹*Iowa State University, Ames*, ²*Mount Mercy College, Cedar Rapids, IA*.
- 235 **Association between growth hormone gene (GH) SNP and economic traits in pig.** D. Paiva, S. Paiva, P. Lopes, and S. Guimaraes*, *Departamento de Zootecnia, Universidade Federal de Vicosa, Vicosa, Minas Gerais, Brasil, 36571-000*.
- 236 **NATIONAL PORK BOARD RESEARCH AWARD - Additive and dominance genetic effects on sow longevity.** T. Serenius*, T. Baas, and K. Stalder, *Iowa State University, Ames*.
- 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.*

- 238 **Breeding for sustainability: effect of breed on cultural energy expenditure of lamb production.** H. Koknaroglu¹, A. Ali², D. G. Morrical², and M. P. Hoffman*², ¹*Suleyman Demirel University, Isparta, Turkey,* ²*Iowa State University, Ames.*

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

- 239 **Instrument prediction of pork carcass composition.** D. Newman*¹, T. B. Schmidt¹, E. L. Walker², C. A. Stahl¹, G. K. Rentfrow¹, D. L. Meyer¹, V. L. Pierce¹, M. R. Ellerseick¹, and E. P. Berg¹, ¹*Univeristy of Missouri, Columbia,* ²*Missouri State University, Springfield.*
- 240 **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.*
- 241 **Effect of dietary fat source on the monounsaturated fatty acid (MUFA) composition of backfat from growing-finishing swine.** J. K. Apple*, C. V. Maxwell, D. L. Galloway, S. Hutchison, and J. T. Sawyer, *University of Arkansas, Fayetteville.*
- 242 **Effect of dietary fat source on the saturated fatty acid (SFA) composition of backfat from growing-finishing swine.** J. K. Apple*, C. V. Maxwell, D. L. Galloway, S. Hutchison, and J. T. Sawyer, *University of Arkansas, Fayetteville.*
- 243 **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.*
- 244 **Effects of triticale-based diets on finishing pig performance and pork quality in bedded hoop barns.** Z. M. Sullivan*, M. S. Honeyman, L. R. Gibson, and K. J. Prusa, *Iowa State University, Ames.*
- 245 **United States pork industry pork quality survey.** J. Meisinger* and E. Berg, *University of Missouri, Columbia.*
- 246 **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, ¹*The Ohio State University, Columbus,* ²*National Cattlemen's Beef Association, Centennial, CO.*
- 247 **Growth performance profile and carcass characteristics of steers fed Optaflexx®.** M.T. Van Koevinger*¹, M. A. Greenquist², K. J. Vander Pol², G. E. Erickson², T. J. Klopfenstein², and W. J. Platter¹, ¹*Elanco Animal Health, Greenfield, IN,* ²*University of Nebraska, Lincoln.*
- 248 **Evaluating the tenderness of beef chuck and round muscles enhanced with ammonium hydroxide and salt.** A. Hamling* and C. Calkins, *University of Nebraska, Lincoln.*

- 249 **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

- 250 **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.*
- 251 **The effects of dietary glutamine, glycine, and salt concentration on nursery pig growth performance.** C. N. Groesbeck*, M. D. Tokach, S. S. Dritz, J. M. DeRouchey, J. L. Nelssen, and R. D. Goodband, *Kansas State University, Manhattan.*
- 252 **Immunomodulatory effects of a *Bacillus*-based direct-fed microbial and antibiotics on the cytokine profile of nursery pigs.** M. E. Davis*¹, D. C. Brown², C. V. Maxwell², T. Rehberger¹, and Z. B. Johnson², ¹*Agtech Products, Inc., Waukesha, WI*, ²*University of Arkansas, Fayetteville.*
- 253 **Bioavailability of zinc-amino acid chelates to zinc sulfate in broiler chickens.** S. K. Kommera*, R. D. Mateo, C. Lin, and S. W. Kim, *Texas Tech University, Lubbock.*
- 254 **Supplemental effects of selenium enriched vegetables in broiler diets on growth performance and tissue selenium levels.** S. K. Kommera¹, C. Lin*¹, T. C. Seo², J. E. Spallholz¹, and S. W. Kim¹, ¹*Texas Tech University, Lubbock*, ²*Rural Development Administration, Suwon, Korea.*
- 255 **Effects of protein source and fat level on pancreatic enzyme activity and gene expression in early-weaned pigs.** T. Buhay*, S. Carter, R. Cueno, M. Lachmann, J. Park, and J. Schneider, *Oklahoma State University, Stillwater.*
- 256 **Impact of weekly random out-of-feed events and feed particle size on grow-finish pig performance.** M. Brumm*¹, S. Colgan¹, and K. Bruns², ¹*University of Nebraska, Concord*, ²*South Dakota State University, Brookings.*
- 257 **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.*
- 258 **Evaluation of the performance response in maternal line barrows using a ractopamine step-up feeding program.** G. Pelger*¹, S. Carr¹, P. Matzat¹, and D. Mechler², ¹*Elanco Animal Health, Greenfield, IN*, ²*Suidae Health and Production, Algona, IA.*
- 259 **Evaluation of the performance response in different genotypes to ractopamine supplementation.** G. Pelger¹, T. Armstrong¹, C. Parks*¹, P. Matzat¹, N. Williams², and D. Mechler³, ¹*Elanco Animal Health, Greenfield, IN*, ²*PIC, Franklin, KY*, ³*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, ¹*Illinois State University, Normal*, ²*University 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*.
- 262 **Effects of ruminal protein degradability and frequency of supplementation on ruminal characteristics and site and extent of digestion of 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, ¹*Southern Illinois University, Carbondale*, ²*Pennsylvania 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, ¹*Southern Illinois University, Carbondale*, ²*The Pennsylvania State University, Lancaster*.
- 267 **Effect of aflatoxin on rumen microbial growth and efficiency in vitro.** D. Srichana*, G. E. Rottinghaus, P. Srichana, J. H. Porter, M. S. Kerley, and J. N. Spain, *University of Missouri, Columbia*.
- 268 **Effect of fumonisin on growth of ruminal bacteria in batch culture.** D. Srichana*, G. E. Rottinghaus, P. Srichana, J. H. Porter, M. S. Kerley, D. R. Ledoux, and J. N. Spain, *University of Missouri, Columbia*.
- 269 **Stability of vitamin liposomes in rumen fluid.** A. Cattaneo*¹, S. Loerch², F. Fluharty², and S. Peters³, ¹*College of Wooster, Wooster, OH*, ²*The Ohio State University, Wooster*, ³*Ingredient 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*.

- 271 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*.
- 272 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.**
- 10:30 AM 276 (Invited) Compost barns as a lactating dairy cow housing system in the Midwest dairy industry. K. A. Janni*, M. I. Endres, J. K. Reneau, and W. W. Schoper, *University of Minnesota, St. Paul*.
- 11:00 AM 277 (Invited) Feeding Fibrous Residues to Growing Heifers. A. D. Garcia*, *South Dakota State University, Brookings*.
- 11:30 AM 278 (Invited) Limit feeding strategies to control energy intake and body condition of post-pubertal dairy heifers. P.C. Hoffman*, C.R. Simson, and M. Wattiaux, *University of Wisconsin, Madison*.
- 12:00 PM 279 (Invited) Systematic Synchronization and Resynchronization Systems for Managing Reproduction in Lactating Dairy Cows. P. Fricke*, R. Sterry, and E. Silva, *University of Wisconsin, Madison*.

Nonruminant Nutrition - Distillers Dried Grains

Chair: Dean Koehler, Vita Plus, Madison, WI

Room: 205IJ

- 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. Pahn*, 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*¹, 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. Mahan³, ¹*University of Kentucky, Lexington*, ²*University of Missouri, Columbia*, ³*The Ohio State University, Columbus*.
- 9:15 AM 290 **Value of degermed-debranned corn in nursery pig diets.** J. Beagle, M. Walsh*, D. Sholly, K. Sadoris, R. Hinson, A. Bogart, D. Kelly, B. Richert, J. Radcliffe, and A. Sutton, *Purdue University, West Lafayette, IN*.
- 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. Patience², and R. T. Zijlstra³, ¹*University of Saskatchewan, Saskatoon, SK, Canada*, ²*Prairie Swine Centre, Inc., Saskatoon, SK, Canada*, ³*University 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, ¹*Ralco Nutrition, Marshall, MN*, ²*Reproductores Porcinos, La Antigua, Guatemala*, ³*Ajinomoto Heartland, Chicago, IL*, ⁴*North Carolina State University, Raleigh, NC*, ⁵*Birthright Animal Nutrition, Delano, MN*, ⁶*The Hanor Company, Spring Green, WI*.
- 10:15 AM 294 **The effect of feeding organic and inorganic sources of zinc on growth performance and microbial population in nursery pigs.** L. M. Pulz* and M. S. Carlson, *University of Missouri, Columbia*.
- 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. Pettigrew¹, ¹*University of Illinois, Urbana*, ²*Zinpro 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. Jönsson*, D. N. Peters, C. Pedersen, and H. H. Stein, *South Dakota State University, Brookings*.
- 11:15 AM 297 **Inclusion of zero-tannin fababeans and substitution for soybean meal in nursery diets on weaned pig performance.** F. Omogbenigun¹, R. Zijlstra², and E. Beltranena^{*1}, ¹*Alberta Agriculture, Food and Rural Development, Edmonton, AB, T6H 5T6, Canada, Edmonton, AB, Canada*, ²*Department of Agricultural, Food & Nutritional Sciences, The University of Alberta, Edmonton, AB, T6G 2P5, Canada, Edmonton, AB, Canada*.

- 11:30 AM 298 **Influence of irradiation of spray dried animal plasma added to meal or pelleted diets on growth performance of weanling pigs.** C. N. Groesbeck*, M. D. Tokach, J. M. DeRouchy, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan.*

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

- 9:00 AM 299 **Investigation of molecular mechanisms of bovine ovarian follicular selection.** Z. Liu*, R. Youngquist, A. Garverick, and E. Antoniou, *University of Missouri, Columbia.*
- 9:15 AM 300 **Comparison of fertility, luteal characteristics, and luteal function between unilateral and bilateral double ovulations.** R. Cushman*, M. Allan, R. Christenson, and S. Echterkamp, *USDA, ARS, Meat Animal Research Center, Clay Center, NE.*
- 9:30 AM 301 **Relationship between concentrations of pregnancy-associated glycoproteins (PAG) in maternal blood and fetal number and status in pregnant cows.** S. Echterkamp*¹, J. Green², K. Vonnahme³, R. Cushman¹, and M. Allan¹, ¹*USDA-ARS, MARC, Clay Center, NE,* ²*University of Missouri, Columbia,* ³*North Dakota State University, Fargo.*
- 9:45 AM 302 **Proliferation and vascularity of different placentomal types in sheep.** W. J. Arndt*^{1,2}, P. P. Borowicz^{1,2}, L. P. Reynolds^{1,2}, and K. A. Vonnahme^{1,2}, ¹*Center for Nutrition and Pregnancy, Fargo, ND,* ²*Department of Animal and Range Sciences, Fargo, ND,* ³*North Dakota State University, Fargo.*
- 10:00 AM 303 **Effects of estradiol (E₂) and linseed meal (LSM) on jejunal cellular proliferation in ovariectomized (OVX) ewes.** M. O'Neil*^{1,2}, G. Lardy^{1,2}, L. Reynolds^{1,2}, J. Caton^{1,2}, and K. Vonnahme^{1,2}, ¹*Department of Animal and Range Sciences, Fargo, ND,* ²*North Dakota State University, Fargo.*
- 10:15 AM 304 **Effects sustained release growth hormone on lambs at birth.** J. Koch* and M. Wilson, *West Virginia University, Morgantown.*
- 10:30 AM 305 **Effect of nutrient restriction and dietary selenium (Se) on maternal and fetal organ mass in pregnant ewe lambs.** R. Reddy*^{1,2}, J. Reed^{1,2}, D. Redmer^{1,2}, L. Reynolds^{1,2}, K. Vonnahme^{1,2}, and J. Caton^{1,2}, ¹*Center for Nutrition and Pregnancy, Fargo, ND,* ²*Department of Animal and Range Sciences, Fargo, ND,* ³*North Dakota State University, Fargo.*
- 10:45 AM **Break.**
- 11:00 AM 306 **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.*
- 11:15 AM 307 **Administration of androgens increase serum concentrations of fsh in gilts.** E. Jiménez*, H. Cárdenas, and W. Pope, *The Ohio State University, Columbus.*

- 11:30 AM 308 **Placental expression of the membrane form of folate binding protein during pregnancy in swine.** J. Vallet* and J. Kim, *USDA, ARS, Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, NE.*
- 11:45 AM 309 **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, ¹*University of Illinois, Urbana*, ²*Intervet, Inc., Millsboro, DE.*
- 12:00 PM 310 **Expression of insulin receptor substrate-1 (IRS1) mRNA in hepatic tissue of periparturient Holstein cows.** J. Meyer*¹, R. Radcliff², and M. Lucy¹, ¹*University of Missouri, Columbia*, ²*Marshfield Clinic, Marshfield, WI.*
- 12:15 PM 311 **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

- 9:00 AM 312 **Effects of feeding a beta-agonist on performance, carcass yield, quality, and economic value of cull cows.** J. N. Carter*, D. D. Johnson, T. A. Thrift, and J. L. Foster, *University of Florida, Gainesville.*
- 9:15 AM 313 **The effects of linseed oil and derivatives on live performance, carcass characteristics, and meat quality of finishing steers.** M. Quinn*, J. Drouillard, E. Loe, B. Depenbusch, A. Webb, and M. Corrigan, *Kansas State University, Manhattan.*
- 9:30 AM 314 **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, ¹*Novus International, Inc, St Louis, MO*, ²*DeKalb, Kalona, IA*, ³*Amana Farms, Amana, IA*, ⁴*Veterinary Medical Center, Williamsburg, IA.*
- 9:45 AM 315 **The relationship between mitochondrial respiration and residual feed intake in Angus steers.** W. Kolath* and M. Kerley, *University of Missouri, Columbia.*
- 10:00 AM 316 **Comparison of Holstein, Jersey, and crossbred twinner steers.** J. Lehmkuhler, M. Ramos*, S. Arp, and J. Claus, *University of Wisconsin, Madison.*
- 10:15 AM 26 **Diurnal and dietary impacts on purine derivative excretion from spot samples of urine in finishing heifers.** G. I. Crawford*, K. J. Vander Pol, J. C. MacDonald, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*

- 10:30 AM 318 **Evaluation of gender based protein requirements in feedlot cattle.** C. Bailey*, G. Duff, S. Sanders, L. Baumgard, J. Treichel, and C. McMurphy, *The University of Arizona, Tucson.*
- 10:45 AM 319 **Effect of phase feeding protein on cattle performance and nitrogen mass balance.** S. Quinn*, G. Erickson, T. Klopfenstein, R. Stowell, K. Vander Pol, and D. Sherwood, *University of Nebraska, Lincoln.*
- 11:00 AM 320 **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.*
- 11:15 AM 321 **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, ¹*University of Nebraska, Lincoln*, ²*University 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.*

- 9:15 AM 326 **QTL detection and marker-assisted composite line development.** N. Piyasatian*, L. R. Totir, R. L. Fernando, and J. C. M. Dekkers, *Iowa State University, Ames.*
- 9:30 AM 327 **Estimation of correlations between phenotype and gene expression in microarray experiments with non-random pooling.** W. Zhang*, A. Carriquiry, D. Nettleton, and J. C. M. Dekkers, *Iowa State University, Ames.*
- 9:45 AM 328 **Differential gene expression in male mice highly versus lowly fertile after heat stress.** K. Cammack*, H. Mesa, E. Antoniou, and W. Lamberson, *University of Missouri, Columbia.*
- 10:00 AM **Break.**
- 10:15 AM 329 **Testing for interactions between *Calpastatin* and *M-Calpain* markers in beef cattle on tenderness traits.** E. Casas*¹, S. White¹, T. Wheeler¹, S. Shackelford¹, M. Koohmaraie¹, D. Riley², C. Chase, Jr.², D. Johnson³, and T. Smith¹, ¹*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*, ²*USDA-ARS, Subtropical Agricultural Research Station (STARS), Brooksville, FL*, ³*University of Florida, Gainesville.*
- 10:30 AM 330 **Estimates of genetic parameters for carcass traits in calf-fed or yearling-fed Simmental cattle.** R. Tait, Jr.*¹, G. Rouse¹, D. Wilson¹, A. Hassen¹, and E. Pollak², ¹*Iowa State University, Ames*, ²*Cornell University, Ithaca, NY.*
- 10:45 AM 331 **Genetic factors influencing bovine respiratory disease in feedlot cattle.** G. Snowden*, L. Van Vleck, L. Cundiff, and G. Bennett, *USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE.*
- 11:00 AM 8 **An epidemiological review of a valine-associated scrapie outbreak: Genetic risk and lateral transmission.** J. M. Evoniuk*¹, C. L. Stoltenow¹, K. I. O'Rourke², B. L. Moore¹, and D. A. Redmer¹, ¹*North Dakota State University, Fargo*, ²*USDA, ADRU, Pullman, WA.*

**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 Cassidy

Extension - Beef

Alfredo DiConstanzo, 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

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

Leo Timms
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. Vathauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. 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
1981	R. L. Prior, Roman L. Hruska U.S. Meat Animal Research Center

1982 B. D. Schanbacher, Roman L. Hruska U.S. Meat Animal Research Center
 1983 H. A. Garverick, University of Missouri
 1984 G. C. Fahey, Jr., University of Illinois
 1985 J. J. Ford, Roman L. Hruska U.S. Meat Animal Research Center
 1986 C. L. Ferrell, Roman L. Hruska U.S. Meat Animal
 Research Center
 1987 D. Gianola, University of Illinois
 1988 S. P. Ford, Iowa State University
 1989 L. L. Berger, University of Illinois
 1990 M. F. Rothschild, Iowa State University
 1991 M. F. Smith, University of Missouri
 1992 D. L. Harmon, Kansas State University
 1993 M. 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. Youngs, Iowa State University

- 1999 J. N. Spain, University of Missouri
- 2000 M. E. Doumit, Michigan State University
- 2001 S. M. Lonergan, Iowa State University
- 2002 W. N. Osburn, Michigan State University
- 2003 S. C. Kelm, University of Wisconsin-River Falls
- 2004 M. S. Weber Nielsen, Michigan State University
- 2005 B. D. Nielsen, Michigan State University

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. Koehler, University of Minnesota
1997	R. A. Nold, South Dakota State University
1998	K. J. Rozeboom, University of Minnesota
1999	L. A. Averette, North Carolina State University
2000	T. A. Armstrong, North Carolina State University
2001	T. G. McDanel, University of Nebraska*
	J. H. Hampton, University of Missouri**
2002	K. M. Hargrave, University of Nebraska*
	M. J. Hersom, Oklahoma State University**
2003	J. Luther, North Dakota State University*
	R. Main, Kansas State University**
2004	R. C. Bott, University of Nebraska*
	M. M. Martinez, Michigan State University**
2005	J. M. Koch, West Virginia University*
	N. D. Fastinger, The Ohio State University**

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

ADSA MIDWEST BRANCH PRESIDENTS

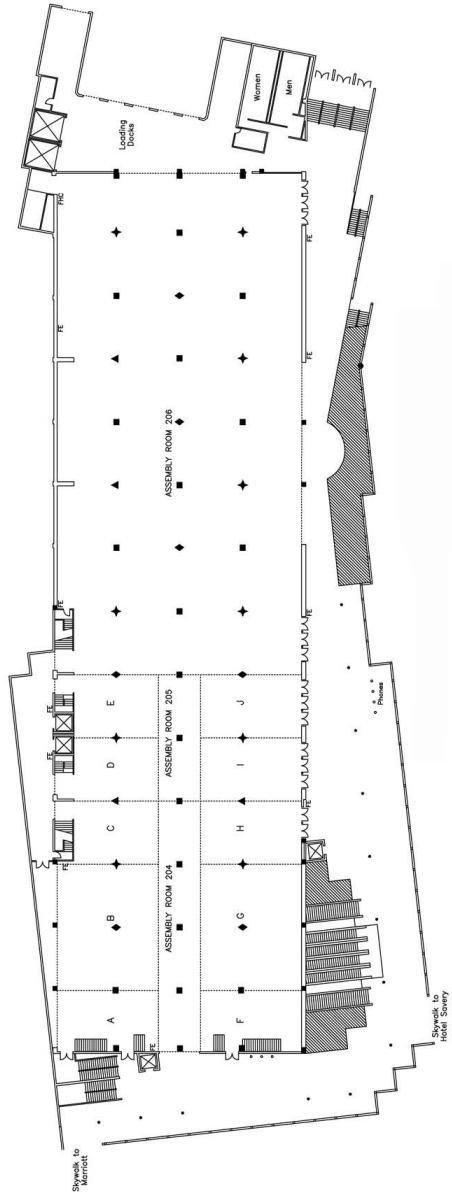
1992	J. F. Keown, University of Nebraska
1993	J. G. Linn, University of Minnesota
1994	D. J. Schingoethe, South Dakota State University
1995	J. L. Morrill, Kansas State University
1996	M. F. Hutjens, University of Illinois
1997	M. A. Faust, Iowa State University

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

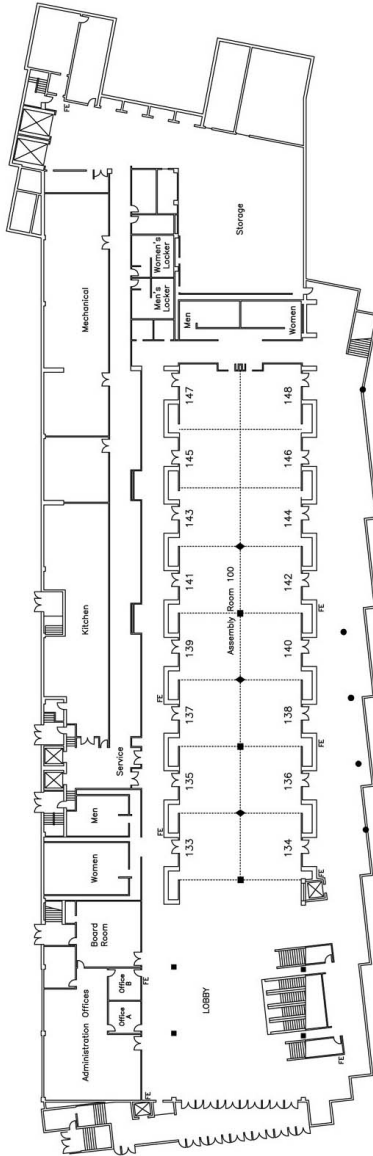
FUTURE MEETINGS

2007 March 19-21

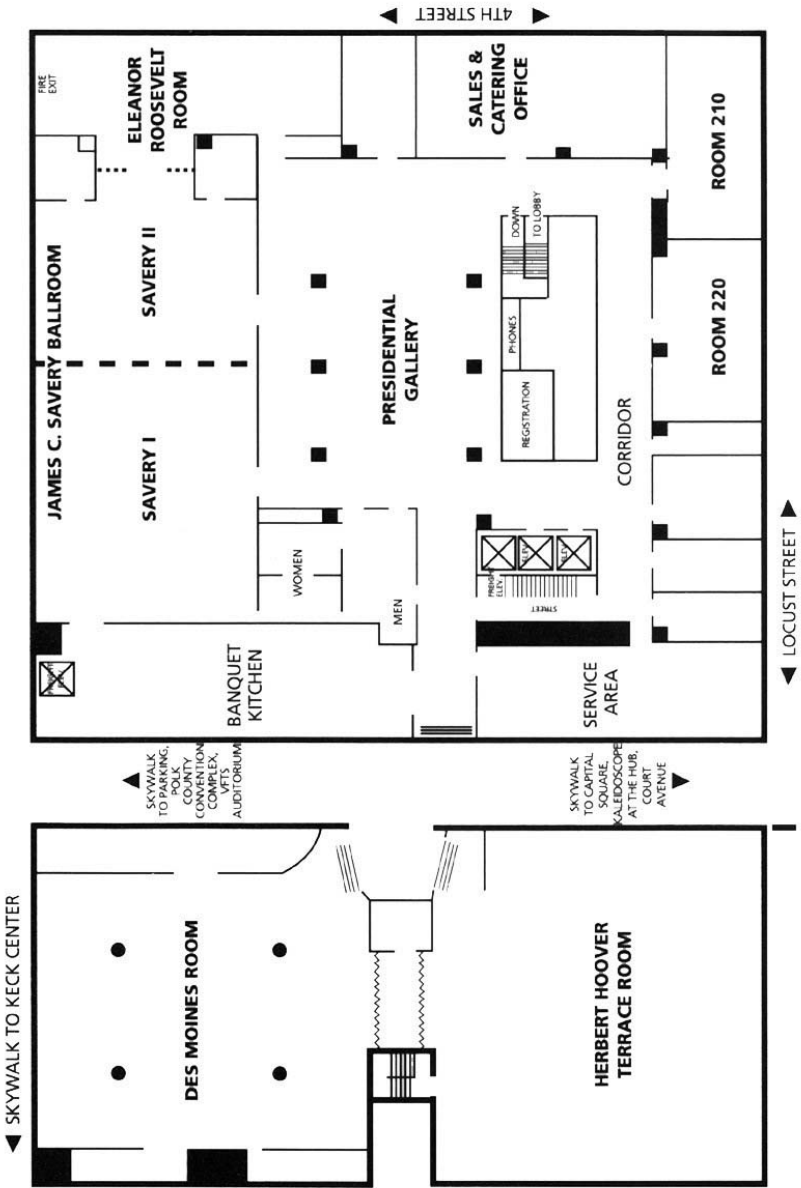
POLK COUNTY CONVENTION COMPLEX Upper Level



POLK COUNTY CONVENTION COMPLEX Lower Level



THE SAVERY HOTEL SECOND FLOOR



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