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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/2003/index.html>. 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.

IMPORTANT PHONE NUMBERS

Meeting Registration Desk:	515/242-2528
Press Room:	515/242-2517
Savery Hotel:.....	515/244-2151
Kirkwood Hotel:	515/244-9191
Hotel Fort Des Moines:	515/243-1161
Embassy Suites:	515/244-1700
Marriott:	515/245-5500

REGISTRATION

Registration and housing forms can be found on the web.
See Page 3 for details.

Convention Center, Lobby
Monday, March 17, 9:30 a.m. – 8:00 p.m.
Tuesday, March 18, 7:00 a.m. – 4:00 p.m.
Wednesday, March 19, 9:00 a.m. – 12:00 noon

	Before March 1	After March 1
ADSA/ASAS Members	\$100	\$150
Undergraduate Students	\$10	\$10
Graduate Student Members	\$20	\$30
Post Doctoral Fellows	\$20	\$30
ASAS-ADSA Fellows	\$0	\$0
Nonmembers	***\$210	\$235
Graduate Student Nonmembers	***\$40	\$50
Post Doctoral Fellow Nonmembers	***\$65	\$75

***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, 2003. No refunds will be issued on ticketed events.

Registration and housing forms can
be found on the web.
See Page 3 for details.

NEW in 2003

Two new symposiums!

David H. Baker Symposium

Nonruminant Nutrition III

Sponsored by the David H. Baker Appreciation Club

Chair: Gary Allee, University of Missouri

Monday, 1:30 p.m. – 5:00 p.m.

Room: 204AB

Technologies to Enhance Artificial Insemination in Swine Physiology II

Sponsored by the Billy N. Day

Appreciation Club

Chair: Ronald K. Christenson, U.S. Meat Animal Research Center, Clay Center, NE

Tuesday, 8:00 a.m. - Noon

Room: 136

Student Symposium!

Academic Programming in the Animal Sciences -

A Look to the Future Teaching II

Chair: Don Marshall, South Dakota State University, Brookings

Tuesday, 10:00 a.m. – Noon

Room: 140

- 10:00 Introduction
- 10:10 Invited Speaker. An industry perspective on future careers and desired student skills. Dr. Archie Clutter, Monsanto Co., St. Louis, MO.
- 10:45 Invited Speaker. Student recruitment and curriculum management. Dr. James Kinder, The Ohio State University.
- 11:20 Open Discussion

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 2003 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 description and résumés to the Placement Center at the 2003 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 17, 2003.

**The Placement Center —
New opportunities are waiting!**

SCHEDULE OF EVENTS

Poster Schedule

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

Monday, March 17 P.M.

Nonruminant Nutrition IV, Posters, Authors Present, even abstract numbers Monday 1:00 p.m.-3:00 p.m.; odd abstract numbers Monday 3:00 p.m. – 5:00 p.m. See Page 23.

Tuesday, March 18 A.M.

Breeding and Genetics II, Posters, Authors present, Tuesday, 10:00 a.m. – Noon See Page 29.

Growth, Development, Muscle Biology, and Meat Science III, Posters, Authors Present: Tuesday, 10:00 – Noon See Page 33.

Ruminant Nutrition and Forages II, Posters, Authors present, even abstract numbers Tuesday 8:00 a.m. – 10:00 a.m.; odd abstract numbers Tuesday 10:00 a.m. – Noon See Page 42.

Tuesday, March 18 P.M.

Animal Behavior, Housing, and Well-Being II, Posters, Authors present, Tuesday 3:00 p.m. – 5:00 p.m. See Page 47.

Extension III, Posters, Authors present, Tuesday, 3:00 p.m. – 5:00 p.m. See Page 49.

Odor and Nutrient Management II, Posters, Authors Present: Tuesday, 1:00 p.m. – 3:00 pm. See Page 53.

Physiology III, Posters, Authors present, Tuesday, 1:00 p.m. – 3:00 p.m. See Page 54.

Teaching III, Posters, Authors present, Tuesday, 1:00 p.m. – 3:00 p.m. See Page 58.

Other Sessions

Monday, March 17 A.M.

8:00 a.m. ADSA/ASAS MW Board of Directors, Savery Hotel, Eleanor Roosevelt Room

Monday, March 17 P.M.

- 1:00 p.m. Nonruminant Nutrition I, Sow Nutrition and Gilt Development See Page 19.
- 1:00 p.m. Nonruminant Nutrition II, Phosphorus and Phytase See Page 20.
- 1:30 p.m. Nonruminant Nutrition III, Symposium: David H. Baker Symposium See Page 22.
- 2:00 p.m. Animal Behavior, Housing and Well Being I and Growth, Development, Muscle Biology and Meat Science I Joint Symposium: Swine Production Systems - Influence on Growth & Carcass Value See Page 18.
- 2:30 p.m. ARPAS Exam, Convention Center Board Room
- 2:30 p.m. Undergraduate Student Competitive Research Papers See Page 26.
- 3:00 p.m. Physiology I, Symposium: Emerging Technologies See Page 26.

Tuesday, March 18 A.M.

- 6:45 a.m. Extension Breakfast, Dr. Robert Easter, University of Illinois, Speaker, Savery Hotel, Des Moines Room
- 6:45 a.m. Program Chairs Breakfast, Savery Hotel, Terrace Ballroom
- 8:00 a.m. Breeding and Genetics II, Posters, Authors present, Tuesday, 10:00 a.m. – Noon See Page 28.
- 8:00 a.m. Extension I, Symposium: Application of the 1996 NRC to Cow Nutrition (developed by NCR-87 Regional Committee) See Page 30.
- 8:00 a.m. Growth, Development, Muscle Biology, and Meat Science II, Meat Composition and Quality See Page 32.
- 8:00 a.m. Nonruminant Nutrition V, Amino Acid Nutrition – Grow-Finish Pigs and Ractopamine See Page 35.

- 8:00 a.m. Nonruminant Nutrition VI, Feed Additives and Immunity See Page 37.
- 8:00 a.m. Odor and Nutrient Management I, Symposium: Exploring Biological and Genetic Limitations of Nutrient Utilization in Livestock See Page 39.
- 8:00 a.m. Physiology II, Symposium: Billy N. Day Symposium-Technologies to Enhance Artificial Insemination in Swine See Page 40
- 8:00 a.m. Ruminant Nutrition and Forages I, Metabolism, Additives, and Health See Page 40.
- 9:00 a.m. Extension II, Round Table Discussion on Transition Cows See Page 30.
- 9:00 a.m. Teaching I, See Page 46.
- 10:00 a.m. Graduate Student Competitive Research Papers – Ph.D. Division See Page 31.
- 10:00 a.m. Teaching II, Symposium: Academic Programming in the Animal Sciences - A Look to the Future See Page 46.
- 11:30 a.m. Box Lunch- Convention Center, Exhibit Hall Room 206 11:30 a.m - 1:30 p.m.
 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 available for sale will be on first-come basis.

Tuesday, March 18 P.M.

- 1:00 p.m. Breeding and Genetics III and Growth, Development, Muscle Biology and Meat Science IV, Symposium: Application of Functional Genomics Technologies for Understanding Complex Animal Production Traits See Page 48.
- 1:00 p.m. Congressional Insight Workshop See Page 48.
- 1:00 p.m. Extension IV, Symposium: Dairy Reproductive Update (developed by NC Regional Committee) See Page 50.
- 1:00 p.m. Ruminant Nutrition and Forages III, Symposium: Function of and Potential Alternatives to Ruminant Feeding Practices See Page 56.
- 1:00 p.m. Ruminant Nutrition and Forages IV, Forage Systems and Concentrate Supplementation See Page 57.

- 1:15 p.m. Graduate Student Competitive Research Papers – M.S. Division See Page 51.
- 1:30 p.m. Nonruminant Nutrition VII, Nutrition Symposium: Nutritional Immunology - Current Status and Potential for the Future See Page 53.
- 2:30 p.m. ARPAS Exam, Convention Center Board Room
- 2:45 p.m. Physiology IV, Sheep and Swine See Page 55.

Wednesday, March 19 A.M.

- 6:45 a.m. ASAS/ADSA Breakfast, Awards Program and Business Meeting, Courtesy of Cargill Animal Nutrition, Danbred North America, Milk Products, Inc., and VetLife Convention Center, Exhibit Hall Room 206
- 8:00 a.m. ARPAS Exam, Convention Center Board Room
- 9:00 a.m. Breeding and Genetics IV, See Page 59.
- 9:00 a.m. Extension V, Dairy Research Update See Page 60.
- 9:00 a.m. Growth, Development, Muscle Biology, and Meat Science V, Growth and Development See Page 60.
- 9:00 a.m. Nonruminant Nutrition VIII, Energy See Page 61.
- 9:00 a.m. Nonruminant Nutrition IX, Minerals and Vitamins See Page 62.
- 9:00 a.m. Physiology V, Beef and Dairy Cattle See Page 64.
- 9:00 a.m. Ruminant Nutrition and Forages V, Feedlot Nutrition See Page 65.
- 12:00 noon ADSA/ASAS MW Board of Directors, Savery Hotel, Room 210

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 2003 meeting to the following companies:

Outstanding Young Scientist Awards

Extension - Land O'Lakes
Research - Roche Vitamins Inc.
Teaching - ADM Alliance Nutrition, Inc.

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

Agribusiness Award

ExSeed Genetics

Student Competition Paper Awards

Graduate M.S. - DeKalb Feeds, Inc
Graduate Ph.D. - Akey
Undergraduate - MW ADSA ASAS Board

Academic Quadrathlon

Intervet, Inc.
Iowa State University

Reception

Monday -
Tuesday - IMC

Breakfast (Wednesday)

Cargill Animal Nutrition
Danbred North America
Milk Products, Inc.
VetLife

Cyber Café & Placement Center

Cargill Animal Nutrition
Feedstuffs Newspaper

Abstract Book

Diamond V. Mills, Inc.
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Refreshment Breaks

Pioneer Hi-Bred International

David H. Baker Symposium

David H. Baker Appreciation Club

Billy N. Day Symposium

Billy N. Day Appreciation Club

**Animal Behavior, Housing & Well Being and
Growth, Development, Muscle Biology
and Meat Science Symposium**

National Pork Board

Nonruminant Nutrition Symposium

Hubbard Feeds Inc.

Ruminant Nutrition Symposium

Chr. Hansen, Inc.

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Nonruminant Nutrition Session

Alltech, Inc.

Physiology Session

ABS Global

Ruminant Nutrition Session

Alltech, Inc.

Swine Sessions

Danbred North America
Pig Improvement Company, Inc.

General Meeting

Agri-Nutrition Services, Inc.
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Pig Improvement Company, Inc.
Prince Agri Products, Inc.
Purina Mills, LLC
United Feeds, Inc.

LCD Presentations

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.

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. diskette) should be confirmed with your session chair prior to your arrival at the meeting.

This properly labeled disk must be brought Office B (behind the registration desk) by:

Monday, March 17 by 11:00 a.m. for Monday afternoon presentations

Monday, March 17 by 4:00 p.m. for Tuesday morning presentations

Tuesday, March 18 by 8:00 a.m. for Tuesday afternoon presentations

Tuesday, March 18 by 12:00 noon for Wednesday morning presentations

Your program and session chair will be loading **all PowerPoint presentations in advance** so if you cannot follow these guidelines, you should plan to do a slide presentation using the furnished projector. Personal laptops will NOT be permitted for use during sessions; a computer and LCD projector will be provided in each room.

SCIENTIFIC SESSIONS

Note: All posters will be in the Convention Center, Exhibit Hall, Room 206 and will be in place from Monday, 1:00 p.m. until Wednesday, 12:00 Noon. See program for the times authors will be present.

Animal Behavior, Housing and Well Being I and

Growth, Development, Muscle Biology and Meat Science I

Joint Symposium: Swine Production Systems - Influence on Growth & Carcass Value

Sponsored by: National Pork Board

Co-Chairs: Steven Lonergan, Iowa State University, Ames; and Michael Ellis, University of Illinois, Urbana

Monday, 2:00 p.m. – 4:30 p.m.
Room: 136/138

Time	Abstract Number	Paper
2:00	1	INVITED Swine production systems: animal welfare considerations. D.C. Lay Jr. *, Agricultural Research Service-USDA.
2:40	2	INVITED Comparison of finishing systems: impact on health, performance, and carcass composition. J. G. Gentry* ¹ and J. J. McGlone ² , ¹ Middle Tennessee State University, Murfreesboro, TN, ² Texas Tech University, Lubbock, TX.
3:20	3	INVITED Environmental Enrichment of Swine Production Systems - Implications for Pork Quality? R.E. Klont* ¹ , E. Kurt, and A. Sosnicki ¹ , ¹ PIC North America.
4:00	4	INVITED A Comparison of Production Costs, Returns and Profitability for Pork Finishing System. J. Kliebenstein* and B. Larson, Iowa State University.
4:20		Questions

Nonruminant Nutrition I

Sow Nutrition and Gilt Development

Chairs: Stewart Galloway, ADM Alliance Nutrition, Walford, IA; and Dale Rozeboom, Michigan State University, East Lansing

Monday, 1:00 p.m. – 4:00 p.m.

Room: 204FG

Time	Abstract Number	Paper
1:00	124	Effects of a growth-altering pre-pubertal feeding regimen on gilt growth and reproductive longevity. P. A. Lyvers-Peffer*, J. J. Peng, J. A. Snedegar, and D. W. Rozeboom, Michigan State University, East Lansing.
1:15	125	Efficacy of restricted/ad libitum feeding strategy for group-fed gilts during development. J. Klindt*, J. T. Yen, and R. K. Christenson, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE.
1:30	126	Effects of intrauterine location on fetal growth and development in the pig: nutritional implications. R. L. McPherson* ¹ , F. Ji ¹ , G. Wu ² , and S. W. Kim ¹ , ¹ Texas Tech University, ² Texas A&M University.
1:45	127	Changes of maternal tissues during gestation in primiparous sows: nutritional implications. F. Ji* ¹ , Y. G. Kim ¹ , G. Wu ² , and S. W. Kim ¹ , ¹ Texas Tech University, Lubbock, ² Texas A&M University, College Station.
2:00	128	Apparent digestibility of soluble and insoluble fiber in diets for gestating sows. J. A. Renteria* ¹ , L. J. Johnston ² , D. D. Gallaher ¹ , and G. C. Shurson ¹ , ¹ University of Minnesota, St. Paul, ² University of Minnesota, Morris.
2:15		Break
2:30	129	Comparison of three methods of feeding sows in gestation. M. G. Young* ¹ , M. D. Tokach ¹ , F. X. Aherne ² , R. G. Main ¹ , S. S. Dritz ¹ , R. D. Goodband ¹ , and J. L. Nelssen ¹ , ¹ Kansas State University, Manhattan, ² Alberta Pig Company, Canada.
2:45	130	Effect of gestation feeding method on sow performance in lactation. M. G. Young* ¹ , M. D. Tokach ¹ , F. X. Aherne ² , R. G. Main ¹ , S. S. Dritz ¹ , R. D. Goodband ¹ , and J. L. Nelssen ¹ , ¹ Kansas State University, Manhattan, ² Alberta Pig Company, Canada.
3:00	131	Effect of dietary levels of soluble and insoluble fiber on litter size and sow performance. J. A. Renteria* ¹ , L. J. Johnston ¹ , S. K. Webel ² , and R. L. Moser ² , ¹ University of Minnesota, St. Paul., ² United Feeds, Sheridan, IN.
3:15	132	Full-Fat canola seed as an energy substitute for vegetable oil in late gestation and lactation diets. B. S. Zimprich* ¹ , R. L. Harrold ¹ , T. E. Socha ¹ , and D. Landblom ² , ¹ North Dakota State University, Fargo, ² Dickinson State University, Dickinson, ND.
3:30	133	Threonine is more limiting than valine in diets of lactating sows with high body protein loss. K. T. Soltwedel, R. A. Easter, and J. E. Pettigrew, University of Illinois, Urbana.
3:45	134	Sow and litter responses to dietary organic or inorganic selenium over four parities. D. C. Mahan* and J. C. Peters, The Ohio State University, Columbus.

Nonruminant Nutrition II

Phosphorus and Phytase

Chairs: Tom Crenshaw, University of Wisconsin, Madison; and Timothy Fakler, Zinpro Corporation, Eden Prairie, MN

Monday, 1:00 p.m. – 4:30 p.m.

Room: 204C

Time	Abstract Number	Paper
1:00	135	Available phosphorus requirements for finishing pigs reared in a commercial facility. C. Hastad*, S. Dritz, J. Nelssen, M. Tokach, R. Goodband, and J. DeRouchey, Kansas State University, Manhattan.
1:15	136	Available phosphorus requirement to maximize growth and bone mineralization in 9 to 22-kg pigs. R. W. Fent* ¹ , G. L. Allee ¹ , D. M. Webel ² , J. D. Spencer ² , A.M. Gaines ¹ , D. C. Kendall ¹ , and J. W. Frank ¹ , ¹ University of Missouri, Columbia, ² United Feeds Inc., Sheridan, IN.
1:30	137	Phosphorus balance in growing pigs fed semi-purified diets adequate or low in dietary phosphorus. L. A. Pettey*, G. L. Cromwell, and M. D. Lindemann, University of Kentucky, Lexington.
1:45	138	Whole body composition and phosphorus accretion in growing pigs. L. A. Pettey*, G. L. Cromwell, and M. D. Lindemann, University of Kentucky, Lexington.
2:00	139	Effects of an experimental phytase product on phosphorus utilization in pigs. A. M. Gaines* ¹ , D. C. Kendall ¹ , J. W. Frank ¹ , G. F. Yi ¹ , R. W. Fent ¹ , G. L. Allee ¹ , J. D. Spencer ² , and D. M. Webel ² , ¹ University of Missouri, Columbia, ² United Feeds, Inc., Sheridan, IN.
2:15	140	Effects of a solid-state fermented phytase on growth performance and phosphorus excretion of growing pigs fed corn-soybean meal diets. J. S. Park*, S. D. Carter, J. D. Schneider, and T. B. Morillo, Oklahoma State University, Stillwater.
2:30	141	Effects of a solid-state fermented phytase on bone traits and tissue accretion rates of growing pigs fed corn-soybean meal diets. J. S. Park*, S. D. Carter, J. D. Schneider, and T. B. Morillo, Oklahoma State University, Stillwater.
2:45		Break
3:00	142	Efficacy of an <i>E. coli</i> phytase for growing-finishing pigs and laying hens. N. R. Augspurger* ¹ , D. M. Webel ² , and D. H. Baker ¹ , ¹ University of Illinois, Urbana, ² United Feeds, Inc., Sheridan, IN.
3:15	143	Phytase from transgenic alfalfa leaf meal improves phosphorus bioavailability in growing pigs. K. L. Saddoris*, D. K. Schneider, and T. D. Crenshaw, University of Wisconsin, Madison.
3:30	144	Effect of phytase on growth performance, plasma metabolites, carcass traits, and pork quality in growing-finishing pigs. J. L. Shelton*, L. L. Southern, and T. D. Bidner, Louisiana State University Agricultural Center, Baton Rouge.

3:45	145	Evaluation of phytase source and level in diets for pigs 12 to 86 kg body weight. B. V. Lawrence ¹ , J. D. Hahn ¹ , J. Boychuk* ² , S. Hansen ¹ , J. Hedges ¹ , E. Hansen ¹ , R. Musser ¹ , and G. Dial ³ , ¹ Hubbard Feeds Inc., Mankato, MN, ² Feed-Rite, Winnipeg, MB Canada, ³ New Fashion Pork, Jackson, MN.
4:00	146	Efficacy of phytase in diets containing high- and low-phytate corn and high- and low-phytate soybean meal. E. G. Xavier*, G. L. Cromwell, and M. D. Lindemann, University of Kentucky, Lexington.
4:15	147	Effects of low phytic acid corn, low phytic acid soybean meal, and phytase on nutrient digestibility and excretion in growing pigs. B. E. Hill*, S. L. Hankins, S. A. Trapp, A. L. Sutton, and B. T. Richert, Purdue University, West Lafayette, IN.

Nonruminant Nutrition III

Symposium: David H. Baker Symposium

Sponsored by: David H. Baker Appreciation Club

Chair: Gary L. Allee, University of Missouri, Columbia

Monday, 1:30 p.m. – 5:00 p.m.

Room: 204AB

Time	Abstract Number	Paper
1:30		INTRODUCTION
1:40		INVITED The Future of Amino Acid Research. Dr. David Baker, University of Illinois.
2:20		INVITED New methods for determining amino acid requirements and measuring ‘true’ amino acid availability. R. Ball, University of Alberta.
3:00	148	L-lysine disposal over 24 h exceeds the rate limiting step for piglet L-lysine catabolism. N. J. Benevenga*, L. G. Haas, and T. D. Crenshaw, University of Wisconsin, Madison.
3:10		Break
3:30		INVITED Dietary Amino Acid Utilization: Metabolic Fate and Functional Significance in the Gut. D. Burrin, USDA-ARS – Children’s Nutrition Research Center, Houston.
4:10	149	Effects of dietary glutamine on growth performance and small intestine characteristics of weanling pigs before and after an immune challenge. S. J. Kitt*, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
4:20	150	Impact of glutamine and spray-dried plasma on growth performance, small intestinal morphology, and immune responses in <i>Escherichia coli</i> K88 ⁺ challenged weaned pigs. G. F. Yi* ¹ , J. A. Carroll ² , G. L. Allee ¹ , A. M. Gaines ¹ , D. C. Kendall ¹ , Y. Toride ³ , and I. Izuru ³ , ¹ University of Missouri, Columbia, ² ARS-USDA, Columbia, MO, ³ Ajinomoto Co. Inc., Japan.
4:30		Discussion

Nonruminant Nutrition IV

Posters

Monday, 1:00 p.m. – Wednesday, Noon.

Authors Present, even abstract numbers Monday 1:00 p.m.- 3:00 p.m.; odd abstract numbers

Monday 3:00 p.m. – 5:00 p.m.

Room: Exhibit Hall, Room 206

Abstract Number

Paper

- 151 Effect of a β -glucan product on performance and immune function of weanling pigs. S. Singh¹, J. D. Arthington², D. C. Brown¹, M. E. Davis^{*1}, Z. B. Johnson¹, P. A. Willis³, and C. V. Maxwell¹, ¹University of Arkansas, Fayetteville, ²University of Florida, Gainesville, ³Cypress Systems, Inc., Fresno, CA.
- 152 Effect of dose of sodium chlorate on growth performance of nursery pigs. T. E. Burkey^{*}, S. S. Dritz, and J. E. Minton, Kansas State University, Manhattan.
- 153 Effect of dietary mannanoligosaccharide and sodium chlorate on bacterial shedding in weaned pigs challenged with *Salmonella enterica* serotype Typhimurium (ST). T. E. Burkey^{*}, S. S. Dritz, J. C. Nietfeld, B. J. Johnson, and J. E. Minton, Kansas State University, Manhattan.
- 154 Effects of Ractopamine HCl (Paylean) on Finishing Pig Growth and Variation. M. R. Barker^{*}, S. S. Dritz, R. D. Goodband, M. D. Tokach, C. N. Groesbeck, S. M. Hanni, C. W. Hastad, T. P. Keegan, K. R. Lawrence, and M. G. Young, Kansas State University, Manhattan.
- 155 Growth performance and carcass characteristics of pigs fed diets containing a corn germ-corn bran product compared to diets composed of corn, soybean meal, and tallow. S. J. Kitt^{*}, P. S. Miller, R. L. Fischer, and D. E. Reese, University of Nebraska, Lincoln.
- 156 The effect of body composition on dietary protein selection in finishing gilts. S. A. Meers^{*}, R. Jones, T. D. Pringle, and M. J. Azain, University of Georgia, Athens.
- 157 Effect of soy isoflavones on growth, carcass composition, pork quality, and plasma metabolites of growing-finishing barrows. R. L. Payne^{*}, T. D. Bidner, and L. L. Southern, Louisiana State University Agricultural Center, Baton Rouge.
- 158 The effects of fructooligosaccharide on fecal pH and microbial activity in the yearling horse. E. L. Berg^{*}, C. J. Fu, and M. S. Kerley, University of Missouri, Columbia.
- 159 Effects of an intraperitoneal bolus injection of L-phenylalanine on physiological parameters in weanling pigs. K. Bregendahl^{*1}, L. Liu¹, M. Z. Fan¹, H. S. Bayley¹, J. P. Cant¹, B. W. McBride¹, L. P. Milligan¹, and J. T. Yen², ¹University of Guelph, Guelph, ON, ²U.S. Meat Animal Research Center, Clay Center, NE.
- 160 Effects of dietary energy and lysine on growth performance and hormone profiles in finishing pigs. S. B. Cho^{*1}, J. S. Lim², I. B. Chung¹, S. H. Cho¹, Y. Y. Kim², and I. K. Han², ¹National Livestock Research Institute, RDA, Korea, ²Seoul National University, Korea.
- 161 Oat-based diets for market pigs in deep-bedded hoop barns. Z. M. Sullivan^{*} and M. S. Honeyman, Iowa State University, Ames.
- 162 The effects of dietary calcium level and citric acid supplementation on growth performance and gastrointestinal pH in chicks. L. Peddireddi^{*} and J. S. Radcliffe, Purdue University, West Lafayette, IN.

- 163 Effect of stage of lactation on colostrum and milk composition in multiparous sows. C. D. Mateo*, H. H. Stein, M. R. Smiricky-Tjardes, and D. N. Peters, South Dakota State University, Brookings.
- 164 Effect of chromium source on tissue retention of chromium in pigs. M. D. Lindemann¹, G. L. Cromwell¹, J. H. Agudelo*¹, and K. W. Purser², ¹University of Kentucky, Lexington, ²Prince Agri Products, Quincy, IL.
- 165 Effect of adding a bacillus-based direct fed microbial on performance of nursery pigs fed diets with or without antibiotics. H. Yang¹, J. Lopez*², C. Risley³, T. Radke¹, and D. Holzgraefe¹, ¹ADM Alliance Nutrition, Quincy, IL, ²ADM Animal Health & Nutrition, Quincy, IL, ³Chr Hansen, Inc., Milwaukee, WI.
- 166 Effect of dietary levels of soluble and insoluble fiber on embryo survival in gilts. J. A. Renteria*¹, L. J. Johnston², and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²University of Minnesota, Morris.
- 167 The optimal true ileal digestible threonine requirement for nursery pigs between 11 to 22 kg body weight. B. W. James*¹, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, J. L. Nelssen¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Ajinomoto-Heartland Lysine, Chicago, IL.
- 168 The use of soldier fly prepupae as a replacement for blood plasma in phase 1 and 2 nursery diets. C. R. Dove*, G. L. Newton, and D. C. Sheppard, University of Georgia, Tifton.
- 169 Efficacy of mannan oligosaccharide supplementation through late gestation and lactation on sow and litter performance. C. V. Maxwell*¹, K. Ferrell², R. A. Dvorak³, Z. B. Johnson¹, and M. E. Davis¹, ¹University of Arkansas, Fayetteville, ²MFA, Inc., Columbia, MO, ³Alltech, Nicholasville, KY.
- 170 Effect of increasing corn oil on apparent amino acid digestibility of soybean meal. J. W. Frank* and G. L. Allee, University of Missouri, Columbia.
- 171 Growth performance, carcass characteristics, and pork color in finishing pigs fed two sources of supplemental iron. K. L. Saddoris*¹, T. D. Crenshaw¹, J. R. Claus¹, and T. M. Fakler², ¹University of Wisconsin, Madison, ²Zinpro Corporation, Eden Prairie, MN.
- 172 The effect of a calcified seaweed product on growth performance, carcass traits, and meat quality in swine. D. W. Dean*, L. L. Southern, and T. D. Bidner, Louisiana State University Agricultural Center, Baton Rouge.
- 173 Influence of dietary energy on growth performance of the late nursery pig. C. Hastad*, M. Tokach, J. Nelssen, S. Dritz, R. Goodband, and J. DeRouchey, Kansas State University, Manhattan.
- 174 Monitoring the effects of ractopamine in market hogs, the effects on barrows and gilts. B. S. Zimprich* and M. J. Marchello, North Dakota State University, Fargo.
- 175 Effects of ractopamine and β -mannanase addition to corn-soybean meal diets on growth performance and carcass traits of finishing pigs. J. D. Schneider*, S. D. Carter, T. B. Morillo, and J. S. Park, Oklahoma State University, Stillwater.
- 176 Effects of reducing metabolizable energy concentration in diets containing spray-dried porcine plasma on weanling pig performance. T. B. Morillo*, S. D. Carter, S. Genova, J. S. Park, and J. D. Schneider, Oklahoma State University, Stillwater.
- 177 Factors related to insulin function in sows: response to chromium-L-methionine. V. G. Pérez-Mendoza*¹, J. A. Cuarón¹, T. L. Ward², and T. M. Fakler², ¹C.N.I. Fisiología y Mejoramiento Animal, INIFAP, Queretaro, Mexico, ²Zinpro Corp., Eden Prairie, MN.
- 178 Lactating and rebreeding sow performance in response to chromium-L-methionine. V. G. Pérez - Mendoza*¹, J. A. Cuarón¹, C. J. Rapp², and T. M. Fakler², ¹C.N.I. Fisiología y Mejoramiento Animal, INIFAP, Queretaro, Mexico, ²Zinpro Corp., Eden Prairie, MN.
- 179 Effects of short chain fructooligosaccharides and tylosin (Tylan[®]) on performance and fecal bacterial populations of nursery pigs. M. Howard* and E. Wojcik, National Swine Research & Information Center, USDA/ARS, Ames, IA.

- 180 Evaluation of commercial nursery starter programs on early nursery performance. R. E. Musser*¹, J. D. Hahn¹, S. Hansen¹, K. Ferrell², J. Hedges¹, E. Hansen¹, and B. Lawrence¹, ¹Hubbard Feeds, Inc., Mankato, MN, ²MFA, Columbia, MO.
- 181 Evaluation of prestarters from d 0 to 4 post-weaning. R.E. Musser*, J.D. Hahn, S. Hansen, J. Hedges, E. Hansen, and B. Lawrence, Hubbard Feeds, Inc., Mankato, MN.

Physiology I

Symposium: Emerging Technologies

Chair: Jeffrey L. Vallet, U.S. Meat Animal Research Center, Clay Center, NE

Monday, 3:00 p.m. - 5:00 p.m.
Room: 144/146

Time	Abstract Number	Paper
3:00	241	INVITED The use of haplotype information in the genetic dissection of genes affecting important traits. D. C. Ciobanu*, Sygen International.
3:45	242	INVITED Protein Identification Using Mass Spectrometry. R.L. Cerny*, University of Nebraska - Lincoln.
4:30		Questions and Discussion

Undergraduate Student Competitive Research Papers

Chair: Marc Bauer, North Dakota State University, Fargo

Monday, 2:30 p.m. – 5:30 p.m.
Room: 205IJ

Time	Abstract Number	Paper
2:30	354	Injury levels of sows in gestation: stalls vs. group housing. K.G. Bhend* and G.W. Onan, University of Wisconsin River Falls.
2:45	355	Performance of <i>HMGAI</i> > as a candidate gene for growth traits in the pig. N.T. Nguyen*, K.S. Kim, H. Thomsen, J. Helm, and M. F. Rothschild, Iowa State University.
3:00	356	Effect of d á-tocopherol alcohol or acetate in water soluble or emulsified form to the drinking water of weanling pig. T.A. Specht* ¹ , D. C. Mahan ¹ , N. D. Fastinger ¹ , and R. L. Stuart ² , ¹ Ohio State University, Columbus, OH, ² Stuart Products, Bedford, TX.
3:15	357	Feeding behavior of finishing boars and gilts on electronic feeders. A. M. Crock*, D. S. Casey, and J. C. M. Dekkers, Iowa State University, Ames, Iowa.

3:30	358	Effects of field peas inclusion on intake and digestion in beef steers fed medium concentrate diets. G.J. Williams*, S.A. Soto-Navarro, M.L. Bauer, G.P. Lardy, D. Landblom, and J.S. Caton, North Dakota State University, Fargo.
3:45	359	Comparison of tylosin and pharmacological zinc on acute phase reactant proteins and minerals. J.G. Green*, G.M. Hill, J.E. Link, M.M. Martínez, D.M. Dvoracek-Driksna, N.E. Raney, and C.W. Ernst, Michigan State University, East Lansing, MI.
4:00		Break
4:15	360	Effects of whole or rolled sunflower seeds on in situ ruminal disappearance in steers fed grass hay. D. M. Spickler*, T. C. Gilbery, M. L. Bauer, and G. P. Lardy, North Dakota State University, Fargo.
4:30	361	Controlling staphylococcus aureus and other mastitis and lowering somatic cell counts in a modern freestall dairy. S.G. Wedemeier* and L.L. Timms, Iowa State University.
4:45	362	Determining time of intramuscular fat deposition using ultrasound data. C.A. Urdahl* ¹ , J.J. Harlan ¹ , G.A. Younglove ¹ , S. Nash ² , S. Harrison ² , J. Packham ² , R. Panting ² , D.M. Sanchez ³ , and J. Findlay ² , ¹ Chadron State College, Chadron, NE, United States, ² University of Idaho Cooperative Extension, ID, ³ University of Wyoming Uinta County Extension, Evanston, WY.
5:00	363	A comparison of methods for on-farm determination of failure of passive transfer of immunoglobulin to dairy calves. A. M. Harvey* and A. R. Hippen, South Dakota State University.
5:15	364	Effects of selenium source and physiological state on body, heart, and liver mass, small intestinal growth, and crypt cell proliferation in female rats. B. C. Stegman* ¹ , J. B. Taylor ² , L. P. Reynolds ¹ , J. W. Finley ³ , D. M. Schafer ³ , and J. S. Caton ¹ , ¹ North Dakota State University, Fargo, ² USDA, ARS, U.S. Sheep Experiment Station, ³ USDA, ARS, Human Nutrition Research Center, Grand Forks.
5:30	365	Evaluating chute-side ultrasound accuracy in market cattle. J.J. Harlan* ¹ , C.A. Uradahl ¹ , G.A. Younglove ¹ , S. Harrison ² , S. Nash ² , J. Packham ² , R. Panting ² , and D.M. Sanchez ³ , ¹ Chadron State College, Chadron, NE, ² University of Idaho Cooperative Extension, ID, ³ University of Wyoming Uinta County Extension, Evanston, WY.

Breeding and Genetics I

Genetic Parameter Estimation and Selection

Chair: Jack Dekkers, Iowa State University, Ames

Tuesday, 8:00 a.m. – 10:15 a.m.

Room: 205D

Time	Abstract Number	Paper
8:00	10	An equivalent single trait animal model to obtain standard errors for estimates of genetic correlations between two traits measured on distinct subsets of animals. K. A. Nephawe* ¹ , S. D. Kachman ¹ , and L. D. Van Vleck ² , ¹ University of Nebraska, Lincoln, NE, ² USDA, ARS, USMARC, Lincoln, NE.

8:15	11	Estimates of genetic parameters for first lactation test-day yields of Holstein cows with a cubic spline model. B. J. DeGroot* ¹ , J. F. Keown ¹ , S. D. Kachman ¹ , and L. D. Van Vleck ² , ¹ University of Nebraska, Lincoln, NE, ² USDA, ARS, USMARC, Lincoln, NE.
8:30	12	A within herd evaluation of Holstein sires for perinatal mortality including birth weight. J. M. Johanson* and P. J. Berger, Iowa State University, Ames.
8:45	13	Models for a composite trait such as litter weight weaned for Polypay ewes. L. D. Van Vleck* ¹ , K. J. Hanford ¹ , and G. D. Snowden ² , ^{1,2} USDA, ARS, USMARC, ¹ Lincoln, NE, ² Clay Center, NE.
9:00	14	Evaluation of serially measured body weight data in young Angus bulls and heifers. A. Hassen*, D. E. Wilson, and G. H. Rouse, Iowa State University, Ames, IA.
9:15	15	Relationship between intramuscular fat percentage predicted from real-time ultrasound and meat quality traits in pigs. D.W. Newcom* ¹ , T.J. Baas ¹ , and R.N. Goodwin ² , ¹ Iowa State University, Ames, IA, ² National Pork Board, Des Moines, IA.
9:30	16	Effect of selection for testosterone production on testicular morphology and daily sperm production in pigs. S. Walker*, O.W. Robison, C.S. Whisnant, and J.P. Cassady, North Carolina State University, Raleigh.
9:45	17	Response to selection in purebred and crossbred swine populations selected for growth traits on a maternal index. M. B. Munthala*, T. S. Stewart, A. P. Schinckel, and M. M. Schutz, Purdue University, West Lafayette, IN.
10:00	18	NATIONAL PORK BOARD - RESEARCH AWARD Effects of sire line, sire, and sex on plasma urea nitrogen (PUN), body weight, and backfat thickness in offspring of Duroc and Landrace boars and heritabilities. J. Klindt*, R. M. Thallman, J. T. Yen, and T. Wise, USDA-ARS, U.S. Meat Animal Research Center.

Breeding and Genetics II

Posters

Monday, 1:00 p.m. – Wednesday, Noon
 Authors present, Tuesday, 10:00 a.m. – Noon
 Room: Exhibit Hall, Room 206

Abstract Number	Paper
19	Mapping of porcine genes related to human diabetes. C.J. Otieno*, S. Vleck, C. Jelks, K.S. Kim, N.T. Nguyen, and M.F. Rothschild, Iowa State University, Ames.
20	Characterization of a line of pigs selected for increased litter size for genes known to affect reproduction. C. D. Blowe*, E. J. Eisen, O. W. Robison, and J. P. Cassady, North Carolina State University, Raleigh.
21	Modeling variance and covariance of total sperm cells over the active lifetime of AI boars. S.-H. Oh* ¹ , M. T. See ¹ , T. E. Long ² , and J. M. Galvin ² , ¹ North Carolina State University, Raleigh NC, ² NPD USA, Roanoke Rapids NC.
22	Performance of mice divergently selected for sensitivity to fescue toxicosis when challenged with endophyte-infected fescue and heat stress. S. Bhusari* ¹ , E. Antoniou ¹ , D.E. Spiers ¹ , W.D. Hohenboken ² , P.A. Eichen ¹ , and W.R. Lamberson ¹ , ¹ University of Missouri-Columbia, ² Virginia Polytechnic Institute and State University, Blacksburg.

- 23 Relationships among Charolais sire expected progeny differences and progeny performance in commercial herds. S. C. Clark*¹, D. W. Moser¹, and R. E. Williams², ¹Kansas State University, Manhattan, KS, ²American International Charolais Association, Kansas City, MO.
- 24 Relationships between live animal ultrasound predicted intramuscular fat and shear force in fed cattle. L. D. Keenan*, D. W. Moser, D. R. Eborn, and T. T. Marston, Kansas State University, Manhattan, KS.

Extension I

Symposium: Application of the 1996 NRC to Cow Nutrition (developed by NCR-87 Regional Committee)

Chair: Greg Lardy, North Dakota State University, Fargo

Tuesday, 8:00 a.m. – Noon

Room: 142

Time	Abstract Number	Paper
8:00	37	INVITED Use of the NRC model to predict forage and/or energy intake and animal performance. D. C. Adams* ¹ and H. H. Patterson ² , ¹ University of Nebraska-Lincoln, ² South Dakota State University-Brookings.
8:45	38	INVITED Application of the metabolizable protein system to range cattle nutrition. H. H. Patterson* ¹ and T. J. Klopfenstein ² , ¹ South Dakota State University-Brookings, ² University of Nebraska-Lincoln.
9:30		Break
10:00	39	INVITED Considerations for program feeding and use of co-product feeds in cow diets. D. B. Faulkner*, University of Illinois.
10:30	40	INVITED Characterization of forages for protein and energy. D. L. Lalman and J. B. Banta, Oklahoma State University.
11:00	41	INVITED Building a nutritional program with the 1996 NRC Beef Cattle Requirements Model. G. P. Lardy*, North Dakota State University.
11:30		Discussion Moderator: Terry Klopfenstein, University of Nebraska, Lincoln

Extension II

Round Table Discussion on Transition Cows

Chair: Mike Hutjens, University of Illinois, Urbana

Tuesday, 9:00 a.m. – Noon

Room: 134

Time	Abstract Number	Paper
9:00	42	INVITED Considerations to help avoid transition cow mineral disorders. J. Goff*, USDA-ARS National Animal Disease Center.
9:15	43	INVITED Does nutrition during the far-off dry period impact transition success? J. K. Drackley* and H. M. Dann, University of Illinois.
9:30	44	INVITED The role of yeast culture in transition cow nutrition. I. Yoon*, G. M. Kamande, C. R. Belknap, M. A. Engstrom, and M. A. Kujawa, Diamond V Mills, Inc.
9:45	45	INVITED Ruminal response to diet and dry matter intake changes during the transition period. J. E. Shirley*, Kansas State University.
10:00	46	INVITED Feeding pre-fresh transition cows: should we maximize feed intake or minimize feed intake depression? D. G. Mashek* and R. R. Grummer, University of Wisconsin, Madison.
10:15	47	INVITED Rumen-stable choline for transition dairy cows. D. E. Putnam* and J. E. Garrett, Balchem Encapsulates.
10:30		Discussion

Graduate Student Competitive Research Papers – Ph.D. Division

Chair: Wesley Osburn, Michigan State University, East Lansing

Tuesday, 10:00 a.m. – 11:45 a.m.

Room: 204C

Time	Abstract Number	Paper
10:00	69	Influence of prepubertal dietary protein level and age at first calving on early-weaned replacement beef heifer performance. W. J. Sexten*, D. B. Faulkner, and F. A. Ireland, University of Illinois at Urbana-Champaign.
10:15	70	Effect of corn distiller's dried grains with solubles (DDGS) and/or antimicrobial regimen on the ability of growing pigs to resist a <i>Lawsonia intracellularis</i> challenge. M. H. Whitney* ¹ , G. C. Shurson ¹ , R. M. Guedes ¹ , C. J. Gebhart ¹ , and N. L. Winkleman ² , ¹ University of Minnesota, St. Paul, MN, ² Swine Services Unlimited, Inc., Morris, MN.

10:30	71	Selection for placental efficiency in swine: Genetic parameters and trends. H Mesa*, T.J Safranski, K.M Cammack, and W.R Lamberson, University of Missouri-Columbia.
10:45	72	Improvement of pregnancy rate to fixed-time artificial insemination with progesterone treatment in anestrous post-partum cows. C.L. Gasser*, E.J. Behlke, C.R. Burke, D.E. Grum, M.L. Mussard, and M.L. Day, The Ohio State University.
11:00	73	NATIONAL PORK BOARD – RESEARCH AWARD Increasing weaning age improves pig growth performance and profitability in a three-site production system. R.G. Main*, S.S. Dritz, M.D. Tokach, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.
11:15	74	Predicting bacterial crude protein production from urinary allantoin in spot samples. R.A. McDonald*, T.J. Klopfenstein, G.E. Erickson, and T.W. Loy, University of Nebraska-Lincoln, Lincoln, NE.
11:30	75	Lactose in dairy cow diets increases ruminal butyrate proportions resulting in an increase in plasma betahydroxybutyrate in late lactation. J. M. DeFrain*, A. R. Hippen, K. F. Kalscheur, and D. J. Schingoethe, South Dakota State University.

Growth, Development, Muscle Biology, and Meat Science II

Meat Composition and Quality

Chair: Elisabeth Huff-Loneragan, Iowa State University, Ames

Tuesday, 8:00 a.m. – 9:45 a.m.

Room: 204C

Time	Abstract Number	Paper
8:00	89	Comparison of beef cattle ultrasound and carcass measures to predict percent retail product yield from the four primals. R. G. Tait,Jr*, D. E. Wilson, and G. H. Rouse, Iowa State University, Ames IA.
8:15	90	Body composition changes in Angus Bulls from weaning to yearling measured serially with real-time ultrasound. G. H. Rouse*, D. E. Wilson, J. R. Tait, A. Hassen, and A. G. Rouse, Iowa State University, Ames, Iowa.
8:30	91	Effects of cooking method, reheating, holding time, and holding temperature on beef longissimus lumborum and biceps femoris tenderness. E Obuz*, M.E Dikeman, and T.M Loughin, Kansas State University.
8:45	92	Influence of treadmill exercise (TME) on meat quality of Holstein calves. C. B. Boger, J. K. Apple, E. B. Kegley, W. J. Roberts, T. J. Wistuba, D. L. Galloway, and L. K. Rakes, University of Arkansas, Fayetteville, AR.
9:00	93	Effects of restraint and isolation stress on stress physiology and the incidence of dark-cutting longissimus muscle in Holstein steers. C. B. Boger, J. K. Apple*, E. B. Kegley, W. J. Roberts, T. J. Wistuba, D. L. Galloway, and L. K. Rakes, University of Arkansas, Fayetteville, AR.

- 9:15 94 Effect of pig age at market weight and magnesium supplementation through drinking water on pork quality. B. R. Frederick, E. van Heugten*, and M. T. See, North Carolina State University, Raleigh, NC.
- 9:30 95 The effects of Paylean on growth, carcass and meat quality traits of Berkshire and Yorkshire progeny. M.J. Ritter*, C.P. Allison, N.L. Berry, R.O. Bates, G.M. Hill, and M.E. Doumit, Michigan State University.

Growth, Development, Muscle Biology, and Meat Science III

Posters

Monday, 1:00 p.m. – Wednesday, Noon
 Authors Present: Tuesday, 10:00 – Noon
 Room: Exhibit Hall, Room 206

- | Abstract
Number | Paper |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 96 | Local variation in glycolytic potential, pH, and pork quality traits in the longissimus dorsi of pigs. T.M. Bertol* ^{1,2,3} , M. Ellis ¹ , M.J. Ritter ¹ , and D.N. Hamilton ¹ , ¹ University of Illinois at Urbana-Champaign, ² Empresa Brasileira de Pesquisa Agropecuaria - Brasil, ³ Conselho Nacional de Desenvolvimento Cientifico e Tecnologico - Brasil. |
| 97 | Effect of supplementary magnesium and preslaughter handling on blood acid-base responses in finishing pigs. D. N. Hamilton* ¹ , M. Ellis ¹ , and T. M. Bertol ^{1,2,3} , ¹ University of Illinois at Urbana-Champaign, ² Empresa Brasileira de Pesquisa Agropecuaria - Brasil, ³ Conselho Nacional de Desenvolvimento Cientifico e Tecnologico - Brasil. |
| 98 | Characterization of color uniformity of the cut lean surface in fresh ham. M. T. See* and B. A. Belstra, North Carolina State University, Raleigh NC. |
| 99 | Effects of dietary electrolyte balance on blood acid-base balance in finishing pigs. D. N. Hamilton* ¹ , M. Ellis ¹ , and T. M. Bertol ^{1,2,3} , ¹ University of Illinois at Urbana-Champaign, ² Empresa Brasileira de Pesquisa Agropecuaria - Brasil, ³ Conselho Nacional de Desenvolvimento Cientifico e Tecnologico - Brasil. |
| 100 | Growth, carcass and bone integrity of pigs fed conjugated linoleic acid during the early finishing phase. B. R. Wiegand*, M. A. Fritsch, B. M. Kolb, and J. A. Robb, Illinois State University Normal. |
| 101 | Effects of dietary inclusion level of manganese on live swine performance and quality characteristics of longissimus muscle (LM) chops during retail display. W. J. Roberts ¹ , J. K. Apple* ¹ , C. V. Maxwell ¹ , C. B. Boger ¹ , K. G. Friesen ¹ , T. M. Fakler ² , and Z. B. Johnson ¹ , ¹ University of Arkansas, Fayetteville, AR, ² Zinpro Corp., Eden Prairie, MN. |
| 102 | Effects of ractopamine step-up programs on finishing pigs fed under commercial conditions. T.A. Armstrong*, T.A. Marsteller, B.T. Kremer, R.D. Muller, and J.E. Weatherford, Elanco Animal Health, Indianapolis, IN. |
| 103 | Performance and carcass effects of ractopamine fed to finishing pigs in commercial conditions. G Armbruster ¹ , T Marsteller ¹ , T Armstrong* ¹ , E Berg ² , J Wagner ¹ , R Muller ¹ , and J Weatherford, ¹ Elanco Animal Health, Indianapolis, IN, ² University of Missouri, Columbia, MO. |

- 104 Finishing performance and ultrasound composition of Paylean® supplemented pigs sorted into backfat thickness classes. K. J. Mimbs*¹, T. D. Pringle¹, S. A. Meers¹, M. J. Azain¹, and T. A. Armstrong², ¹The University of Georgia, Athens, GA, ²Elanco Animal Health, Greenfield, IN.
- 105 Carcass yield and quality traits of Paylean® treated pigs differing in prefinishing ultrasound 10th rib fat thickness. K. J. Mimbs¹, T. D. Pringle*¹, M. J. Azain¹, and T. A. Armstrong², ¹The University of Georgia, Athens, GA, ²Elanco Animal Health, Greenfield, IN.
- 106 Ractopamine may improve meat quality by altering postmortem metabolism. Q. Guo*, A.L. Grant, B.T. Richert, A.P. Schinckel, and D.E. Gerrard, Purdue University, West Lafayette, IN.
- 107 Relationships between environmental conditions on trucks and losses during transport to slaughter in finishing pigs. D. N. Hamilton*¹, M. Ellis¹, G. E. Bressner¹, B. F. Wolter², D. J. Jones³, and L. E. Watkins³, ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, Carlyle, IL, ³Elanco Animal Health, Greenfield, IN.
- 108 Effects of removing slaughter weight pigs from single-sex pens on subsequent growth performance of finishing pigs. J. M. DeDecker*¹, M. Ellis¹, B. F. Wolter¹, B. P. Corrigan¹, S. E. Curtis¹, E. N. Parr², and D. M. Webel², ¹University of Illinois at Urbana-Champaign, ²United Feeds, Inc. Sheridan, IN.
- 109 Effects of dexamethasone injection at birth on growth performance of pigs from birth to weaning. M. G. Young, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, Kansas State University.
- 110 Effects of dietary energy density and frame size on the concentration of plasma leptin and insulin of feedlot steers. C. C. Ribeiro-Filho*¹, A. H. Trenkle¹, D. D. Loy¹, D. H. Keisler², and P. M. Dixon¹, ¹Iowa State University, Ames, ²University of Missouri, Columbia.
- 111 Effects of adiposity and energy intake on plasma leptin concentration in beef cattle. C. C. Ribeiro-Filho*¹, A. H. Trenkle¹, D. D. Loy¹, D. H. Keisler², and P. M. Dixon¹, ¹Iowa State University, Ames, ²University of Missouri, Columbia.
- 112 Influence of weaning age and implant strategy on serum concentrations of leptin in beef cattle. D. L. McNamara*, E. L. McFadin, M. S. Kerley, D. H. Keisler, V. L. Pierce, T. B. Schmidt, C. A. Stahl, M. L. Linville, and E. P. Berg, University of Missouri, Columbia, Missouri.
- 113 Localization of intermediate filament proteins in developing avian skeletal muscle cells. S. A. Lex, T. W. Huiatt, M. H. Stromer, and R. M. Robson*, Iowa State University, Ames, Iowa.
- 114 Comparison of performance, carcass traits, and economic returns of single versus reimplant strategies for finishing steer calves. J.D. Arseneau*¹, M.C. Claeys¹, J.W. Leininger², J.P. Hutcheson², and R.P. Lemenager¹, ¹Purdue University, West Lafayette, IN, ²Intervet Inc., Millsboro, DE.
- 115 Cow muscle profiling: Comparison of processing traits and shear forces of 21 muscles from beef and dairy cow carcasses. M.L. Buford*¹, C.R. Calkins¹, D.D. Johnson², and B.L. Gwartney³, ¹University of Nebraska-Lincoln, ²University of Florida, Gainesville, ³National Cattlemen's Beef Association, Denver, CO.
- 116 Mathematical modeling of cooking longissimus lumborum and biceps femoris steaks. E Obuz* and M. E Dikeman, Kansas State University.
- 117 The effects of cattle gender on feedlot performance, carcass characteristics and muscle tenderness. W. T. Choat*^{1,2}, J. A. Paterson¹, G. C. Smith², B. Rainey¹, M. King¹, and R. J. Lipsey³, ¹Montana State University, Bozeman, ²Colorado State University, Fort Collins, ³American Simmental Association, Bozeman, MT.

Nonruminant Nutrition V

Amino Acid Nutrition – Grow-Finish Pigs and Ractopamine

Chairs: Mark Bertram, Pork Technologies, Ames, IA; and Nathalie Trottier, Michigan State University, East Lansing

Tuesday, 8:00 a.m. – 11:45 a.m.

Room: 204FG

	Abstract	
Time	Number	Paper
8:00	182	The effect of feed intake on amino acid digestibility in growing pigs. V. Rayadurg* and H. H. Stein, South Dakota State University, Brookings.
8:15	183	Effects of lysine level fed from 10 to 20 kg on growth performance of barrows and gilts. N. A. Lenehan* ¹ , S. S. Dritz ¹ , M. D. Tokach ¹ , R. D. Goodband ¹ , J. L. Nelssen ¹ , and J. L. Usry ² , ¹ Kansas State University, Manhattan., ² Ajinomoto-Heartland Lysine, Chicago.
8:30	184	Effects of feeding commercially grown gilts below or above the lysine requirement in early and late finishing on overall performance. R. G. Main, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan.
8:45	185	Free and peptide-bound amino acids in small intestinal mucosa of growing pigs fed low-protein diets supplemented with amino acids. F. Guay* and N. L. Trottier, Michigan State University, East Lansing.
9:00	186	Influence of crystalline or protein-bound lysine on lysine utilization for growth in pigs. J. J. Colina*, P. S. Miller, A. J. Lewis, and R. L. Fischer, University of Nebraska, Lincoln.
9:15	187	Influence of crystalline or protein-bound lysine on body protein deposition in growing pigs. J. J. Colina*, P. S. Miller, A. J. Lewis, and R. L. Fischer, University of Nebraska, Lincoln.
9:30	188	The performance of grower-finisher pigs fed diets formulated to meet amino acid requirements but with declining crude protein content. J. F. Patience ¹ , A. D. Beaulieu* ¹ , R. T. Zijlstra ¹ , D. A. Gillis ¹ , and J. Usry ² , ¹ Prairie Swine Centre, Inc., Saskatoon, SK, Canada, ² Heartland Lysine, Inc., Chicago.
9:45		Break
10:00	189	Influence of crystalline or protein-bound lysine on body protein deposition and lysine utilization in nursery pigs. J. J. Colina*, P. S. Miller, A. J. Lewis, and R. L. Fischer, University of Nebraska, Lincoln.
10:15	190	Determining an optimum lysine:calorie ratio for 40 to 120 kg barrows in a commercial finishing facility. R. G. Main*, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan.
10:30	191	Determining an optimum lysine:calorie ratio for 35 to 120 kg gilts in a commercial finishing facility. R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.

10:45	192	Evaluation of the lysine requirements for barrows fed ractopamine HCl (Paylean®) under conditions of heat stress. D. C. Kendall*, J. W. Frank, A. M. Gaines, G. F. Yi, and G. L. Allee, University of Missouri, Columbia.
11:00	193	The effects of environmental housing conditions on two ractopamine use programs in finishing pigs. S. A. Trapp*, B. E. Hill, S. L. Hankins, A. P. Schinckel, and B. T. Richert, Purdue University, West Lafayette, IN.
11:15	194	Interactive effects between dietary L-carnitine and ractopamine HCl (Paylean®) on finishing pig growth performance. B. W. James* ¹ , M. D. Tokach ¹ , R. D. Goodband ¹ , J. L. Nelssen ¹ , S. S. Dritz ¹ , K. Q. Owen ² , and J. C. Woodworth ² , ¹ Kansas State University, Manhattan, ² Lonza, Inc., Fair Lawn, NJ.
11:30	195	Interactive effects of dietary L-carnitine and ractopamine HCl (Paylean®) on finishing pig carcass characteristics and meat quality. B. W. James* ¹ , M. D. Tokach ¹ , R. D. Goodband ¹ , J. L. Nelssen ¹ , S. S. Dritz ¹ , K. Q. Owen ² , and J. C. Woodworth ² , ¹ Kansas State University, Manhattan, ² Lonza, Inc., Fair Lawn, NJ.

Nonruminant Nutrition VI

Feed Additives and Immunity

Sponsored by: Alltech, Inc.

Chairs: Doug Cook, North American Nutrition Company, Lewisburg, OH; and Eric van Heugten, North Carolina State University, Raleigh

Tuesday, 8:00 a.m. – 11:30 a.m.

Room: 204AB

Time	Abstract Number	Paper
8:00	196	Effects of fish oil on growth performance, immune, adrenal and somatotrophic responses of weanling pigs after lipopolysaccharide challenge. Y. L. Liu ¹ , D. F. Li* ¹ , L. M. Gong ¹ , G. F. Yi ² , and A. M. Gaines ² , ¹ China Agricultural University, Beijing, ² University of Missouri, Columbia.
8:15	197	Evaluation of a botanical extract in non-medicated diets for pigs 15 to 113 kg body weight. B. V. Lawrence* ¹ , J. D. Hahn ¹ , S. Hansen ¹ , J. Hedges ¹ , E. Hansen ¹ , R. Musser ¹ , and J. Corley ² , ¹ Hubbard Feeds Inc., Mankato, MN, ² Prince Agri Products, Inc., Quincy IL.
8:30	198	Effect of milk supplementation with <i>Lactobacillus brevis</i> 1E-1 on intestinal microflora, intestinal morphology, and pig performance. D. C. Brown* ¹ , M. E. Davis ¹ , C. V. Maxwell ¹ , Z. B. Johnson ¹ , T. Rehberger ² , K. J. Touchette ³ , and J. A. Coalson ³ , ¹ University of Arkansas, Fayetteville, ² Agtech Products, Inc., Waukesha, WI, ³ Merrick's, Inc., Union Center, WI.
8:45	199	Evaluation of BioPlus 2B in non-medicated diets for pigs from 15 to 113 kg body weight. B. V. Lawrence*, J. D. Hahn, S. Hansen, J. Hedges, E. Hansen, and R. Musser,

Hubbard Feeds Inc., Mankato, MN.

- 9:00 200 Corn particle size and pelleting influence on fecal shedding and enteric colonization of *Salmonella enterica* serotype Typhimurium. M. R. Barker*, S. S. Dritz, J. C. Nietfeld, J. E. Minton, J. M. DeRouchey, K. M. Bond, D. J. Lee, and T. E. Burkey, Kansas State University, Manhattan.
- 9:15 201 Evaluation of BioSaf and Safmannan in non-medicated diets for pigs 15 to 113 kg body weight. B. V. Lawrence*, J. D. Hahn, S. Hansen, J. Hedges, E. Hansen, and R. Musser, Hubbard Feeds Inc., Mankato, MN.
- 9:30 Break
- 9:45 202 Effect of altered dietary n6/n3 fatty acid ratios and endotoxin injection on performance and immune parameters in nursery pigs. T. A. Meyer*, M. D. Lindemann, K. K. Schillo, and G. L. Cromwell, University of Kentucky, Lexington.
- 10:00 203 Responsiveness of weanling pigs to Carbadox (Mecadox[®]) and vitamin B₁₂ supplementation. S. S. Blodgett*, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
- 10:15 204 Vitamin B₁₂ requirement of weanling pigs. S. S. Blodgett*, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
- 10:30 205 Effects of different wheat gluten sources on nursery pig growth performance. K. R. Lawrence*, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, C. W. Hastad, S. H. Hanni, M. R. Barker, and B. W. James, Kansas State University, Manhattan.
- 10:45 206 An evaluation of barley, corn or wheat-based diets, with and without glucanase and xylanase addition, on the nitrogen balance and ammonia emission of finishing boars. A.B.G. Leek*¹, V. E. Beattie², W. Henry², and J. V. O'Doherty¹, ¹University College Dublin, Ireland, ²Devenish Nutrition Ltd., Belfast, Northern Ireland.
- 11:00 207 Effects of increasing calcium:phosphorus ratio in diets containing phytase on growth performance of grow-finish pigs. S. M. Hanni*, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, Kansas State University, Manhattan.
- 11:15 366 Comparison of antimicrobial alternatives in irradiated diets for nursery pigs. T. P. Keegan*, J. M. DeRouchey, J. L. Nelssen, M. D. Tokach, R. D. Goodband, S. S. Dritz, and C. W. Hastad, Kansas State University, Manhattan.

Odor and Nutrient Management I

Symposium: Exploring Biological and Genetic Limitations of Nutrient Utilization in Livestock

Chair: Steven J. Moeller, The Ohio State University, Columbus

Tuesday, 8:00 a.m. – 11:30 a.m.

Room 138

Time	Abstract Number	Paper
8:00	231	INVITED Physiological and biological limitations for nutrient utilization in farm animals. B. J. Kerr*, USDA-ARS-MWA-SOMMRU.
8:40	232	INVITED Enhancing nutrient efficiency through genetic selection: Opportunities and challenges. M. T. See*, North Carolina State University, Raleigh NC.
9:20	233	INVITED Reducing nutrient excretion and odor: a production system approach. G. G. Gourley*, Swine Graphics Enterprises, Webster City, IA.
10:00		Discussion
10:15		Break
10:30	234	Nitrogen balance on dairy operations, a comparison of three whole farm nutrient balancers. B. J. Towns* and M. A. Wattiaux, University of Wisconsin, Madison.
10:45	235	Effect of organic vs. inorganic sources of zinc supplementation on the whole body mineral composition (Cu, Zn, Fe, Mn, P, and N) of nursery pigs. M.J. Rincker*, G.M. Hill, J.E. Link, J.E. Rowntree, J.G. Green, and D.M. Dvoracek-Driksna, Michigan State University, East Lansing, MI.
11:00	236	Growth performance, carcass characteristics and nitrogen emission of grower-finisher pigs fed reduced crude protein, amino-acid supplemented, wheat-soybean diets. A.B.G. Leek* ¹ , W. Henry ² , and J.V. O'Doherty ¹ , ¹ University College Dublin, Ireland, ² Devenish Nutrition Ltd., Belfast, Northern Ireland.
11:15	237	Effectiveness of Geotextile Covers to Reduce Emissions from Manure Storage Structures. J. R. Bicudo ¹ , C. J. Clanton ² , D. R. Schmidt ² , L. D. Jacobson ² , W. Powers ³ , C. L. Tengman ⁴ , and M. C. Bradshaw* ⁴ , ¹ University of Kentucky, ² University of Minnesota, ³ Iowa State University, ⁴ National Pork Board.

Physiology II

Symposium: Technologies to Enhance Artificial Insemination in Swine

Sponsored by: Billy N. Day Appreciation Club

Chair: Ronald K. Christenson, U.S. Meat Animal Research Center, Clay Center, NE

Tuesday, 8:00 a.m. - Noon

Room: 136

Time	Abstract Number	Paper
8:00	243	INVITED Transport, reservoirs, and fertile life of boar spermatozoa in the female tract. R.H.F. Hunter*, Institute for Reproductive Medicine, Hannover School of Veterinary Medicine, Germany.
8:45	244	INVITED Deep uterine and uterine body insemination techniques in swine and the relationship of site of insemination to the required number of spermatozoa per inseminate. E.A. Martinez*, J. Roca, and J.M. Vazquez, University of Murcia. Spain.
9:30		Break
9:45	245	INVITED Regulating the pig estrous cycle to utilize new insemination technologies. S.K. Weibel*, United Feeds, Inc.
10:30		INVITED Industry Reaction Panel, chair: William L. Flowers, North Carolina State University, Raleigh

Ruminant Nutrition and Forages I

Metabolism, Additives, and Health

Sponsored by: Alltech, Inc.

Chair: Arnold Hippen, South Dakota State University, Brookings

Tuesday, 8:00 a.m. – Noon

Room: 205IJ

Time	Abstract Number	Paper
8:00	271	Ruminal ammonia load does not impact histidine utilization by growing steers. K. C. Candler*, E. C. Titgemeyer, M. S. Awawdeh, and D. P. Gnad, Kansas State University.
8:15	272	Effect of urea concentration in steam-flaked corn diets on nutrient digestion and ruminal kinetics. S.S. Swanek*, C.R. Krehbiel, and D.R. Gill, Oklahoma State University.

8:30	273	Effect of compensatory growth on net metabolite and hormone flux across splanchnic tissues during adaptation to a high-grain diet in beef steers. M. J. Hersom* ¹ , C. R. Krehbiel ¹ , G. W. Horn ¹ , J. G. Kirkpatrick ¹ , R. P. Wettemann ¹ , and D. H. Keisler ² , ¹ Oklahoma State University, ² University of Missouri.
8:45	274	Effects of roughage level and calcium magnesium carbonate buffer on ruminal metabolism and site and extent of digestion in beef steers fed a high-grain diet. C. D. Keeler* ¹ , C. R. Krehbiel ¹ , and J. J. Wagner ² , ¹ Oklahoma State University Stillwater, OK, ² ContiBeef, LLC Lamar, CO.
9:00	275	Relationship between feeding behavior and performance of feedlot cattle. D. D. Hickman* ¹ , T. A. McAllister ² , K. S. Schwartzkopf-Genswei ³ , D. H. Crews, Jr. ² , and C. R. Krehbiel ¹ , ¹ Oklahoma State University, Stillwater, Oklahoma, ² Agriculture and Agrifood Canada, Lethbridge, Alberta Canada, ³ Alberta Agriculture Food and Rural Development, Lethbridge, Alberta, Canada.
9:15	276	Tympanic temperature and behavior associated with moving feedlot cattle. T. L. Mader* ¹ , M. S. Davis ² , and W. M. Kreikemeier ¹ , ¹ University of Nebraska, ² Koers-Turgeon Consulting Service, Inc.
9:30	277	Vaccination and feeding a competitive exclusion product as intervention strategies to reduce the prevalence of <i>Escherichia coli</i> O157:H7 in feedlot cattle. J.D. Folmer* ¹ , C.N. Macken ¹ , G.E. Erickson ¹ , T.J. Klopfenstein ¹ , M.L. Khaitsa ¹ , S. Hinkley ¹ , R.A. Moxley ¹ , D.R. Smith ¹ , A.A. Potter ² , and B. Finlay ³ , ¹ University of Nebraska, ² University of Saskatchewan, ³ University of British Columbia.
9:45	278	Performance of dairy heifers fed high forage diets supplemented with bambermycins, lasalocid, or monensin. A. K. Hammond*, J. E. Shirley, M. V. Scheffel, E. C. Titgemeyer, and J. S. Stevenson, Kansas State University.
10:00		Break
10:15	279	A flow cytometric method for intracellular analysis of glutathione concentration in bovine natural killer cells. L. A. Matulka* ¹ , L. Wilkie ² , C. Kuszynski ² , D. R. Brink ¹ , and C. L. Kelling ¹ , ¹ University of Nebraska, Lincoln, NE, ² University of Nebraska Medical Center, Omaha, NE.
10:30	280	Effects of high selenium wheat on carcass weight, visceral organ mass and intestinal growth in finishing beef steers. S. A. Soto-Navarro* ¹ , T. L. Lawler ² , J. B. Taylor ² , L. P. Reynolds ¹ , J. J. Reed ¹ , and J. S. Caton ¹ , ¹ North Dakota State University, Fargo, ² USDA, ARS, U.S. Sheep Experiment Station.
10:45	281	Influence of dietary encapsulated ascorbate and α -tocopherol on performance, serum antioxidant concentrations and white blood cell changes of transit stressed wether lambs. N. K. Chirase* ^{1,2} , L. W. Greene ^{1,2} , N. A. Cole ³ , and D. Putnam ⁴ , ¹ Texas Agric. Exp. Sta., Amarillo, ² West Texas A&M Univ., Canyon, ³ USDA/ARS, Bushland, ⁴ Balchem Encapsulates, Middletown, NJ.
11:00	282	Effect of energy level and a fibrolytic enzyme on performance and health of newly received shipping stressed calves. R.E. Peterson*, C.R. Krehbiel, D.R. Gill, and C.E. Markham, Oklahoma State University, Stillwater.
11:15	283	Nutrient sources for dehydrated neonatal calves. T. M. Hill*, J. M. Aldrich, and R. L. Schlotterbeck, Akey, Lewisburg, OH.
11:30	284	Evaluation of a plant extract, Apex, included in calf milk replacers. T. M. Hill*, J. M. Aldrich, and R. L. Schlotterbeck, Akey, Lewisburg, OH.

- 11:45 285 Improvement of the growth and performance of Holstein neonatal calves receiving the microbial additive *Saccharomyces cerevisiae* (Iran Molasses co., 2002). B. Saremi*¹ and A. Naserian, Ferdowsi University of Mashhad, IRAN.

Ruminant Nutrition and Forages II

Posters

Monday, 1:00 p.m. – Wednesday, Noon

Authors present, even abstract numbers Tuesday 8:00 a.m. – 10:00 a.m.; odd abstract numbers Tuesday 10:00 a.m. – Noon

Room: Exhibit Hall, Room 206

- | Abstract Number | Paper |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 286 | Rumen, plasma, and milk conjugated linoleic acid and transvaccenic acid response to fish oil supplementation of diets differing in fatty acid profiles. A. AbuGhazaleh ² , D. Schingoethe* ¹ , A. Hippen ¹ , and K. Kalscheur ¹ , ¹ South Dakota State University, ² Clemson University. |
| 287 | Field pea replacement value in calf weaning transition diets. D. Landblom ¹ , D. Olson* ² , and K. Helmuth ¹ , ¹ NDSU-Dickinson Research Extension Center, ² Dickinson State University, Dickinson, ND. |
| 288 | Effects of ethyl 2-butynoate and 3-butenic acid on in vitro ruminal fermentation. E.M. Ungerfeld*, S.R. Rust, and R. Burnett, Michigan State University, East Lansing, MI. |
| 289 | Effect of frequency of protein supplementation on intake, nitrogen balance, and VFA proportions in beef steers consuming low-quality, tallgrass-prairie forage. C. G. Farmer*, R. C. Cochran, E. C. Titgemeyer, and T. A. Wickersham, Kansas State University, Manhattan. |
| 290 | Effect of frequency of protein supplementation on ruminal nitrogen metabolism in beef steers consuming low-quality, tallgrass-prairie forage. C. G. Farmer*, R. C. Cochran, T. G. Nagaraja, and T. A. Wickersham, Kansas State University, Manhattan. |
| 291 | Nitrogen and phosphorus utilization by beef cattle fed three dietary crude protein levels with three levels of supplemental urea. K. W. McBride* ¹ , L. W. Greene ¹ , N. A. Cole ² , F. T. McCollum III ¹ , and M. L. Galyean ³ , ¹ TAES, Amarillo, TX, ² USDA-ARS, Bushland, TX, ³ TTU, Lubbock, TX. |
| 292 | Nitrogen retention and apparent digestibility of diets differing in concentration of soybean hulls fed to growing lambs. J. Rekhis ¹ and T. R. Johnson* ² , ¹ Manouba University Veterinary School of Tunisia, ² Purdue University West Lafayette, IN. |
| 293 | The effects of diet on the acid-resistance of <i>E. coli</i> in feedlot steers. C. J. Fu* ¹ , J. H. Porter ¹ , E. E. D. Felton ² , J. W. Lehmkuhler ³ , and M. S. Kerley ¹ , ¹ University of Missouri-Columbia, ² West Virginia University, ³ University of Wisconsin-Madison. |
| 294 | Effect of degradable protein concentration on organic acid production by mixed rumen bacteria. C.A. Willis*, L.R. Legleiter, and M.S. Kerley, University of Missouri-Columbia. |
| 295 | Effects of management on the voluntary dry matter intake and dry matter digestibility of tall fescue hay. J. E. Turner*, W. K. Coblenz, K. P. Coffey, R. T. Rhein, B. C. McGinley, N. W. Galdamez-Cabrera, C. F. Rosenkrans, Jr., D. W. Kellogg, and J. V. Skinner, Jr., University of Arkansas. |
| 296 | Thyroid hormone concentrations in the neonatal calf. J.E. Rowntree*, D.R. Hawkins, G.M. Hill, R.F. Nachreiner, J.E. Link, M.J. Rincker, and R.A. Kreft Jr., Michigan State University. |

- 297 Performance of feedlot heifers fed corn silage or brown midrib forage sorghum silage as the roughage portion of a finishing diet. B. Hough^{*1,2}, L. W. Greene^{1,2}, F. T. McCollum, III³, B. W. Bean^{1,3}, N. A. Cole⁴, and T. Montgomery², ¹Texas Agricultural Experiment Station, Amarillo, ²West Texas A&M University, Canyon, ³Texas Cooperative Extension, Amarillo, ⁴USDA-ARS, Bushland.
- 298 Digestibility of sunflower screenings by beef cows. K. P. Ladyman^{*}, J. H. Porter, and M. S. Kerley, University of Missouri-Columbia.
- 299 Nutritive value of crabgrass harvested on seven dates in Northern Arkansas. R. K. Ogden¹, W. K. Coblenz^{*1}, K. P. Coffey¹, J. E. Turner¹, D. A. Scarbrough¹, and J. A. Jennings², ¹University of Arkansas, Fayetteville, AR, ²Cooperative Extension Service, Little Rock, AR.
- 300 Corn crop residue grazing effects on soil physical properties and soybean production in a corn-soybean crop rotation. J.T. Clark^{*1}, J.R. Russell¹, D.L. Karlen², W.D. Busby¹, D.L. Maxwell¹, and B. Peterson³, ¹Iowa State University, Ames, IA, ²USDA-NSTL, Ames, IA, ³USDA-NRCS, Creston, IA.
- 301 Influence of prior nutritional treatment on residual feed intake as an indicator of efficiency. C. L. Ferrell^{*}, T. G. Jenkins, and H. C. Freetly, USDA-ARS, U.S. Meat Animal Research Center.
- 302 The Degradative Properties of Soybean Proteins. W.H. Kolath^{*} and M.S. Kerley, University of Missouri - Columbia.
- 303 Effects of metabolic acid-base disturbance caused by cation anion intake on performance of heifers before and during transition to a high concentrate finishing diet. J. J. Williams^{*} and L. W. Greene, Texas A&M University Research and Extension Center.
- 304 Effect of supplementation and advancing gestation on intake of low-quality forage. T. W. Loy^{*}, D. C. Adams, T. J. Klopfenstein, and J. A. Musgrave, University of Nebraska, Lincoln.
- 305 Effects of RUP inclusion level on ruminal degradability of RUP. L. R. Legleiter^{*} and M. S. Kerley, University of Missouri, Columbia, MO.
- 306 Effect of supplement type and degradable intake protein addition in diets for lactating beef cows. T. A. Baumann, G. P. Lardy, W. W. Dvorak, and V. Anderson, North Dakota State University, Fargo, ND.
- 307 A dehydrated mixture containing food waste and wheat middlings serves as a protein and energy substitute in beef cow diets. P.M. Walker^{*} and A.D. Antas, Illinois State University, Normal.
- 308 Effect of low-level fall protein supplementation on the performance of beef cows grazing tallgrass-prairie range. D. A. Llewellyn^{*}, R. C. Cochran, T. T. Marston, D. M. Grieger, C. G. Farmer, and T. A. Wickersham, Kansas State University, Manhattan.
- 309 Effect of rumen degradable protein source on forage intake, digestion, and ruminal kinetics in beef steers fed low-quality hay. W. W. Dvorak^{*}, M. L. Bauer, G. P. Lardy, and J. S. Caton, North Dakota State University, Fargo.
- 310 Use of *Ascophyllum nodosum* for alleviation of heat stress in cattle. L.N. Thompson^{*1}, J.E. Williams¹, K.J. Barnhart¹, L.E. McVicker¹, D.E. Spiers¹, and D.P. Colling², ¹University of Missouri, Columbia, MO, ²Acadian Seaplants, Inc.
- 311 Effect of interseeding lespedeza versus additional nitrogen fertilization in a wheat-crabgrass double-crop system on forage production and cattle performance. L.W. Lomas^{*}, J.L. Moyer, F.K. Brazle, G.L. Kilgore, and G.A. Milliken, Kansas State University, Parsons.
- 312 Protein requirements of bison bulls fed for meat. V. L. Anderson^{*1} and L. Helbig², ¹North Dakota State University-Carrington Reserach Center, ²University of Saskatchewan-Saskatoon.
- 313 Effects of advancing season on nutrient quality of alfalfa and black medic in southwestern North Dakota. D. M. Oe^{*1}, G. P. Lardy¹, W. W. Poland², and P. Carr², ¹North Dakota State University, Fargo, ²Dickinson Research Extension Center, Dickinson.
- 314 Use of Oat as a Forage in Dairy Nutrition. A.W.A.S. Abeysekara^{*}, D.A. Christensen, J.J. McKinnon, and H.W. Soita, University of Saskatchewan.

- 315 Effect of various alternative forages on late summer forage production and grazing livestock performance. W. Poland* and P.M. Carr, North Dakota State University, Dickinson.
- 316 Performance of crossbred steers grazing photoperiod sensitive and non photoperiod sensitive Sorghum Sudangrass hybrids. J. T. Vasconcelos, L. W. Greene*, F. T. McCollum, III, B. W. Bean, and R. Van Meter, Texas A&M University Agricultural Research and Extension Center, Amarillo.
- 317 Ruminally protected fructose improves carbohydrate status in early postpartum dairy cows. P. L. Linke*¹, A. R. Hippen¹, J. M. DeFrain¹, D. J. Schingoethe¹, K. F. Kalscheur¹, and R. Patton², ¹South Dakota State University, ²Galisteo, NM.
- 318 Comparison of beef NRC model and equations using dilution rate to predict microbial efficiency and yield in the rumen. A.L. Mueller* and M.S. Kerley, University of Missouri-Columbia.
- 319 Effect of an estrogenic implant on performance of newly received steer calves or calves castrated on arrival. H. A. DePra*, D. L. Step, R. E. Peterson, D. R. Gill, and C. R. Krehbiel, Oklahoma State University.
- 320 Effect of copper level and zinc level and source on finishing cattle performance and carcass traits. L.J. McBeth*, C.R. Krehbiel, D.R. Gill, C.E. Markham, R.E. Peterson, R.L. Ball, C.K. Swenson, and S.S. Swanek, Oklahoma State University.
- 321 Effect of cottonseed byproduct feeds on feedlot performance and carcass traits of finishing heifers. C.E. Markham*, C.R. Krehbiel, D.R. Gill, R.E. Peterson, and H.A. DePra, Oklahoma State University.
- 322 Effect of continuous infusion of degradable or undegradable intake protein on forage intake, digestibility and nitrogen balance in steers consuming low quality forage. R. Basurto-Gutierrez*, H. T. Purvis II, G. W. Horn, C. R. Krehbiel, J. S. Weyers, and T. N. Bodine, Oklahoma State University, Stillwater.

Teaching I

Chair: Don Marshall, South Dakota State University, Brookings

Tuesday, 9:00 a.m. – 9:45 a.m.

Room: 140

Time	Abstract Number	Paper
9:00	350	The University of Missouri internship in reproductive management of beef cattle. J. E. Stegner* ¹ , T. A. Strauch ¹ , J. E. Williams ¹ , P. A. Kunkel ² , K. D. Switzer ² , R. F. Hill ³ , D. E. Broek ³ , D. J. Patterson ¹ , and M. F. Smith ¹ , ¹ University of Missouri, Columbia, ² KABA/Select Sires, Louisville, KY, ³ Cache Valley/Select Sires, Logan, UT.
9:15	351	Mastering dairy farm management issues through case based experiential learning. S.G. Wedemeier* and L.L. Timms, Iowa State University.
9:30	352	Retention of non-traditional agriculture students in animal sciences. M. Diekman*, B. Delks, and R. Allrich, Purdue University.

Teaching II

Symposium: Academic Programming in the Animal Sciences - A Look to the Future

Chair: Don Marshall, South Dakota State University, Brookings

Tuesday, 10:00 a.m. – Noon

Room: 140

Time	Abstract Number	Paper
10:00		Introduction
10:10		INVITED An industry perspective on future careers and desired student skills. A. Clutter, Monsanto Co., St. Louis, MO.
10:45		INVITED Student recruitment and curriculum management. J. Kinder, The Ohio State University.
11:20		Open Discussion

Animal Behavior, Housing, and Well-Being II

Posters

Monday, 1:00 p.m. – Wednesday, Noon

Authors present, Tuesday 3:00 p.m. – 5:00 p.m.

Room: Exhibit Hall, Room 206

Abstract Number	Paper
5	Effect of thermal and hormonal manipulation of developing chick embryos on post-hatch behavior and physiology. M.J. Toscano* ¹ , D.C. Lay, Jr. ¹ , K.A. Scott ¹ , H.K. Smith ¹ , and M.E. Wilson ² , ¹ USDA-ARS-Livestock Behavior Research Unit, West Lafayette, IN, ² West Virginia University, Morgantown, WV.
6	Effects of weaning age on post-weaning belly nosing behavior and umbilical lesions in pigs. R.G. Main*, S.S. Dritz, R.D. Goodband, M.D. Tokach, and J.L. Nelssen, Kansas State University, Manhattan.
7	Behaviors in stalled pregnant females and reproductive performance on a commercial swine farm. T. Sekiguchi* and Y. Koketsu, Meiji University.
8	The effect of toys on performance and behavior of weanling pigs housed in littermate or mixed groups. C. M. Wood*, B. Osborne, S. Meder, A. Young, A. Damon, J. Joseph, M. Ashby, T. O'Hare, and L. A. Kuehn, Virginia Tech.
9	Use of Dietary Seaweed Treatment to Reduce Heat Strain in Cattle. L.E. McVicker*, D.E. Spiers, J.E. William, K.J. Barnhart, L.N. Thompson, A. Al-Haidary, and D.P. Colling, University of Missouri-Columbia.

Breeding and Genetics III and Growth, Development, Muscle Biology and Meat Science IV

Symposium: Application of Functional Genomics Technologies for Understanding Complex Animal Production Traits

Co-Chairs: Catherine Ernst, Michigan State University, East Lansing; and Steven Lonergan,
Iowa State
University, Ames

Tuesday, 1:00 p.m. – 4:45 p.m.
Room: 204AB

Time	Abstract Number	Paper
1:00		Introduction
1:10	25	INVITED Functional genomics as a tool for integrated polygene discovery for complex traits. D. Pomp*, University of Nebraska-Lincoln.
1:55	26	INVITED Proteomic analysis of skeletal muscle calcium homeostasis. M. Zeece*, S. Jones, R. Cerny, J. Schultz, N. Palmer, and B. KornilaeV, University of Nebraska, Lincoln.
2:40		Break
2:55	27	INVITED Design and analysis of cDNA microarrays in animal science. R. J. Tempelman*, Michigan State University, East Lansing.
3:40	28	INVITED Application of expression profiling technology to animal agriculture. J. C. Byatt*, N. Mathialagan, and C. J. Dyer, Monsanto Company, St. Louis, MO.
4:25		Panel Discussion

Congressional Insights Workshop

Tuesday, 1:00 p.m. - 4:00 p.m.
Room: 144

The American Society of Animal Science is offering a special workshop during the Midwest meeting, Tuesday March 18, from 1:00 - 4:00 pm. The workshop, "Congressional Insights," is a computer simulation and educational tool that introduces participants to the legislative and political process on Capitol Hill. The workshop is open to all persons attending the Midwest meeting. Because more and more of what happens in Washington, DC and at State Capitols affect how we conduct business (research, teaching and extension), this workshop is very timely and important. Above all, the workshop is both fun and educational. Please sign up on the Registration Form to participate in this no charge workshop.

Extension III

Posters

Monday, 1:00 p.m. – Wednesday, Noon
Authors present, Tuesday, 3:00 p.m. – 5:00 p.m.
Room: Exhibit Hall, Room 206

Abstract Number	Paper
48	NATIONAL PORK BOARD – EDUCATION AWARD Measuring pork quality to educate producers and allow them to obtain value-added marketing opportunities. M. T. See*, North Carolina State University, Raleigh NC.
49	Using heart girth to estimate weight in finishing pigs. C.N Groesbeck*, R.D. Goodband, J.M. DeRouchey, M.D. Tokach, S.S. Dritz, J.L. Nelssen, K.R. Lawrence, and M.G. Young, Kansas State University, Manhattan.
50	Development of a stochastic pig compositional growth model. A. P. Schinckel*, N. Li, P. V. Preckel, M. E. Einstein, and D. Miller, Purdue University, West Lafayette, IN.
51	Economic evaluation of feeding pigs on ractopamine step-up programs of two durations. N. Li*, A. P. Schinckel, P. V. Preckel, K. A. Foster, and B. T. Richert, Purdue University, West Lafayette, IN.
52	Economic evaluation of ractopamine at selected dietary concentrations for finishing pigs. N. Li, A. P. Schinckel, P. V. Preckel, K. A. Foster, and B. T. Richert, Purdue University, West Lafayette, IN.
53	Optimizing ractopamine concentration and duration in pork production. N. Li*, A. P. Schinckel, P. V. Preckel, K. A. Foster, and B. T. Richert, Purdue University, West Lafayette, IN.
54	Accuracy of prediction in the National Swine Improvement Federation (NSIF) Ultrasound Certification Program. C. R. Schwab* ¹ , T. J. Baas ¹ , S. J. Moeller ² , and D. W. Newcom ¹ , ¹ Iowa State University, Ames, IA, ² The Ohio State University, Columbus, OH.
55	Educational needs of Nebraska Pork Producers and Employees. D. E. Reese* ¹ , A. L. Prosch, S. S. Blodgett, and S. K. Rockwell, University of Nebraska.
56	Evaluation of a salve or two novel winter teat dips to maintain or enhance teat end integrity during winter. D. Paulsen*, L.L. Timms, and M.A. Faust, Iowa State University.
57	Characterization of the growth and development of replacement dairy heifers on west-central Missouri dairy farms. J.C. Coomer*, R.C. Bennett, and R. Randle, The University of Missouri Extension.
58	Developing educational strategies that add value to replacement beef heifers: The Missouri Show-Me-Select Replacement Heifer Program. D. J. Patterson*, R. F. Randle, J. L. Parcell, M. F. Smith, M. S. Kerley, K. C. Olson, and J. Z. March, University of Missouri, Columbia.
59	Relationship of electrical power quality to milk production of dairy herds. D. Hillman* ¹ , D. Stetzer ² , M. Graham ³ , C. L. Goeke ¹ , K. Matson ² , H. H. VanHorn ⁴ , and C. J. Wilcox ⁴ , ¹ Michigan State University, E. Lansing, ² Stetzer Electric, Blair, WI, ³ U. California, Berkeley, ⁴ U. Florida, Gainesville.

Extension IV

Symposium: Dairy Reproductive Update (developed by NC Regional Committee)

Chair: Leo Timms, Iowa State University, Ames

Tuesday, 1:00 p.m. – 5:00 p.m.

Room: 134

Time	Abstract Number	Paper
1:00	60	INVITED NC Bovine Reproduction Task Force overview. J. R. Pursley* ¹ and P. M. Fricke ² , ¹ Michigan State University, ² University of Wisconsin-Madison.
1:15	61	INVITED A Review of the Estrous cycle in cattle: Physiology, Endocrinology, and Follicular waves. F. N. Kojima*, University of Missouri, Columbia.
1:45	62	INVITED Fine tuning Ovsynch to improve synchronization rates and fertility. J. R. Pursley*, Michigan State University.
2:15	63	INVITED Systems for early identification of nonpregnancy and resynchronization of ovulation in dairy cattle. P. M. Fricke*, University of Wisconsin-Madison.
2:45		Break
3:00	64	INVITED Utility of CIDRs in improving reproductive performance and management of dairy cows. D.J. Kesler* and T.L. Steckler, University of Illinois.
3:30	65	INVITED Monitoring reproductive performance: Tools and rules. R.L. Wallace*, University of Illinois.
4:00		INVITED What about anovulatory cows? M. C. Wiltbank, University of Wisconsin, Madison.
4:30		Discussion

Graduate Student Competitive Research Papers – M.S. Division

Chair: Wesley Osburn, Michigan State University, East Lansing

Tuesday, 1:15 p.m. – 4:45 p.m.

Room: 204C

Time	Abstract Number	Paper
1:15	76	The effects of dietary okara on performance of nursery pigs. J.R. Hermann* and M.S. Honeyman, Iowa State University.
1:30	77	The effect of intravenous infusion of glucose on ethanol stability of milk in Holstein dairy cows. S. Sobhani*, R. Valizadeh, and A. Nesian, Agricultural College of Ferdowsi University, Mashhad, Iran.

1:45	78	Anti-diabetic potentials of <i>Momordica charanta</i> and <i>Andrographis paniculata</i> and their effects on estrous cyclicity of Alloxan-induced diabetic rats. B. Reyes ¹ , N. Bautista* ¹ , N. Tanquilut ¹ , R. Anunciado ² , A. Leung ¹ , G. Sanchez ¹ , R. Magtoto ³ , S. Sajapitak ⁴ , H. Tsukamura ⁴ , and K. Maeda ⁴ , ¹ Pampanga Agricultural College, Philippines, ² University of the Philippines, Los Banos, ³ Iowa State University, Ames, ⁴ Nagoya University, Japan.
2:00	79	Effect of flax supplementation and a combined trenbolone acetate and estradiol implant on circulating IGF-1 and muscle IGF-1 mRNA levels in finishing cattle. J. D. Dunn*, J. P. Kayser, A. T. Waylan, E. K. Sissom, J. S. Drouillard, and B. J. Johnson, Kansas State University, Manhattan.
2:15	80	Influence of weaning age, creep feeding and type of creep on steer performance and carcass traits. D. W. Shike* ¹ , D. B. Faulkner ¹ , D. F. Parrett ¹ , F. A. Ireland ¹ , and M. J. Cecava ² , ¹ University of Illinois at Urbana-Champaign, ² Consolidated Nutrition, Fort Wayne, IN.
2:30	81	Effects of long-term treatment with GnRH agonist on testicular development and the attainment of puberty in bull calves. E.J. Behlke*, C.R. Burke, C.L. Gasser, M.L. Mussard, and K.E. Fike, The Ohio State University.
2:45		Break
3:00	82	Fetal growth and development in the pig: nutritional implications. R. L. McPherson* ¹ , F. Ji ¹ , G Wu ² , and S. W. Kim ¹ , ¹ Texas Tech University, ² Texas A&M University.
3:15	83	Sorting strategies for yearlings. J.C. MacDonald*, T.J. Klopfenstein, G.E. Erickson, C.N. Macken, J.D. Folmer, and M.L. Blackford ¹ , ¹ University of Nebraska - Lincoln.
3:30	84	Effects of adding distiller's dried grain with solubles (DDGS) to gestation and lactation diets on reproductive performance and nutrient balance in sows. J.A. Wilson* ¹ , M.H Whitney ¹ , G.C. Shurson ¹ , and S.K. Baidoo ² , ¹ University of Minnesota, St. Paul, MN, ² University of Minnesota, Waseca, MN.
3:45	85	Nitrogen balance and blood urea nitrogen as response criteria to estimate protein requirement of the exercising horse. C.L. Wickens*, J. Moore, J. Shelle, C. Skelly, H.M. Clayton, and N.L. Trottier, Michigan State University, East Lansing, Michigan.
4:00	86	The Effect of Prepartum Milking on the Health and Well Being of First Calf Heifers. K. J. Daniels* ¹ , J. R. Townsend ¹ , S. S. Donkin ¹ , S. D. Eicher ² , A. G. Fahey ¹ , and M. M. Schutz ¹ , ¹ Purdue University, ² USDA-ARS.
4:15	87	Computer simulation of the economics of swine insemination scenarios. K. A. Fischer*, T. J. Safranski, and W. R. Lamberson, University of Missouri-Columbia.
4:30	88	Effects of CIDR Devices on Follicular Development and <i>In Vitro</i> Fertilization in Anestrous Ewes Treated with Melatonin and Follicle Stimulating Hormone. J.S. Luther*, D.A. Redmer, L.P. Reynolds, J.T. Choi, D. Pant, C. Navanukraw, J.D. Kirsch, R.M. Weigl, K.C. Kraft, and A.T. Grazul-Bilska, North Dakota State University.

Nonruminant Nutrition VII

Nutrition Symposium: Nutritional Immunology - Current Status and Potential for the Future

Sponsored by Alltech, Inc., Hubbard Feeds, Inc.

Chair: Merlin Lindemann, University of Kentucky, Lexington

Tuesday, 1:30 p.m. – 5:00 p.m.

Room: 204FG

Time	Abstract Number	Paper
1:30	208	INVITED Current status and review of factors involved in nutritional immunology of swine. M. E. Spurlock*, Purdue University, West Lafayette, IN.
2:10	209	INVITED Involvement of trace metals in immunocompetence. M. L. Failla*, The Ohio State University, Columbus.
2:50		Break
3:10	210	INVITED Involvement of vitamins in immunocompetence. R. W. Johnson*, University of Illinois, Champaign-Urbana.
3:50	211	INVITED Involvement of fatty acids in immunocompetence. K. L. Fritsche*, University of Missouri, Columbia.
4:30		Open Discussion

Odor and Nutrient Management II

Posters

Monday, 1:00 p.m. – Wednesday, Noon

Authors Present: Tuesday, 1:00 p.m. – 3:00 pm.

Room: Exhibit Hall, Room 206

Abstract Number	Paper
238	Effect of using a manure pit additive (Barrier™) on growth performance of grow-finish pigs and volatile organic compounds, ammonia, hydrogen sulfide, and odor emissions in an anaerobic deep pit swine confinement finishing facility. M. H. Whitney*, J. S. Knott, M. J. Spiehs, and G. C. Shurson, University of Minnesota, St. Paul, MN.
239	Mathematical evaluation of excess non-essential amino acid nitrogen and sulfur in feed ingredients used in swine diets. J.S. Knott* and G.C. Shurson, University of Minnesota.

- 240 Effects of grazing management on sediment and phosphorus in pasture runoff. M.M. Haan*¹, J.R. Russell¹, W. Powers¹, R. Schultz¹, S. Mickelson¹, and J. Kovar², ¹Iowa State University, ²National Soil Tilth Laboratory, Ames, IA.

Physiology III

Posters

Monday, 1:00 p.m. – Wednesday, noon
Authors present, Tuesday, 1:00 p.m. – 3:00 p.m.
Room: Exhibit Hall, Room 206

- | Abstract Number | Paper |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 246 | Anesthetic suppression of LH concentrations in barrows. J. A. Clapper*, South Dakota State University. |
| 247 | Increasing the holding time of boar spermatozoa at 15°C before freezing decreases fertility. H. D. Guthrie* and G.R. Welch, USDA, Beltsville Agricultural Research Center, Germplasm & Gamete Physiology Laboratory. |
| 248 | Timed artificial insemination of beef heifers using a 7-11/Co-synch protocol. A. W. Thompson*, C. D. Holladay, and D. M. Grieger, Kansas State University. |
| 249 | Comparison of long-term and short-term MGA-Select for estrus synchronization in beef cows. J.D. Arseneau* ¹ , M.C. Claeys ¹ , J.M. DeJarnette ² , and R.P. Lemenager ¹ , ¹ Purdue University, West Lafayette, IN, ² Select Sires, Inc., Plain City, OH. |
| 250 | INNOVATION IN DAIRY RESEARCH AWARD Microarray analysis of gene expression in dominant ovarian follicles (DF) from heat stress (HS) and thermoneutral (TN) heifers. S.J. Kolath* ¹ , P.M. Coussens ² , S. Sipkovsky ² , S.J. Wilson ¹ , D.E. Spiers ¹ , J.N. Spain ¹ , and M.C. Lucy ¹ , ¹ University of Missouri, ² Michigan State University. |
| 251 | Development of Pig Embryos in Culture Media Containing HEPES: Preliminary Results. J.N. Caamano* ¹ , G.M. Wu ¹ , T.C. McCauley ¹ , T.C. Cantley ¹ , A.R. Rieke ¹ , J. Mao ¹ , R. Farwell ¹ , B.A. Didion ² , C. Murphy ¹ , and B.N. Day ¹ , ¹ University of Missouri, Columbia, ² Monsanto, St. Louis, Mo. |
| 252 | Endocrine responses to short-term feed deprivation in weanling pigs. B.E. Salfen* and J.A. Carroll, Animal Physiology Research Unit, Agricultural Research Service-USDA, Columbia, Missouri. |
| 253 | A model for long term evaluation of bioavailability and activity of value added dietary components using fistulated, multiple catheterized pigs. C.F. Shipley*, M.V. Eberhardt, K.M. Clements, M.C. Black, H.Y.M. Elshire, M.E. Tumbleson, and V.L. Jarrell, University of Illinois, Urbana, Illinois. |

Physiology IV

Sheep and Swine

Chair: Todd A. Armstrong, Elanco Animal Health (a division of Eli Lilly and Company), Cary, NC

Tuesday 2:45 pm – 5:00 p.m.

Room: 136

Time	Abstract Number	Paper
2:45	254	Comparison of gravid uterine parameters in naturally bred ewes and ewes after transfer of <i>in vitro</i> produced embryos, and in single, twin and triplet pregnancies. D. Pant*, J.T. Choi, J.S. Luther, P. Borowicz, R.M. Weigl, J.D. Kirsch, K.C. Kraft, D.A. Redmer, L.P. Reynolds, and A.T. Grazul-Bilska, North Dakota State University.
3:00	255	Impact of thermal environment and spray-dried plasma on the acute phase response of pigs challenged with lipopolysaccharide (LPS). J. W. Frank* ¹ , J. A. Carroll ² , G. L. Allee ¹ , and M. E. Zannelli ³ , ¹ University of Missouri, ² Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO, ³ Simple Solutions, Attleboro, MA.
3:15	256	Immune response in <i>Escherichia coli</i> challenged pigs exhibiting a febrile response in absence of elevated TNF- α . T. A. Strauch* ¹ , J. A. Carroll ¹ , T. J. Fangman ² , C. E. Wiedmeyer ² , and A. K. Hambach ² , ¹ Animal Physiology Research Unit, ARS-USDA, Columbia MO, ² College of Veterinary Medicine, University of Missouri, Columbia, MO.
3:30	257	Factors affecting temporal characteristics of estrus and ovulation on commercial sow farms. B. A. Belstra*, W. L. Flowers, and M. T. See, North Carolina State University.
3:45		Break
4:00	258	Ovarian follicular populations before weaning in sows are dependent on FSH. C.J. Bracken*, B.L. McCormack, T.C. Cantley, R.P. Radcliff, and M.C. Lucy, University of Missouri.
4:15	259	Effect OF PG600 and Adjusted Mating Times on Reproduction Performance in Weaned Sows. S.M. Breen*, D.M. Hamilton, and R.V. Knox, University of Illinois-Urbana.
4:30	260	Evaluation of pFSH and pLH on estrus induction and ovulation in prepubertal gilts. A.L. Jackson* and R.V. Knox, University of Illinois Urbana-Champaign.
4:45	261	A polymorphism in the pig erythropoietin receptor (EPOR) gene is associated with uterine capacity. J.L. Vallet*, B.A. Freking, K.A. Leymaster, and R.K. Christenson, USDA, ARS, Roman L. Hruska U.S. Meat Animal Research Center.

Ruminant Nutrition and Forages III

Symposium: Function of and Potential Alternatives to Ruminant Feeding Practices

Sponsored by: Chr. Hansen, Inc., Elanco Animal Health, Pharmacia Animal Health

Chair: Jeff Firkins, The Ohio State University,
Columbus

Tuesday, 1:00 p.m. – 4:45 p.m.
Room: 205IJ

Time	Abstract Number	Paper
1:00		Introduction
1:10	323	INVITED Antibiotics in ruminant feeding practices. D. Hausmann*, Alpharma Animal Health.
1:55	324	INVITED Targets for feed antimicrobials. M. Apley*, Iowa State University College of Veterinary Medicine.
2:40		Break
3:00	325	INVITED Appropriate usage of antibiotics for disease control. A. Confer*, Oklahoma State University.
3:45	326	INVITED Modeling alternative strategies to stabilize host response in subclinical disease. T.H. Elsasser*, USDA, ARS Growth Biology Laboratory.
4:30		Round-table discussion

Ruminant Nutrition and Forages IV

Forage Systems and Concentrate Supplementation

Chair: K.C. Olson, University of Missouri, Columbia

Tuesday, 1:00 p.m. – 5:00 p.m.
Room: 144/146

Time	Abstract Number	Paper
1:00	327	Comparison of two heifers development systems on a commercial ranch. T. W. Loy* ¹ , D. C. Adams ¹ , T. J. Klopfenstein ¹ , J. A. Musgrave ¹ , and B. Teichert ² , ¹ University of Nebraska, Lincoln, ² Rex Ranch, Ashby, Nebraska.

1:15	328	Effects of fat supplementation on heat-stressed lactating beef cows grazing endophyte-infested fescue. E Myers*, E Vanzant, L Anderson, R Burris, B Hightshoe, J Johns, and K Schillo, University of Kentucky.
1:30	329	Effect of increasing level of soybean hulls on intake and utilization of endophyte-infested tall fescue hay by beef steers. L. van Rensburg*, E.S. Vanzant, J.A. Benson, C.L. Adkins, and K.A. Beighle ¹ , University of Kentucky, Lexington.
1:45	330	Restricting time of access to large round bales of hay on cow performance, hay waste, manure production, and manure nutrients. T. C. Cunningham*, D. B. Faulkner, A. J. Miller, and J. M. Dahlquist, University of Illinois at Urbana-Champaign.
2:00	331	Restricted feeding of ground hay on cow performance, manure production, and manure nutrients. T. C. Cunningham*, D. B. Faulkner, A. J. Miller, and J. M. Dahlquist, University of Illinois at Urbana-Champaign.
2:15	332	Effects of program-fed corn/hay diets on performance, lactation and manure production. A.J. Miller* ¹ , D.B. Faulkner ¹ , and K.E. Tjardes ² , ¹ University of Illinois at Urbana-Champaign, ² South Dakota State University, Brookings.
2:30	333	Mineral content of forages grown on poultry litter-amended soils. B. C. McGinley* ¹ , K. P. Coffey ¹ , J. B. Humphry ¹ , T. J. Sauer ² , H. L. Goodwin ¹ , W. K. Coblenz ¹ , and L. J. McBeth ¹ , ¹ University of Arkansas, Fayetteville, AR, ² USDA National Soil Tilth Lab, Ames, IA.
2:45	334	Effect of harvest date and fertilization rate on nitrogen degradation of bermudagrass. B. C. McGinley*, K. P. Coffey, W. K. Coblenz, N. W. Galdamez-Cabrera, and J. E. Turner, University of Arkansas, Fayetteville.
3:00		Break
3:15	335	Utilization of genetically enhanced corn residue for grazing. C. B. Wilson* ¹ , C. N. Macken ¹ , G. E. Erickson ¹ , T. J. Klopfenstein ¹ , and E. Stanisiewski ² , ¹ University of Nebraska, Lincoln, ² Monsanto Company, St. Louis, MO.
3:30	336	Supplement type and frequency on intake and performance, and energy value of dry distillers grains in a high-forage diet. T. W. Loy*, T. J. Klopfenstein, G. E. Erickson, and C. N. Macken, University of Nebraska, Lincoln.
3:45	337	Estimation of rumen undegradable protein in forages using neutral detergent insoluble nitrogen at a single in situ incubation time point. H. Haugen*, M. Lamothe, T.J. Klopfenstein, and M. Ullerich, University of Nebraska-Lincoln.
4:00	338	Effects of roughage source and particle size on feedlot performance and subsequent carcass characteristics of finishing heifers. C.E. Markham*, C.R. Krehbiel, D.R. Gill, R.E. Peterson, and H.A. DePra, Oklahoma State University.
4:15	339	Effect of limit-feeding on performance, carcass merit, and digestion by finishing steers. M. L. Linville*, K. C. Olson, C. A. Stahl, D. L. McNamara, T. B. Schmidt, G. R. Rentfrow, E. L. McFadin, D. K. Davis, and E. P. Berg, University of Missouri, Columbia.
4:30	340	Comparative value of full-fat corn germ, whole cottonseed, and tallow as energy sources for lactating dairy cattle. W. F. Miller*, J. E. Shirley, E. T. Titgemeyer, M. J. Brouk, and M. V. Scheffel, Kansas State University.
4:45	341	The effect of varying amount of fat supplementation on the performance of lactating dairy cows. A. Naserian*, M. Matin, and R. Valizadeh, Ferdowsi University of Mashhad, IRAN.

Teaching III

Posters

Monday, 1:00 p.m. – Wednesday, Noon
Authors present, Tuesday, 1:00 p.m. – 3:00 p.m.
Room: Exhibit Hall, Room 206

Abstract Number

Paper

353 Integrating practical elements into a theoretical applied animal behavior course for Animal Science undergraduates. K Laughlin* and A.J. Zanella, Michigan State University.

Breeding and Genetics IV

Chair: Yang Da, University of Minnesota, St. Paul

Wednesday, 9:00 a.m. – 11:00 a.m.
Room: 205D

Time	Abstract Number	Paper
9:00	29	Nonparametric analysis of the effects of inbreeding on production traits and somatic cell score in US Jerseys. D. Gulisija*, D. Gianola, and K. A. Weigel, University of Wisconsin, Madison.
9:15	30	Analysis of the relationship between linear type traits, inbreeding, and survival in US Holstein cattle. D. Caraviello*, K. Weigel, and D. Gianola, University of Wisconsin – Madison.
9:30	31	Estimate of heritability and genetic change for survival of Hereford cows. G. E. Martinez* ¹ , R. M. Koch ¹ , L. V. Cundiff ² , K. E. Gregory ² , S. D. Kachman ¹ , and L. D. Van Vleck ^{2,3} , ¹ University of Nebraska, Lincoln, NE, ^{2,3} USDA, ARS, USMARC, ² Clay Center, NE, ³ Lincoln, NE.
9:45	32	Birth and weaning traits of topcross progeny of Hereford, Angus, Brangus, Beefmaster, Bonsmara, and Romosinuano sires. L. V. Cundiff*, USDA, ARS, U.S. Meat Animal Research Center.
10:00	33	Evaluation of predicted milk yield and weaning weight in Polled Hereford, Angus, Brangus, Gelbvieh, Limousin, Salers, and Simmental Breeds of beef cattle. J. P. Cassady*, C. H. Brown, and O. W. Robison, North Carolina State University, Raleigh.
10:15	34	Germplasm evaluation in beef cattle: Cycle IV: Post weaning growth and feed efficiency. G. D. Snowder* ¹ , L. V. Cundiff ¹ , R. M. Koch ² , and K. E. Gregory ¹ , ¹ USDA, ARS, USMARC, Clay Center, NE, ² University of Nebraska, Lincoln.

10:30	35	Validation of a genetic algorithm for identification of livestock for germplasm preservation. L. L. Melton* ¹ , P. J. Lamberson ² , R. A. Brenneman ³ , C. C. Chase, Jr ⁴ , and W. R. Lamberson ¹ , ¹ University of Missouri-Columbia, ² Columbia University, New York, ³ Omaha's Henry Doorly Zoo, ⁴ USDA, ARS, Sub Tropical Agricultural Research Station (STARS), Brooksville, FL.
10:45	36	Accuracy of detecting quantitative trait loci by selective DNA pooling. J. Wang* ¹ , J. Fulton ² , and J. Dekkers ¹ , ¹ Iowa State University, Ames, ² Hy-Line International, Dallas Center, IA.

Extension V

Dairy Research Update

Chair: Dave Fischer, University of Illinois, Edwardsville

Wednesday, 9:00 a.m. – 10:30 a.m.

Room: 134

Time	Abstract Number	Paper
9:00	66	INVITED Dietary supplemental b-vitamins for lactating dairy cows. R. D. Shaver* and E. C. Schwab, Univ. of Wisconsin, Madison.
9:30	67	INVITED Formulating dairy rations for concentrations of fat versus fatty acids. M. L. Eastridge* and C. V. Ribeiro, The Ohio State University, Columbus.
10:00	68	INVITED Field applications of manure evaluation. M.F. Hutjens* ¹ , ¹ University of Illinois, Urbana.

Growth, Development, Muscle Biology, and Meat Science V

Growth and Development

Chair: Henry Zerby, The Ohio State University, Columbus

Wednesday, 9:00 a.m. – 10:30 a.m.

Room: 204C

Time	Abstract Number	Paper
9:00	118	Effect of flax supplementation and growth promotants on steady-state lipoprotein lipase and glycogenin mRNA concentrations in finishing cattle. A. T. Waylan*, J. P. Kayser, J. D. Dunn, E. K. Sissom, and B. J. Johnson, Kansas State University, Manhattan.

9:15	119	Evaluation of dexamethasone injection on preweaning growth performance of neonatal pigs under commercial conditions. A.M. Gaines* ¹ , J.A. Carroll ² , G.L. Allee ¹ , J. Connor ³ , and D.C. Kendall, ¹ University of Missouri-Columbia, ² Animal Physiology Research Unit, ARS-USDA, ³ Carthage Veterinary Service.
9:30	120	Effects of acute enteric disease challenge on the insulin-like growth factor system in nursery pigs. J. P. Kayser*, J. D. Dunn, A. T. Waylan, S. S. Dritz, J. C. Nietfeld, J. E. Minton, and B. J. Johnson, Kansas State University, Manhattan.
9:45	121	Effect of conjugated linoleic acid on DNA fragmentation of preadipocytes in culture. K.M. Hargrave* and J.L. Miner, University of Nebraska.
10:00	122	Fibroblast growth factor receptor 1 mediates disuse atrophy in gastrocnemius and soleus muscles of mice. J.K. Eash*, A. Olsen, A.L. Grant, D.E. Gerrard, and K.M. Hannon, Purdue University, West Lafayette, IN.
10:15	123	Regulation of Ankyrin Repeat and SOCS Box Protein (ASB) 15 mRNA Expression in Models of Skeletal Muscle Development. T.G. McDanel* ¹ and D.E. Moody ¹ , ¹ Purdue University, ¹ Purdue University.

Nonruminant Nutrition VIII

Energy

Chairs: Patrick O'Quinn, Prestage Farms, Inc., Clinton, NC; and Lee Johnston, University of Minnesota, Morris

Wednesday, 9:00 a.m. – 11:45 a.m.

Room: 204FG

Time	Abstract Number	Paper
9:00	212	Effect of dietary bilobalide on mitochondrial bioenergetics and body growth in rats. T. R. Lutz* and T. S. Stahly, Iowa State University, Ames.
9:15	213	Dietary fat sources for weanling pigs. R. Sulabo* and H. H. Stein, South Dakota State University, Brookings.
9:30	214	Effects of fat encapsulation and pelleting on weanling pig performance and nutrient digestibility. J. J. Xing ^{1,2} , E. van Heugten ¹ , D. F. Li ² , K. J. Touchette ³ , J. A. Coalson ³ , and J. Odle* ¹ , ¹ North Carolina State University, Raleigh, ² China Agriculture University, Beijing, ³ Merrick's, Inc., Union Center, WI.
9:45	215	Growth performance of nursery pigs fed diets containing increasing levels of corn distiller's dried grains with solubles. M. H. Whitney* and G. C. Shurson, University of Minnesota, St. Paul.
10:00	216	Feed intake and energy digestibility among wheat classes fed to weaned pigs. R.T. Zijlstra* ¹ , D. Overend ² , D. R. Hickling ³ , P. H. Simmins ⁴ , and J. F. Patience ¹ , ¹ Prairie Swine Centre Inc., Saskatoon, SK, ² Ridley Inc., Mankato, MN, ³ Canadian International Grains Institute, Winnipeg, MB, ⁴ Danisco Animal Nutrition, Marlborough, UK.
10:15		Break

10:30	217	Particle size, mill type, and added soy oil influence flowability of ground corn. C. N. Groesbeck*, R. D. Goodband, S.S. Dritz, M. D. Tokach, J. L. Nelssen, and C. W. Hastad, Kansas State University, Manhattan.
10:45	218	Evaluation of dehulled, degermed corn for swine. D. C. Kendall* ¹ , A. M. Gaines ¹ , J. W. Frank ¹ , G. L. Allee ¹ , M. Bertram ² , and T. E. Sauber ³ , ¹ University of Missouri, Columbia, ² Pork Technologies, LLC, Ames, IA, ³ Pioneer-Dupont, West Des Moines, IA.
11:00	219	Comparison of grain sources (barley, white corn, and yellow corn) for swine diets and effects on performance and carcass traits. J. F. Lampe*, T. J. Baas, and J. W. Mabry, Iowa State University, Ames.
11:15	220	Comparison of Grain Sources (Barley, White Corn, and Yellow Corn) for Swine Diets and Their Effect on Meat and Eating Quality Traits. J.F. Lampe*, T.J. Baas, and J.W. Mabry, Iowa State University.
11:30	221	Effects of a white versus yellow corn variety on growth performance and carcass characteristics of growing-finishing pigs. R. W. Fent* ¹ , G. L. Allee ¹ , S. N. Carr ² , F. K. McKeith ² , G. F. Hartnell ³ , and P. D. Matzat ³ , ¹ University of Missouri, Columbia, ² University of Illinois, Urbana-Champaign, ³ Monsanto Company, St. Louis, MO.

Nonruminant Nutrition IX

Minerals and Vitamins

Chairs: Robert Musser, Hubbard Feeds, Inc., Mankato, MN; and Gretchen Hill, Michigan State University, East Lansing

Wednesday, 9:00 a.m. – 11:30 a.m.

Room: 204AB

Time	Abstract Number	Paper
9:00	222	Virginiamycin influences mineral digestibility of pigs. J. H. Agudelo* ¹ , M. D. Lindemann ¹ , G. L. Cromwell ¹ , and R. D. Nimmo ² , ¹ University of Kentucky, Lexington, ² Phibro Animal Health, Fairfield, NJ.
9:15	223	Effects of lowering dietary trace mineral (Fe, Zn and Cu) concentrations on trace mineral retention and excretion by young pigs fed diets containing low-phytic acid barley. T. L. Veum ¹ , D. W. Bollinger ¹ , M. S. Carlson* ¹ , D. R. Ledoux ¹ , and V. Raboy ² , ¹ University of Missouri, Columbia, ² USDA-ARS National Small Grains Germplasm Research Facility, Aberdeen, ID.
9:30	224	The effect of increasing dietary zinc concentration in phase 2 and 3 nursery diets on the growth performance of weanling pigs. C. R. Dove*, University of Georgia, Tifton.
9:45	225	Effect of phytase on tissue trace mineral concentrations, growth performance, plasma metabolites, carcass traits, and pork quality in growing-finishing pigs. J. L. Shelton*, F. M. LeMieux, L. L. Southern, and T. D. Bidner, Louisiana State University Agricultural Center, Baton Rouge.
10:00	226	Pharmacological zinc and phytase enhance renal and intestinal mucosa cell metallothionein protein and relative mRNA abundance in the nursery pig. M. M.

Martínez*, G. M. Hill, J. E. Link, N. E. Raney, and C. W. Ernst, Michigan State University, East Lansing, MI.

- 10:15 Break
- 10:30 227 Body mineral composition of gilts and barrows from two genotypes of pigs from 18 to 127 kg body weight. T. G. Wiseman*, D. C. Mahan, J. C. Peters, N. D. Fastinger, S. Ching, and Y. Y. Kim, The Ohio State University, Columbus.
- 10:45 228 Evaluation of selenium yeast (Sel-Plex™) as a selenium source in diets for 6 to 20 kg pigs. J. D. Hahn*¹, G. D. Dial², E. L. Hansen¹, S. A. Hansen¹, J. D. Hedges¹, B. V. Lawrence¹, and R. E. Musser¹, ¹Hubbard Feeds, Inc., Mankato, MN, ²New Fashion Pork, Jackson, MN.
- 11:00 229 Use of a natural carbon-mineral supplement in swine diets: effects on pig growth and carcass characteristics. S. W. Kim¹, F. Ji*¹, R.A.M. Schmitt², and J. J. McGlone¹, ¹Texas Tech University, Lubbock, ²Seaboard Farms, Inc.
- 11:15 230 Effects of vitamin C supplementation on plasma ascorbic acid and oxalate concentrations and meat quality in swine. S. J. Pion*, E. van Heugten, and M. T. See, North Carolina State University, Raleigh.

Physiology V

Beef and Dairy Cattle

Sponsored by: ABS Global

Chair: Andrea S. Cupp, University of Nebraska, Lincoln

Wednesday, 9:00 a.m. - 11:30 a.m.

Room: 136

Time	Abstract Number	Paper
9:00	262	Are ovariectomized heifers an appropriate model to study the fundamental nature of the estrus event in cattle? C.R. Burke* ^{1,2} , M.L. Mussard ¹ , and M.L. Day ¹ , ¹ The Ohio State University, Columbus, OH, ² Dexcel Research Ltd, Hamilton, New Zealand.
9:15	263	Recombinant leptin prevents fasting-mediated reductions in pulsatile LH release and stimulates GH secretion in peripubertal heifers. M. Maciel ^{1,2,3} , D. Zieba ^{2,3} , M. Amstalden ^{2,3} , D. Keisler ⁴ , J. Neves ¹ , and G. Williams* ^{2,3} , ¹ Federal University of Santa Maria, Santa Maria, Brazil, ² Texas A&M University Agricultural Research Station, Beeville, TX, ³ Texas A&M University, College Station, TX, ⁴ University of Missouri, Columbia, MO.
9:30	264	Effects of chronic administration of recombinant leptin on LH secretion, metabolic hormones, and timing of puberty in growing beef heifers. M. Maciel ^{1,2,3} , D. Zieba ^{2,3} , M. Amstalden ^{2,3} , D. Keisler ⁴ , J. Neves ¹ , and G. Williams* ^{2,3} , ¹ Federal University of Santa Maria, Santa Maria, Brazil, ² Texas A&M University Agricultural Research Station, Beeville, TX, ³ Texas A&M University, College Station, TX, ⁴ University of Missouri, Columbia, MO.

9:45	265	Effects of fat supplementation on reproductive parameters of beef heifers fed endophyte- infected fescue seed. J. D. Rhinehart*, E. S. Vanzant, J. D. Bailey, A. M. Arnett, E. Myers, K. K. Schillo, and L. H. Anderson, University of Kentucky.
10:00	266	Effects of temperature-humidity index on pregnancy rate in beef cattle. J. L. Amundson*, T. L. Mader, and R. J. Rasby, University of Nebraska-Lincoln.
10:15		Break
10:30	267	Pregnancy status of beef heifers immunized against luteinizing hormone and luteinizing hormone-releasing hormone. C. D. Holladay*, A. W. Thompson, D.R. Eborn, and D.M. Grieger, Kansas State University.
10:45	268	A timed artificial insemination (TAI) protocol for synchronizing two inseminations within a 32-d period in dairy cows and heifers. J. P. Meyer*, S. J. Kolath, R. P. Radcliff, M. L. Rhoads, B. L. McCormack, and M. C. Lucy, University of Missouri-Columbia.
11:00	269	Season of calving and parity's effects on milk production and reproductive factors in Holstein dairy cattle. B. Saremi*, R. Tahmasbi, and A. Naserian, Ferdowsi University of Mashhad, Iran.
11:15	270	Effects of serotonin agonist on the plasma concentrations of growth hormone, thyroid hormones and milk compositions and production in Holstein dairy cows. R. N. Eslami* and H. Khazali, Agricultural College of Tarbiat Modarres University, Tehran-Iran.

Ruminant Nutrition and Forages V

Feedlot Nutrition

Chair: Jeff Carter, Nestle Purina PetCare, St. Louis, MO

Wednesday, 9:00 a.m. – 11:15 a.m.

Room: 205IJ

Time	Abstract Number	Paper
9:00	342	Wet corn gluten feed and alfalfa hay levels in dry-rolled corn finishing diets. T. B. Farran* ¹ , G. E. Erickson ¹ , T. J. Klopfenstein ¹ , C. N. Macken ¹ , and R. U. Lindquist ² , ¹ University of Nebraska-Lincoln, ² Archer Daniels Midland Company.
9:15	343	Effects of level and composition of wet corn gluten feed in steam-flaked corn based finishing diets. C.N. Macken* ¹ , G.E. Erickson ¹ , T.J. Klopfenstein ¹ , R.A. Stock ² , and R.J. Cooper ² , ¹ University of Nebraska, Lincoln, ² Cargill Inc., Blair, NE.
9:30	344	Corn processing method and crude protein level in finishing diets containing wet corn gluten feed. C.N. Macken* ¹ , G.E. Erickson ¹ , T.J. Klopfenstein ¹ , and R.A. Stock ² , ¹ University of Nebraska, Lincoln, ² Cargill Inc., Blair, NE.
9:45	345	Effects of starch endosperm type and corn processing method on feedlot performance and nutrient digestibility of high-grain diets. C.N. Macken* ¹ , G.E. Erickson ¹ , C.T. Milton ¹ , T.J. Klopfenstein ¹ , H.C. Block ¹ , and J.F. Beck ² , ¹ University of Nebraska, Lincoln, NE, ² Syngenta Seeds, Golden Valley, MN.
10:00		Break

- 10:15 346 Effect of wet distillers grains plus solubles and corn oil level on finishing heifer performance. K. J. Vander Pol*, G. E. Erickson, T. J. Klopfenstein, and C. N. Macken, University of Nebraska-Lincoln, Lincoln.
- 10:30 347 Seasonal effects of growth promotants on blood metabolites in feedlot heifers. W. M. Kreikemeier*¹ and T. L. Mader¹, ¹University of Nebraska, Lincoln.
- 10:45 348 Evaluation of initial implants on performance and carcass quality in feedlot heifers. T. B. Farran*¹, G. E. Erickson¹, T. J. Klopfenstein¹, G. Sides², B. Dicke³, and J. S. Drouillard⁴, ¹University of Nebraska-Lincoln, ²Intervet, Inc., ³Cattlemen's Consulting, ⁴Kansas State University.
- 11:00 349 Relationships of chute-side measurements to carcass measurements. J.C. MacDonald*, T.J. Klopfenstein, G.E. Erickson, C.N. Macken, and J.D. Folmer, University of Nebraska – Lincoln.

Committee Assignments 2002-2003

Program Committees

Animal Behavior, Housing, & Well-Being

Mike Ellis, Chair
Susan Eicher-Pruiett
Jeanne Burton

Breeding & Genetics

Cathy Ernst, Chair
Jack Dekkers
Yang Da

Extension

Dan Faulkner, Chair
Bob Thaler
Mike Hutjens

Growth, Development, Muscle Biology, and Meat Science

Steven Lonergan, Chair
Fred Pohlman
Henry Zerby

Nonruminant Nutrition

Terry Ward, Chair
Merlin Lindemann
Brad Lawrence

Odor and Nutrient Management

Steve Moeller, Chair
Bob Kraeling
Wendy Powers

Physiology

Jeff Vallet, Chair
Andrea Cupp
Todd Armstrong

Ruminant Nutrition & Forages

Jeff Firkins, Chair
Arnold Hippen
Jeff Carter

Teaching

Don Marshall, Chair

Karol Fike

Curtis Youngs

Award Committees

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Leo Timms, Chair

John Smith

Tim Johnson

Bob Thaler

Michael Brouk

Todd See

Research Award

David Combs, Chair

Mike White

David Weakley

Matthew Lucy

Chris Tuggle

Mark Morrison

Teaching Award

Jerry Shurson, Chair

Keith Irvin

Matthew Doumit

Steve Lonergan

Dennis Brink

Wes Osburn

Agribusiness Award

Aubrey Schroeder

Deanna Hancock

Dale Rozeboom

Mike Day

Roger Johnson

Catherine Davis

National Pork Board Swine Innovation Award

Rodger Johnson, Chair

Jack Dekkers

Joe Ford

Gary Allee

Don Levis

Lee Johnston

Innovation in Dairy Research Award

Jim Quigley, Chair

Louis Sheffield
Jim Drackley
Jim Linn
Cindy Luhman
Mike Schutz

Special Committees

ASAS Nominations

Rodger Johnson, Chair
Michael Day
James Males

ADSA Nominations

Jim Quigley, Chair
Maurice Eastridge
Rick Grant

Student Career and Placement

David Fischer
Aubrey Schroeder
Dan Faulkner

Academic Quadrathlon

Jess Miner, Chair
Elizabeth Huff-Lonergan
Leo Timms
Eric Berg
James Reecy
Brian Wiegand
Karol Fike
Anthony Seykora
Gary Onan

Competitive Research Paper Committees

Graduate Student

Wes Osburn
Ron Bates
Diane Moody
Paul Ludden
Sam Baidoo
Neil Paton
Denise Beaulieu
Gary Rohrer

Undergraduate Student

Marc Bauer

Thomas Socha

Tony Jilek

Paul Walker

Brad Freking

Jodi Sterle

Kenneth Kalscheur

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

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. Koochmaraie, 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

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

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

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

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*

- 2002 J. H. Hampton, University of Missouri**
 K. M. Hargrave, University of Nebraska*
 M. J. Hersom, Oklahoma 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, Illinois
- 1964-65 R. H. Grummer, Wisconsin
- 1966-67 G. R. Johnson, Ohio State
- 1968 R. J. Meade, Minnesota
- 1969 J. A. Hoefler, Michigan State
- 1970-71 W. E. Dinusson, North Dakota State
- 1972 J. F. Lasley, Missouri
- 1973 U. S. Garrigus, Illinois
- 1974-75 V. C. Speer, Iowa State
- 1976 H. S. Teague, Ohio State
- 1977 R. M. Luther, South Dakota State
- 1978 B. N. Day, Missouri
- 1979-80 D. R. Zimmerman, Nebraska
- 1981 A. L. Pope, Wisconsin
- 1982 R. D. Goodrich, Minnesota
- 1983 E. R. Miller, Michigan State
- 1984 W. R. Woods, Purdue
- 1985 L. R. Corah, Kansas State
- 1986 B. D. Moser, Missouri
- 1987 S. E. Curtis, Illinois
- 1988 R. G. Zimelman, Upjohn; D. J. Meisinger, Indiana
- 1989 T. J. Klopfenstein, Nebraska

- 1990 J. R. Romans, South Dakota State
- 1991 J. E. Pettigrew, Minnesota
- 1992 C. E. Sasse, Cenex/Land O'Lakes
- 1993 M. G. Hogberg, Michigan State
- 1994 G. L. Allee, 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
- 1998 R. P. Lemenager, Purdue
- 1999 S. P. Ford, Iowa State
- 2000 J. R. Males, Oregon State
- 2001 M. L. Day, The Ohio State University
- 2002 R. K. Johnson, University of Nebraska

ADSA MIDWEST BRANCH PRESIDENTS

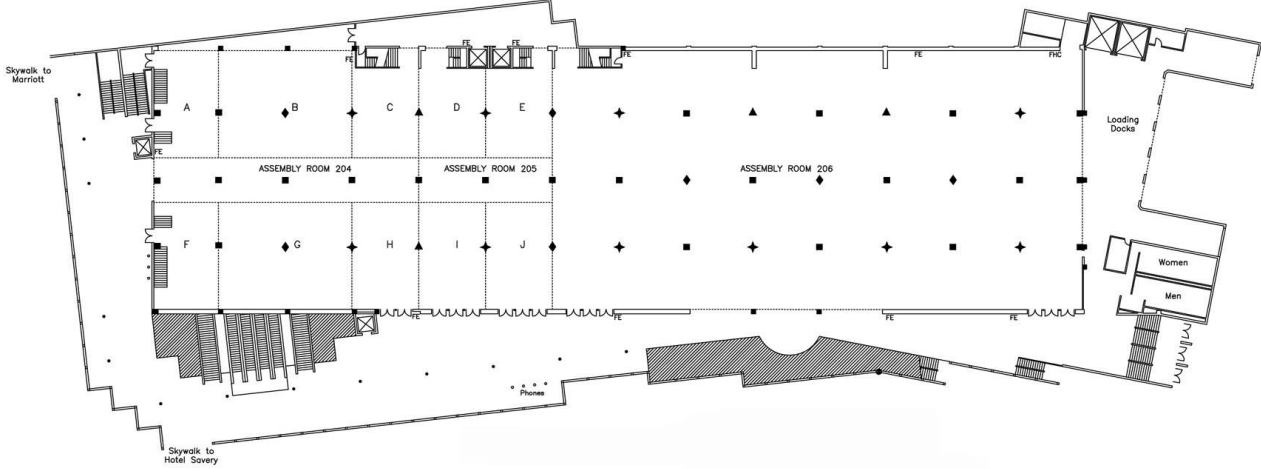
- 1992 J. F. Keown, Nebraska
- 1993 J. G. Linn, Minnesota
- 1994 D. J. Schingoethe, South Dakota
- 1995 J. L. Morrill, Kansas
- 1996 M. F. Hutjens, Illinois
- 1997 M. A. Faust, Iowa State
- 1998 J. K. Drackley, Illinois
- 1999 R. D. Shaver, Wisconsin
- 2000 R. J. Grant, Nebraska
- 2001 M. L. Eastridge,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

FUTURE MEETINGS

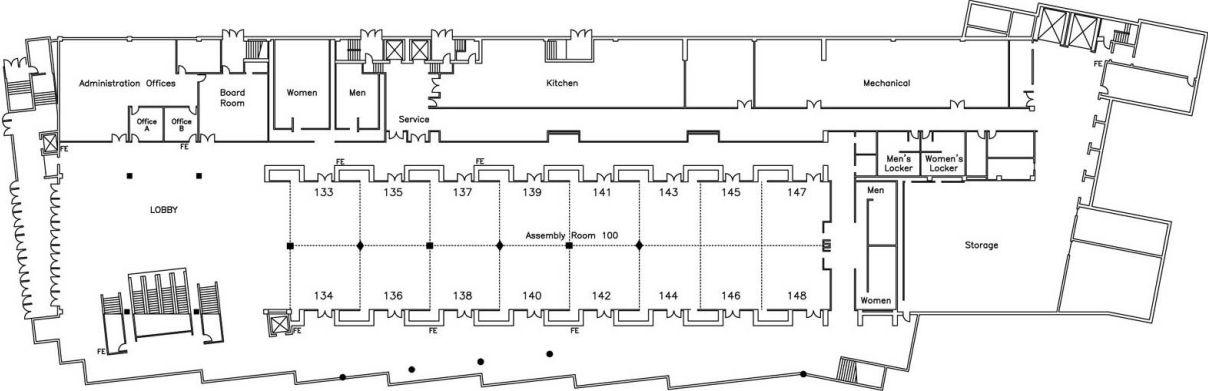
- 2004 March 15–17
- 2005 March 21–23
- 2006 March 20–22

POLK COUNTY CONVENTION COMPLEX

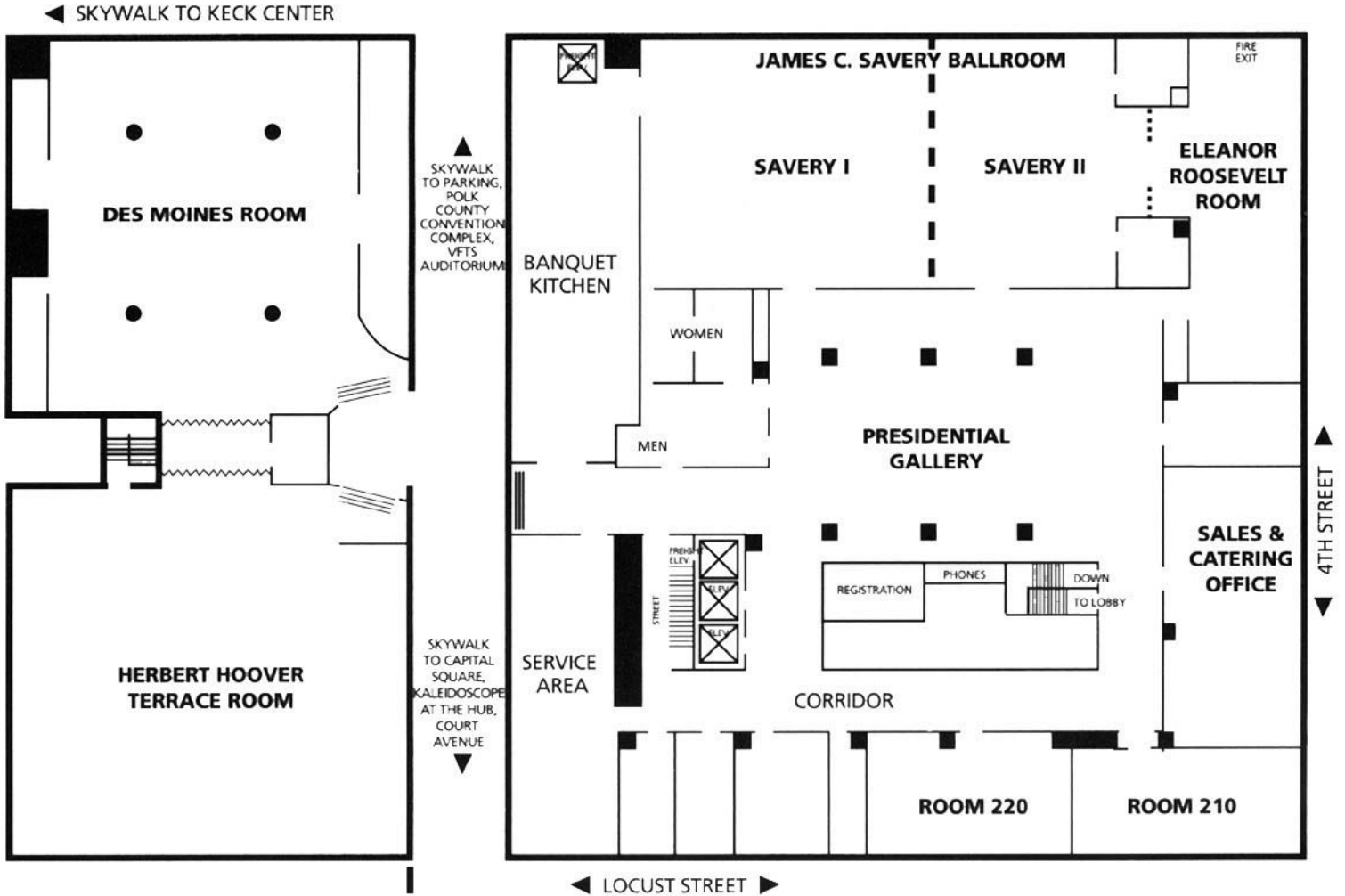
Upper Level



Lower Level



THE SAVERY HOTEL



Room Assignments

ACTIVITY	Room
Monday p.m.	
Animal Behavior, Housing and Well Being I and Growth, Development, Muscle Biology and Meat Science I	136/138
Nonruminant Nutrition I	204FG
Nonruminant Nutrition II	204C
Nonruminant Nutrition III	204AB
Nonruminant Nutrition IV	Exhibit Hall, Room 206
Physiology I	144/146
Undergraduate Student Competitive Research Papers	205IJ
Tuesday a.m.	
Breeding and Genetics I	205D
Breeding and Genetics II	Exhibit Hall, Room 206
Extension I	142
Extension II	134
Graduate Student Competitive Research Papers – Ph.D. Division	204C
Growth, Development, Muscle Biology, and Meat Science II	204C
Growth, Development, Muscle Biology, and Meat Science III	Exhibit Hall, Room 206
Nonruminant Nutrition V	204FG
Nonruminant Nutrition VI	204AB
Odor and Nutrient Management I	138
Physiology II	136
Ruminant Nutrition and Forages I	205IJ
Ruminant Nutrition and Forages II	Exhibit Hall, Room 206
Teaching I	140
Teaching II	140
Tuesday p.m.	
Animal Behavior, Housing, and Well-Being II	Exhibit Hall, Room 206
Breeding and Genetics III and Growth, Development, Muscle Biology and Meat Science IV	204AB
Congressional Insights Workshop	144
Extension III	Exhibit Hall, Room 206
Extension IV	134

Graduate Student Competitive Research Papers – M.S. Division	204C
Nonruminant Nutrition VII	204FG
Physiology III	Exhibit Hall, Room 206
Physiology IV	136
Ruminant Nutrition and Forages III	205IJ
Ruminant Nutrition and Forages IV	144/146
Teaching III	Exhibit Hall, Room 206

Wednesday a.m.

Breeding and Genetics IV	144/146
Extension V	134
Growth, Development, Muscle Biology, and Meat Science V	204C
Nonruminant Nutrition VIII	204FG
Nonruminant Nutrition IX	204AB
Physiology V	136
Ruminant Nutrition and Forages V	205IJ