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TABLE OF CONTENTS
2000–2001 Officers of ASAS and ASAS Midwestern Section
2000–2001 Officers of ADSA and ADSA Midwest Branch
Scientific Session Program
2000–2001 Committees
Past Recipients of Awards for Young Animal Science Leaders
Past Winners of Invitational Competitive Research Paper Awards
Past Midwestern Section Presidents
Future Meeting Dates
Floor Plans
Room Assignments

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
Convention Center, Lobby
Monday, March 19, 7:30 a.m. – 8:00 p.m.
Tuesday, March 20, 7:00 a.m. – 4:00 p.m.
Wednesday, March 21, 9:00 a.m. – 12:00 noon

<table>
<thead>
<tr>
<th>Before March 1</th>
<th>After March 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADSA/ASAS Members</td>
<td>$100</td>
</tr>
<tr>
<td>Undergraduate Students</td>
<td>$10</td>
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<tr>
<td>Graduate Students</td>
<td>**$20</td>
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<tr>
<td>Post Doctoral Fellow</td>
<td>$20</td>
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<tr>
<td>ASAS Fellows</td>
<td>$0</td>
</tr>
<tr>
<td>Nonmember</td>
<td>*$210</td>
</tr>
</tbody>
</table>

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

Cancellation Policy: To be eligible for a 90% refund of meeting registration fees, requests must be received in writing before March 1, 2001. No refunds will be issued on ticketed events.

BOARD OF DIRECTORS MEETING
Monday, March 19, 8:00 a.m. – 12:00 noon
ASAS and ADSA, Savery Hotel, Room 210
SCHEDULE OF EVENTS

Monday, March 19

9:00 a.m. Special Livestock Symposium: Contemporary Issues Facing US Livestock Industries
         See Page 12

1:00 p.m. Teaching See Page 18

1:00 p.m. Nonruminant Nutrition I See Page 13

1:00 p.m. Nonruminant Nutrition III Poster Session (Authors Present 2:00 p.m. - 4:00 p.m.)
         See Page 15

2:00 p.m. Nonruminant Nutrition II See Page 14

3:30 p.m. Undergraduate Student Competitive Research Papers See Page 19

6:00 p.m. Reception Courtesy of Kemin Industries, Inc., Des Moines, IA, Room 134 Convention Center

8:00 p.m. Academic Quadrathlon, Quiz Bowl Competition, Room 144 Convention Center
         Results of the Academic Quadrathlon will be announced following the Quiz Bowl Competition

Tuesday, March 20

6:45 a.m. Extension Breakfast, Grand A, Savery Hotel See Page 23

6:45 a.m. Program Chairs Breakfast, Room 210, Savery Hotel

8:00 a.m. Symposium: Livestock Cognition: Implications On Production and Well-Being, Animal Behavior and Well-Being I See Page 20

8:00 a.m. Breeding and Genetics III Poster Session (Authors Present 1:00 p.m. – 3:00 p.m.) See Page 42

8:00 a.m. Extension I See Page 23

8:00 a.m. Graduate Student Competitive Research Papers M.S. Division See Page 25

8:00 a.m. Growth, Development, Muscle Biology, and Meat Science III (Authors Present 3:00 p.m. – 5:00 p.m.) Poster Session
         See Page 47

8:00 a.m. Nonruminant Nutrition IV See Page 27
8:00 a.m.  Nonruminant Nutrition V See Page 29
8:00 a.m.  Physiology I See Page 32
8:00 a.m.  Ruminant Nutrition and Forages I Poster Session (Authors Present even boards 8:00 a.m. – 10:00 a.m., odd boards 10:00 - Noon) See Page 35
8:00 a.m.  Ruminant Nutrition and Forages II See Page 38
8:30 a.m.  Breeding and Genetics I See Page 22
9:00 a.m.  Refreshments Courtesy of DuPont Specialty Grains
9:30 a.m.  Growth, Development, Muscle Biology, and Meat Science I See Page 26
9:45 a.m.  Odor and Nutrient Management I
          See Page 31
10:00 a.m. Extension II See Page 24
10:15 a.m. Animal Behavior and Well-Being II See Page 21
10:30 a.m. Physiology II See Page 34
11:30 a.m. Lunch 11:30 a.m. – 1:30 p.m., Exhibit Hall, Room 206 Convention Center
          Major Contributor – Fort Dodge Animal Health
          A box lunch will be served in the Exhibit Hall for those individuals who ordered and paid
          for it on the registration form (You will have a ticket in your registration packet). 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.
1:00 p.m.  Animal Behavior, Housing, and Well-Being III See Page 40
1:00 p.m.  Breeding and Genetics II See Page 41
1:00 p.m.  Extension III See Page 43
1:00 p.m.  Symposium: Beta-Agonists in Food Animals, Growth, Development, Muscle Biology,
           and Meat Science II See Page 46
1:00 p.m.  Nonruminant Nutrition VI See Page 48
1:00 p.m.  Nonruminant Nutrition VII See Page 50
1:00 p.m. Symposium: Some Possible Ways To Increase Litter Size In Swine, Physiology III See Page 51

1:00 p.m. Symposium: Soy in Ruminant Nutrition, Ruminant Nutrition and Forages III See Page 52

2:00 p.m. Refreshments Courtesy of DuPont Specialty Grains

2:30 p.m. Symposium: Weaning Management Systems for Improving Beef Quality, Extension IV See Page 44

2:30 p.m. Graduate Student Competitive Research Papers Ph.D. Division See Page 45

3:15 p.m. Ruminant Nutrition and Forages IV See Page 53

3:15 p.m. Ruminant Nutrition and Forages V See Page 54

5:00 p.m. Reception Courtesy of IMC, Exhibit Hall, Room 206, Convention Center

Wednesday, March 21

6:45 a.m. ASAS/ADSA Breakfast, Awards Program and Business Meeting, Courtesy of Diamond V Mills, Inc., Cargill Animal Nutrition Division, Vetlife, Milk Products, Inc., Room 134, Convention Center

9:00 a.m. Refreshments Courtesy of DuPont Specialty Grains

9:00 a.m. Symposium: Companion Animal Biology as A Focal Point in the Animal Sciences, Companion Animal Biology See Page 56

9:00 a.m. Extension V Poster Session (Authors present 9:00 a.m. – 11:00 a.m.) See Page 57

9:00 a.m. Symposium: Practical Regulation of Dairy Heifer Growth, Extension VI See Page 58

9:00 a.m. Growth, Development, Muscle Biology, and Meat Science IV See Page 59

9:00 a.m. Symposium: Interactions Among Nutrition, Health, and Disease Resistance, Nonruminant Nutrition VIII See Page 60

9:00 a.m. Physiology IV Poster Session (Authors Present 9:00 a.m. – 11:00 a.m.) See Page 61

9:00 a.m. Ruminant Nutrition and Forages VI See Page 62

9:30 a.m. Breeding and Genetics IV See Page 55
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 2001 meetings
to the following companies:

Outstanding Young
Scientist Awards

Extension – Land O’Lakes/Farmland Feed
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NPPC Swine Innovation
(Abstract) Awards

Education – National Pork Producers Council

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Land O’Lakes

Agribusiness Award

ADM, Animal Health and Nutrition

Student Competition
Paper Awards

Graduate M.S. – DeKalb Feeds, Inc.
Graduate Ph.D. – Akey, Inc.
Undergraduate – Land O’Lakes

Academic Quadrathlon

APC Company, Inc.
Intervet
Iowa State University
Receptions

Monday – Kemin Industries  
Tuesday – IMC

Refreshment Breaks (Tuesday and Wednesday)

DuPont Specialty Grains

Lunch (Tuesday)

Fort Dodge Animal Health

Breakfast (Wednesday)

Diamond V. Mills, Inc.  
Cargill Animal Nutrition Division,  
Vetlife, Milk Products, Inc.

Cyber Cafe & Placement Center

Cargill Animal Nutrition Division

SYMPOSIA

Animal Behavior, Housing & Well-Being

Purdue University Center for  
Food Animal Productivity and Well-Being  
USDA-ARS Livestock Behavior Research Unit

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Akey, Inc.
ALPHARMA
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United Feeds, Inc.
SCIENTIFIC SESSIONS PROGRAM

Special Livestock Symposium

Contemporary Issues Facing US Livestock Industries

Chair: TBA

Monday, 9:00 a.m. - 12:15 p.m.
Room: 204AB

9:00  Livestock Commodity Updates Panel - NPPC, NCBA, NMPF

9:45  Question and Answer Session

10:00 Fate of DNA in the GI tract. Abigail Salyers, University of Illinois.

10:30 BREAK

10:45 Are DNA or proteins from feed detectable in livestock products? Kevin Glenn, Chair of DNA/Protein Detection in Animal Products Subcommittee of Agricultural Biotechnology Stewardship Technical Committee.

11:15 Reduced mycotoxin concentrations in Bt corn. Gary Munkvold, Iowa State University.


12:15 Lunch for attendees (advance registration is required)

Nonruminant Nutrition I

Sow Nutrition

Chair: Stewart Galloway, Consolidated Nutrition,
Fort Wayne, IN

Monday, 1:00 p.m. - 2:45 p.m.
Room: 204FG

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>136</td>
<td>Effects of dietary lactation lysine level, lysine source, and dextrose on sow and litter performance. J.C. Peters* and D.C. Mahan, The Ohio State University, Columbus.</td>
</tr>
<tr>
<td>1:15</td>
<td>137</td>
<td>Effect of dietary lysine deficiency and valine excess on mammary protein metabolism in lactating sows. X. Guan¹, B. J. Bequette², P. K. Ku¹, and N. L. Trottier*¹,</td>
</tr>
</tbody>
</table>

1:45 139 Evaluating nutrient dense and nutrient dense-low phytic acid corns with the addition of phytase for lactating sows. K. A. Bowers*, C. J. Kendall, and B. T. Richert, Purdue University, West Lafayette, IN.

2:00 140 Effect of reduced dietary Cu, Zn, Fe, and Mn on reproductive performance of sows. W.L. Flowers*, J.W. Spears, and G.M. Hill, North Carolina State University, Raleigh, Michigan State University, East Lansing.


Nonruminant Nutrition II

Amino Acid Nutrition

Chair: John Less, ADM, Decatur, IL

Monday, 2:00 p.m. - 5:00 p.m.
Room: 204AB

Abstract

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00</td>
<td>143</td>
<td>True ileal digestibility of amino acids in sow’s milk for 17-day-old pigs. I. Mavromichalis*, T.M. Parr, V.M. Gabert, and D.H. Baker, University of Illinois at Urbana-Champaign.</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Title</td>
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<td></td>
<td></td>
<td>the early-weaned pig.</td>
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<tr>
<td>2:45</td>
<td>146</td>
<td>The tryptophan requirement of Phase I, II, and III pigs.</td>
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<tr>
<td>3:00</td>
<td>147</td>
<td>Responses of young pigs to amino acids as influenced by environmental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>temperature.</td>
</tr>
<tr>
<td>3:15</td>
<td>148</td>
<td>Amino acid digestibility of reduced concentrations of intact dietary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>protein fed to growing pigs.</td>
</tr>
<tr>
<td>3:30</td>
<td>149</td>
<td>Amino acid fortified all-corn diets for late-finishing gilts.</td>
</tr>
<tr>
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<tr>
<td>3:45</td>
<td>150</td>
<td>Estimation of the threonine to lysine ratio for growing and finishing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gilts.</td>
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<tr>
<td>4:00</td>
<td>151</td>
<td>True digestible lysine requirements of PIC barrows over the finishing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>period.</td>
</tr>
<tr>
<td>4:15</td>
<td>152</td>
<td>Isoleucine requirement of growing (25-40 kg) and finishing (90-105 kg)</td>
</tr>
<tr>
<td></td>
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<td>pigs.</td>
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<tr>
<td>4:30</td>
<td>153</td>
<td>The effect of fat level and source on apparent ileal amino acid</td>
</tr>
<tr>
<td></td>
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<td>digestibility and rate of passage in pigs.</td>
</tr>
<tr>
<td>4:45</td>
<td>154</td>
<td>Effect of dietary glutamine and asparagine on growth performance and</td>
</tr>
</tbody>
</table>
### Nonruminant Nutrition III
**Posters**

Monday, 1:00 p.m. - 4:00 p.m.
Authors Present: 2:00 p.m. - 4:00 p.m.
Room: Exhibit Hall, Room 206

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>156</td>
<td>Fetal and maternal responses to ad libitum feed intake during early gestation. R.E. Musser*, D.L. Davis, R.D. Goodband, M.D. Tokach, and J.L. Nelssen, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>159</td>
<td>Replacement value of field peas for soybean meal in sow lactation diets. D.G. Landblom*, W.W. Poland, R.L. Harrold, and K. Miller, Dickinson Research Extension Center, North Dakota State University, Fargo.</td>
</tr>
<tr>
<td>162</td>
<td>Grower-finisher growth performance and carcass characteristics including attempts to detect transgenic plant DNA and protein in muscle from pigs fed genetically modified “Bt” corn. T. E. Weber* and B. T. Richert, Purdue University, West Lafayette, IN.</td>
</tr>
<tr>
<td>163</td>
<td>Comparison of two methods to determine DE content of barley for grower pigs. M.N. Casano*, R.T. Zijlstra, Prairie Swine Centre Inc., University of Saskatchewan, Saskatoon, Canada.</td>
</tr>
</tbody>
</table>


Ileal mucin output in growing pigs fed semipurified diets with different protein sources. D. M. Albin*, M. R. Smiricky, J. E. Wubben, and V. M. Gabert, University of Illinois, Urbana.

True digestible lysine requirements of PIC barrows over the growing-finishing period. R. Wei* and D.R. Zimmerman, Iowa State University, Ames.

Optimum threonine:lysine ratio for pigs in the 90 to 120 kg phase. M.E. Johnston*1, R.D. Boyd1, C.E. Fralick2, and J.L. Usry3, 1PIC USA Inc., Franklin, KY, 2Swine-Tek Research and Consulting, Van Wert, OH, 3Heartland Lysine Inc., Chicago, IL.

Plasma urea concentrations of pigs on commercial operations. R. L. Fischer*, P. S. Miller, and A. J. Lewis, University of Nebraska, Lincoln.

The molecular form of dietary protein influences growth performance of broiler chicks. K. Bregendahl* and D.R. Zimmerman, Iowa State University, Ames.


Plasma iron, latent and total iron binding capacity and percent saturation of newborn and seven day old pigs. N. J. Benevenga*, L. L. Pope, and T. D. Crenshaw, University of Wisconsin-Madison.

Pepsin concentration and ambient pH but not the presence of meat and bone meal impacts the half-life of pepsin in vitro. Y.R. Qiao* and T.A. van Kempen, North Carolina State University, Raleigh.

Effects of phytase on growth performance and bioavailabilities of organic phosphorus and other nutrients in corn-soybean meal diets for young pigs. Q.M. Yang*1, S.K. Baidoo1, J.L.L. Boychuck2, and R.D. Walker1, 1SROC, University of Minnesota, Waseca, 2BASF (Canada), George Town.


178 Effects of lowering dietary trace mineral (Fe, Zn, and Cu) concentrations on performance and bone characteristics of young pigs fed diets containing low phytic acid barley. T. L. Veum*, D. W. Bollinger1, D. R. Ledoux1, M. S. Carlson1, and V. Raboy2, 1University of Missouri, Columbia, 2USDA-ARS National Small Grain Germplasm Research Facility, Aberdeen, ID.

179 Effect of lower concentrations of copper proteinate compared to copper sulfate on mineral excretion of nursery pigs. C. Wu1, A. Tsunoda1, D. W. Bollinger1, M. S. Carlson1, T. L. Veum*, and G. W. Tibbetts2, 1University of Missouri, Columbia, 2Alltech, Inc., Nicholasville, KY.

180 Effect of lower concentrations of zinc proteinate compared to zinc oxide on mineral utilization by nursery pigs. C. Wu1, A. Tsunoda1, D. W. Bollinger1, M. S. Carlson*, T. L. Veum1, and G. W. Tibbetts2, 1University of Missouri, Columbia, 2Alltech, Inc. Nicholasville, Kentucky, USA.

181 Effects of yeast supplementation to diets with or without growth promoting levels of copper, zinc and antibiotics on growth performance of weanling pigs. E. van Heugten* and K. L. Dorton, North Carolina State University, Raleigh.


Teaching

Swine Management/Production Instructors Discussion Group

Chair: Duane Reese, University of Nebraska

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

Time Paper
1:00 Opening comments and introductions- Duane Reese, University of Nebraska
1:05 Career opportunities for undergraduates in the pork industry and preparation expected for
those careers - Joe McNertney, Iowa Select Farms, Iowa Falls, IA and Brian Knudson, Cargill, Minneapolis, MN.

2:00  Discussion and summary - Tim Safranski, University of Missouri

2:25  My most valuable teaching method, class exercise, or educational philosophy. Attending instructors

3:50  Organization and objectives for 2002 meeting - Jerry Shurson, University of Minnesota

**Undergraduate Student Competitive Research Papers**

Chair: Jess L. Miner, University of Nebraska, Lincoln

Monday, 3:30 p.m. - 6:00 p.m.
Room: 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>3:30</td>
<td>348</td>
<td>Effects of added phytase in swine diets on performance, body composition, and longissimus dorsi quality traits. R. M. Rienstra*¹, T. E. Socha¹, J. E. Tilton¹, and R. Fisher², ¹North Dakota State University, Fargo, ²Vigortone Ag Products, Cedar Rapids, IA.</td>
</tr>
<tr>
<td>3:45</td>
<td>349</td>
<td>Comparative feeding value of commercially prepared market lamb feeds. R.S. Reid*¹, G.A. Younglove¹, D.A. Sanchez², S. Nash³, and S. Harrison⁴, ¹Chadron State College, ²University of Wyoming Uinta County Extension, ³University of Idaho Bingham County Extension, ⁴University of Idaho Caribou County Extension.</td>
</tr>
<tr>
<td>4:15</td>
<td>351</td>
<td>Effects of a moisture control system on energy and nitrogen digestibility of pelleted feeds for growing pigs. J. A. Wilson*¹, L. J. Johnston¹, and D. G. Greer², ¹University of Minnesota, Morris, ²AgriChem, Inc., Ham Lake, MN.</td>
</tr>
<tr>
<td>4:45</td>
<td></td>
<td>BREAK</td>
</tr>
</tbody>
</table>
5:00  353  Conjugated linoleic acid and body fat reduction in mice. K.R. Nollette*¹ and J.L. Miner¹, ¹University of Nebraska.


5:30  355  Relationships of ham and loin pork quality measurements. D. M. Price*¹, K. W. McMillin¹, M. A. Persica¹, R. L. Payne¹, J. L. Shelton¹, and J. O. Matthews¹, ¹LSU Agricultural Center.

5:45  356  Influence of diet type and mixed microbial extract (MME) treatment on intake, digestion, and nitrogen retention in growing ram lambs. T. L. Lawler*, M. L. Bauer, V. I. Burke, T. C. Gilbery, G. P. Lardy, and J. S. Caton, North Dakota State University, Fargo.

Animal Behavior and Well-Being I

Symposium: Livestock Cognition: Implications on Production and Well-Being

Sponsored by: USDA-ARS Livestock Behavior Research Unit and Purdue University Center for Animal Productivity and Well Being, West Lafayette, IN.

Chair: Donald C. Lay Jr., USDA-ARS-LBRU, West Lafayette, IN

Tuesday, 8:00 a.m. -10:00 a.m.
Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>8:00</td>
<td>1</td>
<td>INVITED  Can we understand farm animal welfare without taking into account the issues of emotion and cognition? R. Dantzer*, INRA-INSERM.</td>
</tr>
<tr>
<td>8:30</td>
<td>2</td>
<td>INVITED  Methods of assessing cognitive abilities of farm animals. C. Croney*, University of Maryland.</td>
</tr>
<tr>
<td>9:00</td>
<td>3</td>
<td>INVITED  Cognition Studies With Pigs: Livestock Cognition and Its Implication for Production. S. Held*, M. Mendl, K. Laughlin, and O. Burman, University of Bristol.</td>
</tr>
<tr>
<td>9:30</td>
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<td>Panel for Questions</td>
</tr>
</tbody>
</table>
Animal Behavior and Well-Being II

Management to Maximize Well-Being

Chair: Jeff Carroll, USDA-ARS, Columbia, MO

Tuesday, 10:15 a.m. - 11:15 a.m.
Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>4</td>
<td>Heat stress mortality in Midwest feedlots. T.L. Mader*1, L.L. Hungerford2, J.A. Nienaber2, M.J. Buhman2, M.S. Davis1, G.L. Hahn2, W.M. Cerkoney1, and S.M. Holt3, 1University of Nebraska, Northeast Research &amp; Extension Center, Concord, NE, 2Great Plains Veterinary Education Center or U.S. Meat Animal Research Center, Clay Center, NE, 3Animal Production Dept., University of Queensland, Gatton College, Queensland, Australia.</td>
</tr>
<tr>
<td>10:30</td>
<td>5</td>
<td>Effect of hut design on farrowing and lactation performance of pigs housed in a hoop structure. A. V. Frampton*1, M. Ellis1, and S. E. Curtis1, 1University of Illinois, Urbana.</td>
</tr>
<tr>
<td>10:45</td>
<td>6</td>
<td>Effect of genetic selection for loin-eye area on behavior and whole blood serotonin levels in Landrace pigs. S. Torrey*1, S. Weaver2, E. Pajor1, D. Kuhlers3, and T. Stewart1, 1Purdue University, West Lafayette IN, 2USDA-ARS, Livestock Behavior Research Unit, West Lafayette IN, 3Auburn University, Auburn AL.</td>
</tr>
<tr>
<td>11:00</td>
<td>7</td>
<td>Effect of sorting, removal and remixing on finishing pig performance. M.C. Brumm*1, M. Ellis2, L. J. Johnston3, D. W. Rozeboom4, and D. R. Zimmerman5, 1University of Nebraska, Concord, 2University of Illinois, Urbana, 3University of Minnesota, Morris, 4Michigan State University, East Lansing, 5Iowa State University, Ames.</td>
</tr>
</tbody>
</table>

Breeding and Genetics I

Dairy Cattle Breeding and QTL Theory

Chair: William Herring, University of Missouri, Columbia

Tuesday, 8:30 a.m. - 11:30 a.m.
Room: 205E

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>13</td>
<td>Reproductive performance of Ohio dairy herds in the 1990’s: Preliminary, de-</td>
</tr>
</tbody>
</table>
scriptive results. P.J. Rajala-Schultz*1 and G.S. Frazer1, 1The Ohio State University, Columbus.


9:00 15 INVITED Genetic evaluation of dairy cattle using test-day models. J. Jensen*, Danish Institute of Agricultural Sciences.

10:00 BREAK

10:15 16 Methods to categorize patterns of elevated test day somatic cell score. X. Li, M. M. Schutz*, and A. P. Schinckel, Purdue University, West Lafayette, IN.


10:45 18 Genetic evaluation using finite locus models. L.R. Totir*1, R.L. Fernando1, S.A. Fernandez1, and B.R. Southey2, 1Iowa State University, Ames; 2University of Illinois, Urbana.

11:00 19 Statistical models and tests for detecting imprinted genes in QTL scans. H.K. Lee1, J.C.M. Dekkers*,2 R.L. Fernando2, and M.F. Rothschild2, 1National Livestock Research Institute, South Korea, 2Iowa State University, Ames.


**Midwest ADSA/ASAS**

**Extension Breakfast**

**A Discussion of Booms and Busts in Extension Programs**

Moderators: John Smith, Kansas State University
Dan Faulkner, University of Illinois

Tuesday, 6:45 a.m.
Savery Hotel, Grand A

Each year, Extension Specialists from around the Midwest Section gather for the Extension Breakfast at this meeting. These specialists possess years of experience designing and delivering Extension programs. We will have an informal discussion of Extension programming ideas that worked very well and those that did not reach expectations. Come prepared to listen and share your experience if you wish. This is a great opportunity to learn from the experiences of others!
### Extension I

**Feeding Management of Young Calves**

Chair: John Smith, Kansas State University, Manhattan

Tuesday, 8:00 a.m. - 9:30 a.m.

Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>50</td>
<td>Effects of feeding rate and protein concentration in milk replacers on growth and body composition of Holstein calves. K.S. Bartlett*, J.K. Drackley, and F.K. McKeith, University of Illinois, Urbana.</td>
</tr>
<tr>
<td>9:00</td>
<td>54</td>
<td>Supplemental glutamine does not overcome the growth depression caused by soy protein concentrate in calf milk replacer. J. K. Drackley*, K. L. Bailey, K. S. Bartlett, and R. M. Blome, University of Illinois, Urbana.</td>
</tr>
</tbody>
</table>

### Extension II

**Producer and Youth Education**

Chair: Cliff Lamb, University of Minnesota, Grand Rapids

Tuesday, 10:00 a.m. - 11:00 a.m.

Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>56</td>
<td>The Missouri Show-Me-Select Replacement Heifer Program. R. F. Randle*, W.</td>
</tr>
</tbody>
</table>
O. Herring, M. S. Kerley, R. L. Larson, K. C. Olson, V. L. Pierce, and D. J. Patterson, University of Missouri, Columbia.


Graduate Student Competitive Research Papers

M.S. Division

Chair: Daniel Buskirk, Michigan State University, East Lansing

Tuesday, 8:00 a.m. – 11:30 a.m.
Room: 140

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>8:00</td>
<td>80</td>
<td>Effect of level and source of nitrogen and minerals on water utilisation patterns in growing pigs. M.I. Shaw*1,2 and J.F. Patience1, 1Prairie Swine Centre, Inc., Saskatoon, Canada, 2University of Saskatchewan, Saskatoon, Canada.</td>
</tr>
<tr>
<td>8:15</td>
<td>81</td>
<td>Dexamethasone treatment and increased growth in neonatal piglets. J.S. Seaman*, T.J. Safranski1, R.L. Matteri2, and J.A. Carroll2, 1University of Missouri, 2Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO.</td>
</tr>
<tr>
<td>8:45</td>
<td>83</td>
<td>Feeding degermed, dehulled corn to reduce nutrient excretion and improve performance in pigs. A.J. Moeser*, I.B. Kim, E. van Heugten, and T. van Kempen, North Carolina State University, Raleigh.</td>
</tr>
<tr>
<td>9:00</td>
<td>84</td>
<td>Effect of uncoupling protein 1 knockout in mice divergently selected for heat loss. T.G. McDaneld*, M.K. Nielsen1, and J.L. Miner, 1University of Nebraska.</td>
</tr>
</tbody>
</table>

9:30  86  Outcomes assessment for introduction to animal science - subjective and objective measures and the effects of student demographics. M. A. Deppe*¹, G. F. Jones¹, K. J. Stalder², and A. E. Ramer¹, ¹Western Kentucky University, Bowling Green, ²University of Tennesse, Knoxville.

9:45  BREAK

10:00  87  Characterization of the porcine interferon regulatory factor 6 (IRF6) gene: cDNA cloning, expression analysis and chromosomal localization. C. R. Farber*, N. E. Raney, and C. W. Ernst, Michigan State University, East Lansing.


### Growth, Development, Muscle Biology, and Meat Science I

#### Muscle Biology and Growth

Chair: Steve Jones, University of Nebraska, Lincoln

Tuesday 9:30 a.m. - 11:15 a.m.
Room: 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tbody>
<tr>
<td>9:30</td>
<td>100</td>
<td>Identification of genes downstream of myostatin in the developing bovine embryo. J.K. Potts*¹, T.P.L. Smith², and J.M. Reecy¹, ¹Iowa State University, Ames, ²USDA MARC, Clay Center, NE.</td>
</tr>
<tr>
<td>9:45</td>
<td>101</td>
<td>Altered myosin heavy chain isoform transitions in satellite cells and pectoralis major muscle from LSN chickens. A. Yilmaz*, M. Wick, and S.G. Velleman, The Ohio State University, Columbus.</td>
</tr>
<tr>
<td>10:00</td>
<td>102</td>
<td>Changes in muscle ultrastructure and temporal expression of myosin heavy chain isoforms in selenium deficient chickens. A. Yilmaz*, M. Wick, and J.D. Latshaw, The Ohio State University, Columbus.</td>
</tr>
<tr>
<td>10:15</td>
<td>103</td>
<td><strong>NPPC Innovation Award – Basic Research</strong> Protein accretion in pigs infected with <em>mycoplasma hyopneumoniae</em>. J. Escobar*¹, W.G. Van Alstine², D.H. Baker¹, and R.W. Johnson¹, ¹University of Illinois, Urbana, ²Purdue University, W. Lafayette, IN.</td>
</tr>
<tr>
<td>10:45</td>
<td>105</td>
<td>Appetite-regulating gene expression is altered by weaning in 2-wk-old pigs. R.L. Matteri*¹, A. Woldeghebriel³, C.J. Dyer³, D.H. Keisler⁴, D.L. Grohs³, and F.C. Buonomo³, ¹Animal Physiology Research Unit, USDA-ARS, Columbia, MO, ²Lincoln University, Jefferson City, MO, ³Monsanto Co., Chesterfield, MO, ⁴University of Missouri, Columbia.</td>
</tr>
<tr>
<td>11:00</td>
<td>106</td>
<td>Growth and body composition in growing-finishing pigs fed a liquid milk replacer diet throughout the nursery phase. M. E. Spurlock*¹, J. L. Kuske¹, C. Camacho-Rea¹, G. R. Frank³, G. M. Willis³, and K. L. Houseknecht³, ¹Purdue University, West Lafayette, IN, ²Purina Mills, Inc., St. Louis, MO, ³Pfizer, Inc., Groton, CT.</td>
</tr>
</tbody>
</table>
Nonruminant Nutrition IV

Grow-Finish Nutrition

Chair: Merlin Lindemann, University of Kentucky, Lexington
Mark Bertram, Pork Technologies,
L. C., Ames, IA

Tuesday, 8:00 a.m. - Noon
Room: 204FG

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45</td>
<td>189</td>
<td>Effect of nutritional level while feeding ractopamine to late-finishing pigs. C.T. Herr*, D.C. Kendall, A.P. Schinckel, and B.T. Richert, Purdue University, West Lafayette, IN.</td>
</tr>
<tr>
<td>9:00</td>
<td>190</td>
<td>Evaluation of three genetic populations of pigs for response to increasing levels of ractopamine. C.T. Herr*, S.L. Hankins, A.P. Schinckel, and B.T. Richert, Purdue University, West Lafayette, IN.</td>
</tr>
<tr>
<td>9:30</td>
<td>192</td>
<td>Effects of feeding graded levels of ractopamine on pig performance 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.</td>
</tr>
<tr>
<td>9:45</td>
<td></td>
<td>BREAK</td>
</tr>
<tr>
<td>10:00</td>
<td>193</td>
<td>Response of barrows to phytase in lysine deficient diets. M.C. Brumm*, University of Nebraska, Northeast Research &amp; Extension Center, Concord.</td>
</tr>
<tr>
<td>Time</td>
<td>Number</td>
<td>Paper</td>
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<tr>
<td>10:30</td>
<td>195</td>
<td>Conjugated linoleic acid supplementation increases belly weight in lean-genotype gilts. L. A. Averette*, M. T. See, and J. Odle, North Carolina State University, Raleigh.</td>
</tr>
<tr>
<td>10:45</td>
<td>196</td>
<td>Influence of the level of inclusion of soybean meal and peanut meal in the diet on pork quality. Y. Hyun*, M. Ellis, and F. McKeith, University of Illinois at Urbana-Champaign.</td>
</tr>
<tr>
<td>11:30</td>
<td>199</td>
<td>The effect of stress on the nutrient requirements of growing pigs. N.S. Ferguson*, University of Natal, Scottsville, South Africa.</td>
</tr>
<tr>
<td>11:45</td>
<td>200</td>
<td>Effects of a pellet binder on pellet quality and growth performance of finishing pigs. C. W. Starkey*, J. D. Hancock¹, C. A. Maloney¹, D. J. Lee¹, L. J. McKinney¹, and K. C. Behnke¹, ¹Kansas State University.</td>
</tr>
</tbody>
</table>

**Nonruminant Nutrition V**

**Trace Minerals, MOS, and Immune Modulators**

Chair: Gretchen Hill, Michigan State University, East Lansing

Terry Ward, Zinpro Corp., Eden Prairie, MN

Tuesday, 8:00 a.m. - 11:30 a.m.

Room: 204AB

<table>
<thead>
<tr>
<th>Abstract Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>201</td>
<td>Effect of Availa®Cu level on rate and efficiency of body weight gain in nursery pigs. D. R. Cook*¹, M. M. Ward¹, and T. M. Fakler², ¹Akey, Inc., ²Zinpro Corporation, Eden Prairie, MN.</td>
</tr>
</tbody>
</table>
Effect of copper citrate (CC) and copper sulfate (CS) level on growth performance in weaned pigs. D.R. Cook*1, T.A. Armstrong2, J.W. Spears2, and M.M. Ward1, 1Akey, Inc., 2North Carolina State University, Raleigh.

Effect of copper source on performance of weanling pigs. C. V. Maxwell1, D. C. Brown*1, M. E. Davis1, Z. B. Johnson1, and T. M. Fakler2, 1University of Arkansas, Fayetteville, 2Zinpro Corp., Eden Prairie, MN.

Copper complexes improve performance of weanling pigs. T. M. Fakler*1, C. J. Rapp1, and D. Fremaut2, 1Zinpro Corp., Eden Prairie, MN, 2Technical University of Gent, Belgium.


Effect of feeding nursery pigs organic or inorganic sources of zinc on nutrient balance. C. L. Case* and M. S. Carlson1, University of Missouri.

Pharmacological additions of zinc to nursery diets and subsequent skeletal integrity in finishing gilts. T.D. Crenshaw* and D.K. Schneider, University of Wisconsin, Madison.

The effects of supplementing zinc and soybean oil to the diets of weanling pigs on growth performance. C. R. Dove*, University of Georgia, Tifton.

Effect of *Quillaja saponaria* extract on weanling pig growth performance and immune function during acute enteric disease challenge. J.L. Turner*1, S.S. Dritz1, J.R. Werner1, C.M. Hill1, K. Skjolaas1, K. Herkelman2, and J.E. Minton1, 1Kansas State University, Manhattan, 2Farmland Industries, Inc., Kansas City MO.

## Odor and Nutrient Management I

Chair: Wendy Powers, Iowa State University, Ames

Tuesday, 9:45 a.m. - Noon
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>239</td>
<td>Dietary manipulation to reduce aerial ammonia concentration in nursery pig facilities. J. J. Colina*, A. J. Lewis, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.</td>
</tr>
<tr>
<td>10:45</td>
<td>242</td>
<td>Comparison of nutrient retention to total collection for determination of nutrient excretion. J.D. Spencer, J.W. Frank, A.M. Gaines*, and G.L. Allee, University of Missouri.</td>
</tr>
<tr>
<td>11:00</td>
<td>243</td>
<td>Composting feedlot and dairy manure as a manure management alternative: Compost characteristics, crop yields, and nutrient recoveries. G. E. Erickson*, T. J. Klopfenstein, W. Luedtke, and G. Lesoing, University of Nebraska-Lincoln, University of Missouri.</td>
</tr>
</tbody>
</table>
11:30 245  Odor production in stored manure from ractopamine (RAC) fed pigs. S.L. Hankins*1, S.A. Decamp1, B.T. Richert1, D.B. Anderson2, D.J. Ivers2, A.J. Heber1, and A.L. Sutton1, 1Purdue University, West Lafayette, IN, 2Elanco Animal Health, A Division of Eli Lilly and Company, Greenfield, IN.

11:45 246  Abatement of Ammonia and Hydrogen Sulfide Emissions from a Swine Lagoon using a Polymer Biocover. J.A. Zahn*1, A.E. Tung2, B.A. Roberts2, and J.L. Hatfield3, 1National Swine Research Center - USDA-ARS, Ames, IA, 2Monsanto, EnviroChem Systems Division, St. Louis, MO, 3National Soil Tilth Laboratory - USDA-ARS, Ames, IA.

**Physiology I**

**Estrus, Ovulation, and Pregnancy in Cattle**

Chair: David Miller, University of Illinois, Urbana

Tuesday, 8:00 a.m. - 10:15 a.m.
Room: 136

<table>
<thead>
<tr>
<th>Time</th>
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<th>Paper</th>
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<tbody>
<tr>
<td>8:00</td>
<td>247</td>
<td>Fixed-time insemination versus insemination after estrus in replacement beef heifers synchronized with GnRH, Norgestomet, and PGF$_{2\alpha}$ G. C. Lamb*1, L. R. Miller2, J. M. Cassady2, C. M. Zehnder2, and A. DiCostanzo2, 1North Central Research and Outreach Center, University of Minnesota, Grand Rapids, 2University of Minnesota, St. Paul.</td>
</tr>
<tr>
<td>8:15</td>
<td>248</td>
<td>Fixed-time insemination in peripuberal, light-weight replacement beef heifers synchronized with PGF$_{2\alpha}$ and GnRH. C. R. Dahlen*1, G. C. Lamb2, C. M. Zehnder1, L. R. Miller1, and A. DiCostanzo1, 1University of Minnesota, St. Paul, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.</td>
</tr>
<tr>
<td>8:45</td>
<td>250</td>
<td>Timed insemination in beef heifers after synchronization of estrus and ovulation with melengestrol acetate (MGA) and prostaglandin F2a. S.K. Johnson* and K.R. Harmoney, 1Kansas State University, Hays,KS.</td>
</tr>
</tbody>
</table>
9:15 252 Administration of estradiol benzoate at the onset of the CIDR/PGF estrus synchronization procedure increases pregnancy rates in cows but not heifers. T.L. Steckler*1, T.G. Nash1, J.M. Dahlquist1, T.F. Lock1, G.A. Bollero1, H.D. Hafs2, D.B. Faulkner1, and D.J. Kesler1, 1University of Illinois, 2Rutgers University.

9:30 253 Effects of maturity of the potential ovulatory follicle on the ability of estradiol benzoate (EB) to stimulate estrus, ovulation and luteal development in anestrous beef cows. CR Burke*1,2, ML Mussard1, and ML Day1, 1The Ohio State University, Columbus OH, 2Dairying Research Corporation, Hamilton, New Zealand.

9:45 254 Accuracy of a commercially available Early Conception Factor (ECF™) test for determining pregnancy status of inseminated and noninseminated dairy cattle. M. C. Cordoba*1, R. Sartori1, and P. M. Fricke1, 1University of Wisconsin-Madison.


**Physiology II**

**Pig Reproduction**

Chair: David Miller, University of Illinois, Urbana

Tuesday, 10:30 a.m. - Noon
Room: 136

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>10:30</td>
<td>256</td>
<td>Selection for increased placental efficiency (PE) results in increased placental expression of vascular endothelial growth factor (VEGF) in the pig. K.A. Vonnahme* and S.P. Ford, Iowa State University.</td>
</tr>
<tr>
<td>11:15</td>
<td>259</td>
<td>Selection for Greater Number of Corpora Lutea in Gilts Increased Plasma Follicle-Stimulating Hormone Concentrations in Prepubertal Development. J. J. Ford*1, D. R. Zimmerman2, T. H. Wise1, K. A. Leymaster1, and R. K. Christenson1,</td>
</tr>
</tbody>
</table>
11:30  260 Effects of estradiol (E) on follicular growth in neonatal pigs. P. E. Davis* and M. C. Lucy, University of Missouri, Columbia.


Ruminant Nutrition and Forages I
Posters

Tuesday, 8:00 a.m. - 5:00 p.m.
Authors present: Even Abstract Numbers 8:00 a.m. - 10:00 a.m.
Odd Abstract Numbers 10:00 a.m. - Noon
Room: Exhibit Hall, Room 206

Abstract Number  Paper

280 Efficacy of pelleted wheat midds amended with food waste as a protein and energy substitute for beef cows. P.M. Walker*, Illinois State University, Normal.


283 Self-fed wheat middlings in backgrounding diets for beef heifers. T. Gilbery*1, G. Lardy1, B. Kreft2, J. Dhuyvetter3, and M. Bauer1, 1North Dakota State University, Fargo, 2Streeter, 3Minot.


285 Carbohydrate composition of commonly used feedstuffs in the Midwestern US. D. Kleischmit* and R. Grant, University of Nebraska, Lincoln.


287 Effects of two protein supplementation systems on performance and carcass characteristics of feedlot steers. L.R. Miller*1, A. DiCostanzo1, C.M. Zehnder1, G.C. Lamb2, and L. Smith3,

289 Evaluation of Ralgro® during the stocker period on pasture and feedlot performance of Mexican crossbred steers. D. A. Blasi*1, S. I. Paisley1, G. L. Kuhl1, M. L. Dikeman1, J. Higgins1, G. L. Huck1, T. B. Farran1, J. J. Sintd1, S. P. Montgomery1, and C. Birkelo2, 1Kansas State University, 2Schering-Plough Animal Health.

290 The effect of integrating pasturing systems into cattle finishing programs and affect on meat quality. T. A. Williams* and M. P. Hoffman, Iowa State University.


292 Effect of starch, fiber, or degradable intake protein (DIP) supplementation on NDF and ADF digestibility by heifers consuming fescue hay. M. L. Linville*, K. C. Olson, and J. E. Williams, University of Missouri, Columbia.


294 Impact of frequency of supplementation on ruminal fermentation in beef steers consuming low-quality, tallgrass-prairie forage. C. G. Farmer*, R. C. Cochran1, D. D. Simms2, E. A. Klevesahl1, and T. A. Wickersham1, 1Kansas State University, Manhattan, 2Consolidated Nutrition, Omaha, NE.

295 Effect of cooked molasses tubs on performance and health of newly-received stocker cattle. S. Paisley*, G. Stokka, and F. Brazle, Kansas State University.

296 Effect of low-level fall supplementation with a self-fed, high-protein product and level of winter supplementation on the performance of beef cows grazing tallgrass-prairie range. T.A. Wickersham*1, R.C. Cochran1, D.V. Dhuyvetter2, D.M. Griege1, and C.G. Farmer1, 1Kansas State University, Manhattan, 2Farmland Industry, Kansas City, MO.

297 Using orchardgrass and endophyte-free fescue versus infected fescue overseeded on bermudagrass for cow herds. W. K. Coblentz*1, K. P. Coffey1, T. F. Smith2, D. A. Scarbrough1, J. B. Humphry1, D. S. Hubbell, III2, J. D. Martin2, J. E. Turner1, K. F. Harrison2, and D. H. Hellwig1, 1University of Arkansas, Fayetteville, 2Livestock and Forestry Branch Station, Batesville.

298 Effect of grazing bermudagrass pastures overseeded with endophyte-free or infected fescue or orchardgrass at two rotation intensities on calf weight change during weaning. K. P. Coffey*1, W. K. Coblentz3, D. H. Hellwig1, T. F. Smith2, D. S. Hubbell, III2, J. D. Martin2, S. L.
Evaluation of winter forage management systems for spring- and fall-calving cows. N. A. Janovick* and J. R. Russell, Iowa State University.

Effects of grazing crop residues from Bt-corn hybrids on pregnant beef cows. J. R. Russell*1, M. J. Hersom2, M. M. Haan1, M.L. Kruse1, and D. G. Morrical1, 1Iowa State University, 2Oklahoma State University.

Bt corn that is genetically modified to prevent insect damage is equal to conventional corn in feeding value for beef cattle. M.S. Kerley*1, E.E.D. Felton1, J.W. Lehmkuhler1, and R. Shillito2, 1University of Missouri, Columbia, 2Aventis CropScience.

Long-chain fatty acid flow in and digestion by beef steers fed dry-rolled or high-moisture typical or high-oil corn diets. M. R. Bolte*1, E. J. Scholljegerdes1, B. W. Hess1, J. Gould1, D. C. Rule1, and F. N. Owens2, 1University of Wyoming, Laramie, Wyoming, 2DuPont Specialty Grains, Des Moines, Iowa.

Site and extent of digestion of dry-rolled or high-moisture typical or high-oil corn diets by beef steers. E. J. Scholljegerdes*1, B. W. Hess1, J. Gould1, and F. N. Owens2, 1University of Wyoming, Laramie, Wyoming, 2DuPont Specialty Grains, Des Moines, Iowa.


Application of a fermentation aid (Silo-King®) at increasing rates on the availability of nutrients from alfalfa haylage. 1. Digestibility of dry matter, protein, and fiber. G. Ayangbile, D. P. Casper*, J. Meier, and D. Spangler, Agri-King, Inc., Fulton, IL.

Application of a fermentation aid (Silo-King®) at increasing rates on the availability of nutrients from alfalfa haylage. 2. Digestibility of minerals. D. P. Casper*, G. Ayangbile, J. Meier, and D. Spangler, Agri-King, Inc., Fulton, IL.

Application of a fermentation aid (Silo-King®) at increasing rates on the availability of nutrients from alfalfa haylage. 3. Ruminal fermentation and solubility parameters. J. Meier, G. Ayangbile, D. P. Casper*, and D. Spangler, Agri-King, Inc., Fulton, IL.

Synchronization of nonstructural carbohydrate and protein degradability on ruminal fermentation in rumen-simulating fermenters. D. P. Casper*1, D. J. Schingoethe2, and G. A. Harrison2, 1Agri-King, Inc., Fulton, IL, 2South Dakota State University.

Potential degradation of leafy spurge toxins in cattle rumen digesta. M.B. Hubert*1, S.L. Kronberg2, and F.T. Halaweish1, 1South Dakota State University, 2USDA ARS.

Effects of monensin on eating behavior when administered continuously into the rumen or portal vein. S. Bierman* and R.H. Pritchard, South Dakota State University.
Ruminant Nutrition and Forages II

Feedlot Nutrition

Chair: Todd Milton, Midwest PMS, Walton, NE

Tuesday, 8:00 a.m. - Noon
Room: 205IJ

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<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>311</td>
<td>Benefits of sorting calves as feeders on feedlot performance and carcass value. A. Trenkle*, Iowa State University.</td>
</tr>
<tr>
<td>8:30</td>
<td>313</td>
<td>Effect of rate of liveweight gain during winter on subsequent feedlot performance of cattle. M. J. Hersom*, G. W. Horn, and C. R. Krehbiel, Oklahoma State University.</td>
</tr>
<tr>
<td>8:45</td>
<td>314</td>
<td>Effect of altered feeding regimen on performance and body temperature of steers finished in the summer. M. S. Davis*, T. L. Mader¹, S. M. Holt², and W. M. Cerkoney¹, ¹University of Nebraska, Concord, ²University of Queensland-Gatton, Gatton, Australia.</td>
</tr>
<tr>
<td>9:00</td>
<td>315</td>
<td>Effect of conventional vs. restricted adaptation to a high-concentrate diet on performance and carcass characteristics of feedlot calves. W. T. Choat*, C. R. Krehbiel, D. R. Gill, T. C. Stovall, J. A. Shriver, and R. L. Ball, ¹Oklahoma State University.</td>
</tr>
<tr>
<td>9:30</td>
<td>317</td>
<td>Comparison of Synovex® Plus™, Revalor®-H, and Finaplix®-H in feedlot heifers fed MGA®. C.N. Macken*, C.T. Milton¹, B.D. Dicke², and F.L. Prouty³, ¹University of Nebraska, Lincoln, ²Cattlemen’s Consulting, Lincoln, ³Fort Dodge Animal Health, Overland Park, KS.</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td>BREAK</td>
</tr>
</tbody>
</table>
10:15 319 Effect of corn type and implant status on feedlot performance and carcass characteristics of beef steers. M.S. Eibs*¹, B.J. Johnson², and B.D. Rops¹, ¹South Dakota State University, ²Kansas State University.

10:30 320 Feeding value of Bt corn grain compared with its parental hybrid when fed in beef cattle finishing diets. A.T. Petty*¹, K.S. Hendrix¹, E.P. Stanisiewski², and G.F. Hartnell², ¹Purdue University, West Lafayette, IN, ²Monsanto Company, St. Louis, MO.

10:45 321 Performance of beef cattle fed Roundup Ready® corn harvested as whole plant silage or grain. A.T. Petty*¹, K.S. Hendrix¹, E.P. Stanisiewski², and G.F. Hartnell², ¹Purdue University, West Lafayette, IN, ²Monsanto Company, St. Louis, MO.


11:15 323 Effect of corn and barley processing on performance of steers fed wet corn gluten feed (WCGF) based diets. E. R. Loe*¹, M. L. Bauer¹, G. P. Lardy¹, and R. A. Stock², ¹North Dakota State University, Fargo, ²Cargill Corn Milling, Blair, NE.

11:30 324 Utilization of malting industry byproducts on cattle feedlot diets. C.R. Dahlen¹, C.M. Zehnder*¹, D. Ziegler², A. DiCostanzo¹, L.R. Miller¹, H. Chester-Jones², and G.C. Lamb³, ¹University of Minnesota, St. Paul, ²Southern Research and Outreach Center, Waseca, ³North Central Research and Outreach Center, Grand Rapids.

11:45 325 Phosphorus requirements of finishing steer calves. G. E. Erickson*, T. J. Klopfenstein¹, M. W. Orth², D. Brink¹, and K. M. Whittet¹, ¹University of Nebraska, Lincoln, ²Michigan State University.

Animal Behavior, Housing, and Well-Being III

Feed Additives and Food Safety Relative to Animal Well-Being

Chair: Michael Ellis, University of Illinois, Urbana

Tuesday, 1:00 p.m. – 2:15 p.m.
Room: 205D

<table>
<thead>
<tr>
<th>Abstract</th>
<th>Paper</th>
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<tr>
<td>Time</td>
<td>Number</td>
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<tr>
<td>1:00</td>
<td>8</td>
</tr>
</tbody>
</table>
G.L. Allee², R.L. Matteri¹, H.G. Kattesh³, M.P. Roberts⁴, L.A. Beausang⁴, and M.E. Zannelli⁴, ¹ARS-USDA, Columbia, Missouri, ²University of Missouri-Columbia, ³University of Tennessee-Knoxville, ⁴Pierce-Endogen, Inc., Woburn, MA.

1:15 9 Supplemental Vitamin C and Beta-glucan alter growth and the LPS-induced immunological response in young pigs. C.A. McKee*¹, J.A. Carroll², S.D. Eicher¹, M.E. Zannelli², L.A. Beausang³, and R.L. Matteri², ¹Livestock Behavior Research Unit, ARS-USDA, West Lafayette, IN, ²Animal Physiology Research Unit, ARS-USDA, Columbia, MO, ³Pierce-Endogen, Woburn, MA.

1:30 10 Spring and summer investigation of verotoxin-producing *Escherichia coli* (VTEC) in grazing sheep previously infected with VTEC. H. S. Hussein*, B. H. Thran, and H. A. Glimp, University of Nevada-Reno.


2:00 12 Subcutaneously injected glucagon affects selected blood constituents in dairy cows. B. N. Ametaj*¹, G. Bobe¹, S.L. Oren¹, O. Rosendo², D. C. Beitz¹, and J. W. Young¹, ¹Iowa State University, ²University of Florida.

**Breeding and Genetics II**

**Swine Breeding**

Chair: Cathy Ernst, Michigan State University, East Lansing

Tuesday, 1:00 p.m. - 4:45 p.m.

Room: 205E

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>21</td>
<td>Mapping microsatellite markers identified in porcine EST sequences. G. A. Rohrer*¹, S. C. Fahrenkrug¹, N. Tao², and W. C. Warren³, ¹USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE USA, ²Monsanto Co., St. Louis, MO USA.</td>
</tr>
<tr>
<td>1:45</td>
<td>24</td>
<td>Effect of boar exposure during insemination on factors influencing fertility in</td>
</tr>
</tbody>
</table>
gilt. K.L. Willenburg*, G.M. Miller, and R.V. Knox, University of Illinois, Urbana.

2:00 25 Reproductive responses in the NE Index line estimated in pure line and crossbred litters. D. Petry* and R. Johnson, University of Nebraska.


2:30 27 Methods for editing and adjusting feed intake data from electronic swine feeders. D.S. Casey* and J.C.M. Dekkers, Iowa State University, Ames.

2:45 BREAK

3:00 28 Growth and carcass responses in the NE Index line estimated in pure line and crossbred litters. D. Petry*, J. Holl, and R. Johnson, University of Nebraska, North Carolina State University.


4:00 32 A response surface estimated from the regression of standard cut and boneless pork primal yield on carcass backfat, loin depth and carcass weight measured online. H. I. Sellers*, R. N. Goodwin, and E. P. Berg, National Pork Producers Council, Des Moines, IA, University of Missouri, Columbia.


Breeding and Genetics III
Posters

Tuesday 8:00 a.m. - 5:00 p.m.
Authors present 1:00 p.m. - 3:00 p.m.
Room: Exhibit Hall, Room 206

Abstract
Number  Paper

35 Genetic evaluation of Holstein sires for incidence of twins. J. M. Johanson*, P. J. Berger¹, B. W. Kirkpatrick², and M. R. Dentine², ¹Iowa State University, ²University of Wisconsin, Madison.


39 Comparison of selective DNA pooling with selective genotyping for QTL mapping. H. H. Zhao*, J. Wang, and J.C.M. Dekkers, Iowa State University, Ames.


41 A polymorphism identified in the 5' flanking region of the ovine IGF-I gene by PCR-SSCP analysis. A. Yilmaz*, M. E. Davis, and H. C. Hines, The Ohio State University, Columbus.

Extension III

Chair: Lee Johnston, University of Minnesota, Morris

Tuesday, 1:00 p.m. - 2:30 p.m.
Room: 134

Abstract
Number  Paper

Time  Number  Paper

1:00  60  Trends associated with Marbling Score, Fat Cover and, CAB Acceptance Rate. M. F. Scott*, D. E. Wilson, and G. H. Rouse, Iowa State University.

1:15  61  Centralized ultrasound processing to evaluate beef cattle for body composition,

1:30  62  **NPPC Innovation Award – Education** Development of a quality lean index for ranking pork carcasses in a contest setting. C. A. Stahl*, E. P. Berg¹, W. R. Lamberson¹, and T. J. Safranski¹, ¹University of Missouri-Columbia.

1:45  63  Critical control points for profitability in the cow-calf enterprise. A.J. Miller*, D.B. Faulkner¹, R.K. Knipe¹, D.R. Strohbehn², D.F. Parrett¹, and L.L. Berger¹, ¹University of Illinois, ²Iowa State University.


2:15  65  Animal handling procedures and facilities used by dairy producers to conduct health and reproductive examinations. A. Wagner*¹ and R.W. Palmer¹, ¹University of Wisconsin-Madison.

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### Extension IV

**Symposium: Weaning Management Systems for Improving Beef Quality**

Chair: Dan B. Faulkner, University of Illinois, Urbana

Tuesday, 2:30 p.m. - 5:00 p.m.

Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tbody>
<tr>
<td>2:30</td>
<td>66</td>
<td>INVITED Early weaning calves to produce quality beef. D. B. Faulkner¹, L. L. Berger¹, and N. A. Pyatt¹, ¹University of Illinois, Urbana.</td>
</tr>
<tr>
<td>3:15</td>
<td>67</td>
<td>INVITED Early weaning can affect rate of marbling deposition, relationship of intramuscular and subcutaneous fat deposition and feed efficiency of feedlot cattle. L.L. Berger*, A.W. Wertz¹, and D.B. Faulkner¹, ¹University of Illinois.</td>
</tr>
<tr>
<td>4:30</td>
<td>69</td>
<td>Accelerated finishing systems for the production of high quality beef. R. S. Wells*, D. B. Faulkner¹, F. A. Ireland¹, and M. J. Cecava², ¹University of Illinois, Urbana, ²Consolidated Nutrition, Fort Wayne, IN.</td>
</tr>
<tr>
<td>4:45</td>
<td>70</td>
<td>Feedlot performance and carcass traits of early weaned steers supplemented with either laidlomycin propionate or monensin. J.D. Arseneau*, L.L. Berger², D.D.</td>
</tr>
</tbody>
</table>
Graduate Student Competitive Research Papers

Ph.D. Division

Chair: Milo Wiltbank, University of Wisconsin, Madison

Tuesday, 2:30 p.m. - 4:30 p.m.
Room: 140

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tbody>
<tr>
<td>2:30</td>
<td>93</td>
<td>Defining the molecular weight cut-off for in vitro digestible protein assay by comparison of the size distributions of the homoarginine-labeled soluble peptides of meat and bone meal digested in vitro and in vivo. Y.R. Qiao* and T.A. van Kempen, North Carolina State University.</td>
</tr>
<tr>
<td>3:00</td>
<td>95</td>
<td>Effect of group size on pig performance in a wean-to-finish production system. B. F. Wolter*1, M. Ellis1, S. E. Curtis1, N. R. Augspurger1, D. N. Hamilton1, E. N. Parr2, and D. M. Webel2, 1University of Illinois, Urbana-Champaign, 2United Feeds, Inc. Sheridan, IN.</td>
</tr>
<tr>
<td>3:15</td>
<td></td>
<td>BREAK</td>
</tr>
<tr>
<td>4:00</td>
<td>98</td>
<td>Effect of exogenous infusion of LH on development of ovarian follicular cysts (cysts) in lactating dairy cattle. J. H. Hampton*, B. E. Salfen, J. F. Bader, D. H. Keisler, and H. A. Garverick, University of Missouri.</td>
</tr>
</tbody>
</table>
Growth, Development, Muscle Biology, and Meat Science II

Symposium: Beta-agonists in Food Animals

Chair: Steve Lonergan, Iowa State University, Ames

Tuesday 1:00 p.m. - 4:00 p.m.
Room: 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tbody>
<tr>
<td>1:00</td>
<td>107</td>
<td>INVITED Ractopamine, beta-agonists and muscle research: where do we go from here? D. H. Beermann*, University of Nebraska, Lincoln.</td>
</tr>
<tr>
<td>2:00</td>
<td>109</td>
<td>INVITED Implications of Feedback Regulation of Beta-Adrenergic Signaling. S.E. Mills*, Purdue University, West Lafayette, IN.</td>
</tr>
<tr>
<td>3:30</td>
<td></td>
<td>Discussion</td>
</tr>
</tbody>
</table>
**Growth, Development, Muscle Biology, and Meat Science III**

**Posters**

**Meat Quality**

Tuesday 8:00 a.m. - 5:00 p.m.

Authors present 3:00 p.m. - 5:00 p.m.

Room: Exhibit Hall, Room 206

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
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</thead>
<tbody>
<tr>
<td>113</td>
<td>The intermediate filament protein desmin is ADP-ribosylated in skeletal muscle cells. W. Tong*1, D. Burke2, R. Robson1, and T. Huiatt1, 1Iowa State University, 2Indiana University.</td>
</tr>
<tr>
<td>114</td>
<td>Use of the yeast two-hybrid system to elucidate the multiple protein interaction domains within the muscle cell intermediate filament protein synemin. R. Bellin*, T. Huiatt, and R. Robson, Iowa State University.</td>
</tr>
<tr>
<td>117</td>
<td>Temperature variation of cooking methods used for research. T. E. Lawrence*, D. A. King, and M. E. Dikeman, Kansas State University.</td>
</tr>
<tr>
<td>118</td>
<td>Relationships among selected beef carcass characteristics. T. Lawrence*1, D. King1, T. Montgomery2, and M. Dikeman1, 1Kansas State University, 2West Texas A&amp;M University.</td>
</tr>
<tr>
<td>120</td>
<td>The effects of feeding elevated levels of vitamins D3 and E on beef longissimus tenderness. G.K. Rentfrow*1,2, L. Berger1, T. Carr1, F. McKeith1, M.S. Brewer1, and E.P. Berg2, 1University of Illinois, 2University of Missouri.</td>
</tr>
<tr>
<td>122</td>
<td>Effect of level, source and time of feeding prior to slaughter of supplementary magnesium on pork quality. D. N. Hamilton*1, A. V. Frampton1, M. Ellis1, F. K. McKeith1, and J. M. Eggert2, 1University of Illinois, Urbana-Champaign, 2Hubbard Feeds Inc.</td>
</tr>
</tbody>
</table>
Comparison of Warner-Bratzler shear force values and star-probe compression values in pork loin. S. M. Lonergan,*1, K. J. Prusa1, C. A. Fedler1, J.K. Page1, and J. E. Cannon2, 1Iowa State University, 2DEKALB CHOICE GENETICS.

Utilization of real time ultrasound to predict intramuscular lipid and marbling in fresh pork loins. S. M. Lonergan*1, J. P. Carlson2, and L. H. Tichenor2, 1Iowa State University, 2Western Illinois University.

Effect of Paylean (ractopamine hydrochloride) on lean and primal cut yields from the pork carcass. J. R. Wagner*1, D. J. Jones1, and D. H. Mowrey1, 1Elanco Animal Health (A Division of Eli Lilly and Company).

Nonruminant Nutrition VI

Weanling Pig Nutrition

Chair: Jack Odle, North Carolina State University
Tim Fakler, Zinpro Corp., Eden Prairie, MN

Tuesday, 1:00 p.m. - 4:30 p.m.
Room: 204AB

Time  Number  Paper
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1:00  214    Effect of Solutein® (Sol) on rate and efficiency of body weight gain in weaned pigs. M.M. Ward* and D.R. Cook, Akey, Inc., Lewisburg, OH.
1:15  215    Efficacy of biopeptides and blood plasma with young pigs during the starter period. T.G. Wiseman*1, D.C. Mahan1, B. Harmon2, and N. Trottier3, 1The Ohio State University, 2Purdue University, 3Michigan State University.
2:15 219 Spray dried eggs as an ingredient in diets for SEW pigs. S.E. Norberg*, J.B. Durst, M.A. Latour, and B.G. Harmon, Purdue University West Lafayette, IN.

2:30 BREAK


3:00 221 Effect of dietary carbohydrate or soybean oil on postweaning pig performance, serum triglyceride, urea nitrogen, and body composition. S. Ching* and D.C. Mahan, The Ohio State University, Columbus.

3:15 222 Stickwater as a fat source in diets for nursery pigs. C. L. Jones*, J. D. Hancock, C. W. Starkey, and D. J. Lee, Kansas State University, Manhattan.

3:30 223 Effect of site of weaning and dietary DE content on performance of pigs to 56 d of age. C. L. Levesque*1,2, J. F. Patience1, E. Beltranena1, and R. T. Zijlstra1, 1Prairie Swine Centre, Inc., 2University of Saskatchewan, Saskatoon, Canada.

3:45 224 Effects of dietary L-carnitine on growth performance of nursery pigs. D. E. Real*1, M. U. Steidinger1, J. L. Nelssen1, M. D. Tokach1, R. D. Goodband1, S. S. Dritz1, J. M. DeRouchey1, J. C. Woodworth1, and K. Q. Owen2, 1Kansas State University, Manhattan, 2Lonza Inc., Fair Lawn, NJ.

4:00 225 Effects of dietary L-carnitine on growth performance and apparent nutrient digestibility in weanling pigs. M.J. Rincker*1, S.D. Carter1, R.W. Fent1, B.W. Senne1, and K.Q. Owen2, 1Oklahoma State University, Stillwater, 2Lonza, Inc., Fairlawn, NJ.

4:15 226 Influence of increasing dietary niacin on starter pig performance. D. E. Real*1, J. L. Nelssen1, M. D. Tokach1, R. D. Goodband1, S. S. Dritz1, J. M. DeRouchey1, B. W. James1, M. J. Webster1, and E. Alonso2, 1Kansas State University, Manhattan, 2Lonza, Inc., Fair Lawn, NJ.

**Nonruminant Nutrition VII**

**Soybean Meal, Specialty Grains, and Enzymes**

Chair: Dan Jones, DuPont Specialty Grains, Johnston, IA

Tuesday, 1:00 p.m. - 4:00 p.m.
Room: 204FG

<table>
<thead>
<tr>
<th>Time</th>
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<th>Paper</th>
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<tbody>
<tr>
<td>1:00</td>
<td>227</td>
<td>Variation in the ileal digestible amino acid content of soybean meal as affected by location of production. T.A.T.G. van Kempen*1, I.B. Kim1, A. Jansman2, M.W.A.</td>
</tr>
</tbody>
</table>
Verstegen2, J.D. Hancock3, D.J. Lee3, V.M. Gabert4, D.M. Albin4, and D. Mahan5,  
1North Carolina State University, 2Agricultural University Wageningen, 3Kansas State University, 4University of Illinois, 5Ohio State University.

1:15 228 Effects of soybean meal particle size on amino acid and energy ileal digestibilities in grower-finisher swine. N.D. Fastinger* and D.C. Mahan, The Ohio State University, Columbus.


1:45 230 Characterizing the feeding value of extruded-expelled soybean meal (Express™) with or without added fat in a commercial swine production facility. M. J. Webster*, S. S. Dritz1, R. D. Goodband1, M. D. Tokach1, J. L. Nelssen1, J. C. Woodworth1, M. De La Llatta1, and N. W. Said2, 1Kansas State University, 2Insta-Pro International.

2:00 231 Comparison of extruded/expelled soybean meal with conventionally processed soybean meal in swine diets from weaning to market weight. A. M. Tucker*, P. S. Miller, A. J. Lewis, and R. L. Fischer, University of Nebraska, Lincoln.


2:30 BREAK

2:45 233 Inclusion of Coastal Bermuda grass (BG) in feed negatively affects energy digestibility but not feed efficiency in swine. I.B. Kim*, B. Hansen2, J. Hansen3, R. Dvorak4, E. van Heugten1, and T. van Kempen1, 1North Carolina State University, 2Browns of Carolina, 3Murphy Family Farms, 4Alltech Inc.

3:00 234 Energy and nitrogen balance of pigs fed commercial red sorghum, identity-preserved white sorghum, or corn. R.W. Fent*, S.D. Carter, M.J. Rincker, and B.W. Senne, Oklahoma State University, Stillwater.

3:15 235 Digestibility of energy and amino acids in high-oil corn for grower pigs. R.T. Zijlstra*1, T.E. Sauber2, and J.F. Patience1, 1Prairie Swine Centre Inc., Saskatoon, Canada, 2DuPont Specialty Grains, Johnston, IA.

3:30 236 Digestible and metabolizable energy values of nutritionally-enhanced corn hybrids for growing pigs. C.M. Peter*, T.M. Parr, and D.H. Baker, University of Illinois, Urbana-Champaign.

Physiology III

Symposium: Some Possible Ways to Increase Litter Size in Swine

Chair: Jeffrey L. Vallet, USDA-ARS, Meat Animal Research Center, Clay Center, NE

Tuesday, 1:00 p.m.- 5:00 p.m.
Room: 136

<table>
<thead>
<tr>
<th>Time</th>
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<th>Paper</th>
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<tr>
<td>1:00</td>
<td></td>
<td>An overview of factors limiting litter size. Billy N. Day, University of Missouri, Columbia.</td>
</tr>
<tr>
<td>1:20</td>
<td>262</td>
<td>INVITED Control of ovulation rate in swine. H. Cardenas* and W.F. Pope, The Ohio State University.</td>
</tr>
<tr>
<td>2:30</td>
<td></td>
<td>BREAK</td>
</tr>
<tr>
<td>2:50</td>
<td>264</td>
<td>INVITED Early embryonic mortality in the pig. R.D. Geisert* 1 and R.A.M. Schmitt2, 1Oklahoma State University, Stillwater, 2Seaboard Farm, Inc., Guymon, OK.</td>
</tr>
<tr>
<td>3:25</td>
<td>265</td>
<td>INVITED Evidence suggests that uterine capacity is a result of both uterine environmental and conceptus genotype effects. S.P. Ford*, Iowa State University.</td>
</tr>
<tr>
<td>4:00</td>
<td>266</td>
<td>INVITED Preweaning survival in swine. R.L. Matteri1, D.C. Lay*2, J.A. Carroll1, T.J. Safranski3, and T.J. Fangman3, 1Animal Physiology Research Unit, USDA-ARS, Columbia, MO, 2Livestock Behavior Research Unit, USDA-ARS, West Lafayette, IN, 3University of Missouri, Columbia, MO.</td>
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<tr>
<td>4:35</td>
<td></td>
<td>Discussion. Ronald K. Christenson, USDA-ARS, Meat Animal Research Center, Clay Center, NE</td>
</tr>
</tbody>
</table>
Ruminant Nutrition and Forages III

Symposium: Soy in Ruminant Nutrition

Chair: Lyle W. Lomas, Kansas State University, Parsons

Tuesday, 1:00 p.m. - 3:00 p.m.
Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>1:00</td>
<td>326</td>
<td>INVITED Soy products as protein sources for beef and dairy cattle. J. L. Firkins* and F. L. Fluharty, The Ohio State University.</td>
</tr>
<tr>
<td>1:40</td>
<td>327</td>
<td>INVITED Utilization of whole soybeans in dairy cattle diets. R. Grummer* and E. Rabelo, University of Wisconsin, Madison.</td>
</tr>
<tr>
<td>2:20</td>
<td>328</td>
<td>INVITED Soy by-products as energy sources for beef and dairy cattle. E. C. Titgemeyer*, Kansas State University, Manhattan.</td>
</tr>
</tbody>
</table>

Ruminant Nutrition and Forages IV

Stocker Cattle Nutrition

Chair: Lyle W. Lomas, Kansas State University, Parsons

Tuesday, 3:15 p.m. - 4:45 p.m.
Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30</td>
<td>330</td>
<td>Management strategies and live weight gain of steers grazing Old World bluestem. P.D. Kircher*1, H.T. Purvis II1, G.W. Horn1, C.J. Ackerman2, T.N. Bodine1, and D.A. Cox1, 1Oklahoma Agriculture Experiment Station, Stillwater, 2Oregon State University, Corvallis.</td>
</tr>
</tbody>
</table>
Cooper, D. Downs, and G. E. Erickson, University of Nebraska.

4:00  332  Effects of implant status during winter and summer grazing periods on performance of stocker steers. T. N. Bodine*, H. T. Purvis II, D. A. Cox, G. W. Horn, and C. R. Krehbiel, Oklahoma Agricultural Experiment Station, Stillwater.

4:15  333  Effects of implant status during winter grazing and rate of gain during summer grazing on performance by stocker steers. T. N. Bodine*, H. T. Purvis, D. A. Cox, G. W. Horn, and C. R. Krehbiel, Oklahoma Agricultural Experiment Station, Stillwater.

4:30  334  Undegradable intake protein supplementation of March- and June-born steers previously wintered at two rates of gain. A. M. Hopkin*, D. C. Adams, T. J. Klopfenstein, and R. T. Clark, University of Nebraska, Lincoln.

**Ruminant Nutrition and Forages V**

**Cow-Calf/Dairy Nutrition**

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

Tuesday, 3:15 p.m. - 5:00 p.m.
Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tbody>
<tr>
<td>3:30</td>
<td>336</td>
<td>Supplementation of lactating two-year-old cows consuming meadow hay to meet metabolizable protein requirements versus degradable intake protein requirements. H. H. Patterson*, A. M. Hopkin, D. C. Adams, and T. J. Klopfenstein, University of Nebraska, Lincoln.</td>
</tr>
<tr>
<td>4:00</td>
<td>338</td>
<td>Difference in response of Holstein and Brown Swiss cows to diets containing fish oil, extruded soybeans, or their combination. L. A. Whitlock*, D. J. Schingoethe, A. R. Hippen, R. J. Baer, N. Ramaswamy, and K. M. Kasperson, MN-SD Dairy Foods Research Center, South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>4:15</td>
<td>339</td>
<td>Effect of BMR corn silage on lactation performance of primiparous and multipa-</td>
</tr>
</tbody>
</table>
Supplementing whole soybeans prepartum increases first service conception rate in postpartum suckled beef cows. K. K. Graham*1, J. F. Bader1, D. J. Patterson3, M. S. Kerley1, and C. N. Zumbrunnen2, 1University of Missouri, Columbia, 2Sullivan County Outreach and Extension Center, Milan, MO.


**Breeding and Genetics IV**

**Beef Cattle Breeding**

Chair: Kent Weigel, University of Wisconsin, Madison

Wednesday, 9:30 a.m. - 11:45 a.m.
Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>42</td>
<td>A comprehensive search for quantitative trait loci affecting growth and carcass composition of cattle segregating alternative forms of the myostatin gene. E. Casas*1, R. T. Stone1, J. W. Keele1, S. D. Shackelford1, S. M. Kappes2, and M. Koohmaraie1, 1USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2USDA-ARS, National Program Staff, Beltsville, MD.</td>
</tr>
<tr>
<td>9:45</td>
<td>43</td>
<td>Associations of Leptin Gene Marker with Carcass Traits in Cattle. C. D. Bierman* and D. M. Marshall, South Dakota State University, Brookings.</td>
</tr>
<tr>
<td>10:00</td>
<td>44</td>
<td>Heritability and correlation estimates of carcass data from Angus-sired steers. J.A. Minick*1, D.E. Wilson1, M.E. Dikeman2, and E.J. Pollak3, 1Iowa State University, Ames, 2Kansas State University, Manhattan, 3Cornell University, Ithaca, New York.</td>
</tr>
<tr>
<td>10:15</td>
<td>45</td>
<td>Heterogeneity of variance and estimation of genetic parameters. L. D. Van Vleck*1,3, R. K. Splan2, and L. V. Cundiff7,4, 1USDA-ARS USMARC, 2Virginia Tech, Blacksburg, VA, 3Lincoln, NE, 4Clay Center, NE.</td>
</tr>
<tr>
<td>10:30</td>
<td></td>
<td>BREAK</td>
</tr>
<tr>
<td>10:45</td>
<td>46</td>
<td>Genetic parameters for scrotal circumference and age at puberty in beef cattle. G. Martinez-Velazquez*1, K. E. Gregory2, G. L. Bennett2, and L. D. Van Vleck2,3,</td>
</tr>
</tbody>
</table>
Genetic parameters for reproductive traits in beef cattle. G. Martinez-Velazquez*\textsuperscript{1}, K. E. Gregory\textsuperscript{2}, G. L. Bennett\textsuperscript{2}, and L. D. Van Vleck\textsuperscript{2,3}, \textsuperscript{1}University of Nebraska, Lincoln, \textsuperscript{2}USDA, ARS, USMARC, Clay Center, NE, \textsuperscript{3}Lincoln, NE.

Comparison of models for estimating direct and maternal genetic effects for weaning weight of Hereford cattle. P. Sopannarath*\textsuperscript{1}, J. K. Bertrand\textsuperscript{2}, L. D. Van Vleck\textsuperscript{3}, and S. Tumwasorn\textsuperscript{4}, \textsuperscript{1}University of Nebraska, Lincoln, \textsuperscript{2}University of Georgia, Athens, \textsuperscript{3}USDA, ARS, USMARC, Lincoln, NE, \textsuperscript{4}Kasetsart University, Bangkok, Thailand.


### Companion Animal Biology

**Symposium: Companion Animal Biology as a Focal Point in the Animal Sciences**

Sponsored by: DuCoa, Hill’s Pet Nutrition, Inc., Nestle (Friskies), and The Iams Co.

Chair: George C. Fahey, Jr., University of Illinois, Urbana

Wednesday, 9:00 a.m. - Noon
Room: 204AB

9:00 Symposium background and introduction. George C. Fahey, Jr., University of Illinois, Urbana-Champaign.

9:15 Issues surrounding the teaching of companion animal biology in an animal science department. Linda Case and Neal Merchen, University of Illinois, Urbana-Champaign.


11:05 Role of animal science departments and FASS in fostering companion animal programs. Maynard Hogberg, Michigan State University, East Lansing, and Ellen Bergfeld, Executive Director, ASAS

11:45 General Question/Answer Session
Abstract

Number  Paper

71  Effects of milk replacer feeding rate and concentration on performance and economics in Holstein heifer calves. D. R. Catherman*, 1Strauss Feeds, Watertown, WI.


74  Illinois Lean Growth Project. Utilizing on-farm field research to develop prescription swine feeding and management regimes. D.J. Jennings*, G. Hollis1, D. Oswald1, E. Ballard1, R.K. Knipe1, D. Seibert1, A.P. Schinckel2, and M.D. Tokach3, 1University of Illinois, Urbana, 2Purdue University, West Lafayette, Indiana, 3Kansas State University, Manhattan.

75  The effects of housing system and physical environment on post-weaning pig performance. M. E. Larson* and M. S. Honeyman, Iowa State University.

76  A two year summary of finishing-pigs’ performance in hoop structures and confinement during winter and summer in Iowa. M. S. Honeyman*, J. D. Harmon, M. E. Larson, and A. D. Penner, Iowa State University.
Extension VI

Symposium: Practical Regulation of Dairy Heifer Growth

Sponsored by: APC Company, Inc., Ames, IA, Land O’Lakes Animal Milk Products, Minneapolis, MN and Milk Specialties, Dundee, IL

Chair: Dr. Jim Quigley, APC Company, Inc., Ames, IA

Wednesday, 9:00 a.m. - Noon
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
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<tr>
<td>9:00</td>
<td></td>
<td>Introduction Jim Quigley, APC Company, Inc., Ames, IA.</td>
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<tr>
<td>11:30</td>
<td></td>
<td>Open Discussion</td>
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Growth, Development, Muscle Biology, and Meat Science IV

Meat Quality

Chair: Floyd McKeith, University of Illinois, Urbana

Wednesday, 9:00 a.m. - 11:30 a.m.
Room: 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
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<tr>
<td>9:00</td>
<td>126</td>
<td>Factors affecting beef color development (bloom) over time. K. S. Kirchofer, C. R. Calkins*, K. M. Eskridge, and D. J. Hanson, University of NE, Lincoln.</td>
</tr>
<tr>
<td>9:15</td>
<td>127</td>
<td>Dietary fat source alters beef carcass tocopherol and fatty acid profiles. E. E. D.</td>
</tr>
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</table>
Dietary conjugated linoleic acid conserves color, decreases lipid oxidation, and changes fatty acid profile of irradiated beef patties. B. R. Wiegand\textsuperscript{*1}, F. C. Parrish, Jr.\textsuperscript{2}, J. E. Swan\textsuperscript{3}, S. T. Larsen\textsuperscript{2}, A. H. Trenkle\textsuperscript{2}, and K. Gassman\textsuperscript{2}, \textsuperscript{1}Illinois State University, Normal, \textsuperscript{2}Iowa State University, Ames, \textsuperscript{3}Elanco Animal Health, Greenfield, IN.

Comparison of ultrasound and carcass measures to predict lean beef beef from four primal cuts. R. G. Tait, Jr\textsuperscript{*}, G. H. Rouse, D. E. Wilson, and C. L. Hays, Iowa State University, Ames.

Evaluation of serially measured live-animal traits in purebred Angus bulls and heifers. A. Hassen\textsuperscript{*}, D. E. Wilson, and G. H. Rouse, Iowa State University, Ames.

Comparisons of three cooking methods used for beef tenderness research. T. E. Lawrence\textsuperscript{*}, D. A. King, E. Obuz, E. J. Yancey, and M. E. Dikeman, Kansas State University.

Increasing the Value of the Beef Chuck by Altering the Rib/Chuck Break Point. B. J. Reuter\textsuperscript{*}, D. M. Wulf, B. C. Shanks, J. M. Bok, and R. J. Maddock, South Dakota State University, Brookings.


Determination of moisture loss from fresh, aged, or frozen pork loin chops. C. R. Taylor\textsuperscript{*}, T. D. Bidner, J. L. Shelton, L. L. Southern, and M. A. Persica, Louisiana State University Agricultural Center, Baton Rouge.

Antibiotic resistance profiles of \textit{Campylobacter} isolated from swine. R. B. Harvey\textsuperscript{*}, M. E. Hume, R. E. Droleskey, R. C. Anderson, and D. J. Nisbet, USDA, ARS, Food and Feed Safety Research Unit, College Station, TX USA.
Nonruminant Nutrition VIII

Symposium: Interactions Among Nutrition, Health, and Disease Resistance

Sponsored by: Danbred U.S.A.

Chair: Phil Miller, University of Nebraska, Lincoln

Wednesday, 9:00 a.m. - Noon
Room: 204FG

Time   Paper

9:00   Introduction


9:35   The pig as a model to assess the role of nutrition in human health and disease. Doug Burrin, Children’s Nutrition Research Center, Baylor College of Medicine.

10:05  Break

10:15  Nutrition, disease, and longevity - companion animal perspective. Bill Schoenherr, Hill’s Pet Nutrition, Topeka, KS.

10:45  Nutrition - health interactions in swine production: research findings and issues facing the swine industry, Tim Stahly, Iowa State University.

11:30  Discussion

Physiology IV

Posters

Wednesday morning 9:00 a.m. - Noon
Authors present 9:00 a.m. - 11:00 a.m.
Room: Exhibit Hall, Room 206

Abstract Number   Paper


268   Field evaluation of extended pirlimycin therapy with or without vaccination for Staphylococcus aureus mastitis in a dairy herd. L. Timms*¹, M. Kirkpatrick¹, and P. Sears², ¹Iowa State Univer-
Innovation in Dairy Research Award – Field trial evaluation of a persistent barrier teat dip for preventing dry period mastitis and as a potential alternative/adjunct to dry cow antibiotic therapy. L.L. Timms*, Iowa State University.

An investigation of the impact of milk production and important management factors on the process of drying off lactating dairy cows. R.T. Dingwell*1, K.E. Leslie1, Y.H. Schukken2, David Kelton1, Jan Sargeant3, and Leo Timms4, 1University of Guelph, 2Cornell University, 3Kansas State University, 4Iowa State University.


The effects of prepartum and preweaning vaccination of beef cows and calves with a commercially available pasteurella haemolytica vaccine. L.E. Wankel*, T.T. Marston, G.L. Stokka, T.G. Rozell, and J.R. Brethour, Kansas State University, Manhattan.

Temporal feeding of melengesterol acetate (MGA) to elicit an estrous response in early postpartum beef cows. J.F. Gleghorn*, T.T. Marston, and L.E. Wankel, Kansas State University, Manhattan.

The effect of limited melengestrol acetate (MGA) feeding on pregnancy rate and postpartum interval in fall and spring calving beef cows. J.F. Gleghorn*, T.T. Marston, and L.E. Wankel, Kansas State University, Manhattan.

Fetal mortality as influenced by ovulation rate and uterine capacity in three selected lines of pigs. R. K. Christenson* and K. A. Leymaster, USDA, Agricultural Research Service, U.S. Meat Animal Research Center.


Characterization of serum hormone profiles of growing heifers implanted with estrogenic or androgenic implants. D. A. Blasi*1, D. M. Hendricks2, G. L. Kuhl1, J. S. Drouillard1, M. F. Spire1, and J. E. Minton1, 1Kansas State University, 2Clemson University.


Reproductive efficiency of dairy cows is associated negatively with concentrations of liver lipids in the postpartal period. G. Bobe*1, B. N. Ametaj1, D. C. Beitz1, and J. W. Young1, 1Iowa State University, Ames, IA.
### Ruminant Nutrition and Forages VI

Chair: Jeffrey L. Firkins, The Ohio State University, Columbus

Wednesday, 9:00 a.m. - 10:30 a.m.
Room: 136

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
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<tbody>
<tr>
<td>9:15</td>
<td>343</td>
<td>Effects of rumen undegradable protein digestibility and supplemental methionine on production parameters of holstein cows in early lactation. S. Noftsger* and N. St-Pierre, The Ohio State University.</td>
</tr>
<tr>
<td>9:30</td>
<td>344</td>
<td>Leucine and valine, but not isoleucine, are limiting in soybean hull-based diets for growing cattle. C. A. Loest*, E. C. Titgemeyer, B. D. Lambert, and A. M. Trater, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>9:45</td>
<td>345</td>
<td>Impact of glycine supply on utilization of methionine and cysteine by cattle. B. D. Lambert*, E. C. Titgemeyer, and C. A. Loest, Kansas State University, Manhattan.</td>
</tr>
</tbody>
</table>
PROGRAM COMMITTEES
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M. Weber
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   D. Moser
   E. Titgemeyer
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   J. Galvin
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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

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

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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
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<th>Year</th>
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<tr>
<td>1999</td>
<td>J. N. Spain</td>
<td>University of Missouri</td>
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<td>M. E. Doumit</td>
<td>Michigan State University</td>
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**AGRIBUSINESS AWARD**

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<tr>
<td>1995</td>
<td>P. L. Houghton</td>
<td>Heartland Cattle Co., McCook, Nebraska</td>
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<td>J. A. Barmore</td>
<td>Vita Plus Corp., Madison, Wisconsin</td>
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<td>1997</td>
<td>D. E. Dill</td>
<td>Dairy Strategies, Mendota Heights, MN</td>
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<td>1998</td>
<td>C. M. Luhman</td>
<td>Land O’lakes Research Farm, Webster City, IA</td>
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<td>2000</td>
<td>D. L. Hancock</td>
<td>Elanco Animal Health, Greenfield, IN</td>
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**PAST WINNERS OF INVITATIONAL COMPETITIVE RESEARCH PAPER AWARDS**

**UNDERGRADUATE STUDENTS**

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<tr>
<td>1987</td>
<td>R. E. Raw</td>
<td>University of Missouri</td>
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<td>J. A. Ragains</td>
<td>University of Missouri</td>
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<td>1989</td>
<td>G. L. Ambrose</td>
<td>South Dakota State University</td>
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<td>1990</td>
<td>C. N. Kemper</td>
<td>University of Missouri</td>
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<td>1991</td>
<td>T. R. Eberle</td>
<td>North Dakota State University</td>
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<td>1992</td>
<td>B. J. MacDonald</td>
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<td>1993</td>
<td>B. L. Dunn</td>
<td>Kansas State University</td>
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<td>S. M. Nelson</td>
<td>University of Nebraska</td>
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<td>L. J. Trinity</td>
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<td>M. E. Cunningham</td>
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<td>C. E. Sorenson</td>
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<td>1998</td>
<td>J. L. Strickland</td>
<td>University of Nebraska</td>
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<td>1999</td>
<td>B. A. DeMontigny</td>
<td>North Dakota State University</td>
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<td>2000</td>
<td>K. S. Freise</td>
<td>University of Illinois</td>
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**GRADUATE STUDENTS**

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<td>1976</td>
<td>D. G. Haught</td>
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<td>L. L. Berger</td>
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<td>G. F. Collings</td>
<td>Michigan State University</td>
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<td>R. D. Boyd</td>
<td>University of Nebraska</td>
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<td>1980</td>
<td>D. G. Cieslak</td>
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<td>W. F. Pope</td>
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<td>P. F. Saenger</td>
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<td>1989</td>
<td>K. K. Kreikemeier</td>
<td>Kansas State University</td>
</tr>
</tbody>
</table>
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  

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  

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. Hoefer, Michigan State  
1970-71  W. E. Dinusson, North Dakota State  
1972  J. F. Lasley, Missouri  
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. Zimbelman, 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

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
1999  R. D. Shaver, Wisconsin
2000  R. J. Grant, Nebraska

FUTURE MEETINGS

2002  March 18–20
2003  March 17–19
## Room Assignments

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>ROOM</th>
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<tbody>
<tr>
<td><strong>Monday AM</strong></td>
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</tr>
<tr>
<td>Special Livestock Symposium</td>
<td>Room 204AB</td>
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<tr>
<td><strong>Monday PM</strong></td>
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<tr>
<td>Nonruminant Nutrition I</td>
<td>204FG</td>
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<tr>
<td>Nonruminant Nutrition II</td>
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<tr>
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<tr>
<td>Teaching</td>
<td>205IJ</td>
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<tr>
<td>Undergraduate Student Competitive Research Papers</td>
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<tr>
<td>Reception</td>
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<td>Quiz Bowl</td>
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<td><strong>Tuesday AM</strong></td>
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<tr>
<td>Extension Breakfast</td>
<td>Savery Hotel, Grand A</td>
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<tr>
<td>Program Chairs Breakfast</td>
<td>Savery Hotel, Room 210</td>
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<tr>
<td>Refreshments</td>
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<tr>
<td>Animal Behavior and Well-Being I</td>
<td>205D</td>
</tr>
<tr>
<td>Animal Behavior and Well-Being II</td>
<td>205D</td>
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<tr>
<td>Breeding &amp; Genetics I</td>
<td>205E</td>
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<tr>
<td>Extension I</td>
<td>138</td>
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<tr>
<td>Extension II</td>
<td>138</td>
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<td>Graduate Student Competitive Research Papers</td>
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<tr>
<td>Growth, Development, Muscle Bio &amp; Meat Science I</td>
<td>204C</td>
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<td>204FG</td>
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<td>Nonruminant Nutrition V</td>
<td>204AB</td>
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<td>Odor and Nutrient Management I</td>
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<td>Physiology I</td>
<td>136</td>
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<td>Physiology II</td>
<td>136</td>
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<td>Ruminant Nutrition &amp; Forages I</td>
<td>Exhibit Hall, Room 206</td>
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<tr>
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<td>205IJ</td>
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<tr>
<td><strong>Tuesday PM</strong></td>
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<tr>
<td>Refreshments</td>
<td>Exhibit Hall, Room 206</td>
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<tr>
<td>Animal Behavior, Housing, &amp; Well-Being III</td>
<td>205D</td>
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<tr>
<td>Breeding &amp; Genetics II</td>
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<td>Breeding &amp; Genetics III</td>
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<td>Growth, Development,</td>
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Muscle Biology, and Meat Science II
Growth, Development,
Muscle Biology, and Meat Science III
Nonruminant Nutrition VI
Nonruminant Nutrition VII
Physiology III
Ruminant Nutrition & Forages III
Ruminant Nutrition & Forages IV
Ruminant Nutrition & Forages V
Reception

ACTIVITY

Wednesday AM
ADSA/ASAS Breakfast
Midwestern Section ADSA & ASAS Business Meeting
Breeding & Genetics IV
Companion Animal Biology
Extension V
Extension VI
Growth, Development,
Muscle Bio & Meat Science IV
Nonruminant Nutrition
Physiology IV
Ruminant Nutrition & Forages VI

204C
Exhibit Hall, Room 206
204AB
204FG
136
138
138
205D
Exhibit Hall, Room 206
134
134
204AB
Exhibit Hall, Room 206
134
204C
204FG
Exhibit Hall, Room 206
136