AMERICAN SOCIETY OF ANIMAL SCIENCE
OFFICERS 1999–2000

Donald H. Beermann, President
University of Nebraska, Lincoln

Jeffrey D. Armstrong, President-Elect
Purdue University, West Lafayette, IN

Terry Klopfenstein, Past President
University of Nebraska, Lincoln

Ellen G. M. Bergfeld, Executive Director
Savoy, IL

Larry L. Benyshek, Program Secretary
University of Georgia, Athens

Laurie M. Lawrence, Recording Secretary
University of Kentucky, Lexington

Stephen B. Smith, Editor-in-Chief
Texas A&M University, College Station

ASAS
MIDWESTERN SECTION
BOARD OF DIRECTORS 1999–2000

James R. Males, President
Oregon State University, Corvallis

Michael L. Day, President-Elect
The Ohio State University, Columbus

Gretchen M. Hill, Secretary-Treasurer
Michigan State University, East Lansing

Stephen P. Ford, Past President
Iowa State University, Ames

Alan L. Sutton, Director
Purdue University, West Lafayette, IN

Danny L. Williams, Director
Purina Mills, Inc., St. Louis, MO
AMERICAN DAIRY
SCIENCE ASSOCIATION
OFFICERS 1999–2000

Harold E. Swaisgood, President
North Carolina State University, Raleigh

David J. Schingoethe, Vice President
South Dakota State University, Brookings

Kent Williamson, Executive Director
Savoy, IL

Lawrence D. Muller, Past President
The Pennsylvania State University, University Park

Harold H. Van Horn, Treasurer
University of Florida, Gainesville

John W. Fuquay, Editor-in-Chief
Mississippi State University, Mississippi State

ADSA
MIDWEST BRANCH
BOARD OF DIRECTORS 1999-2000

Richard J. Grant, President
University of Nebraska, Lincoln

Maurice L. Eastridge, Vice-President
The Ohio State University, Columbus

James D. Quigley, III, Secretary-Treasurer
American Protein Corporation, Ames, IA

Randy D. Shaver, Past President
University of Wisconsin, Madison

Jennifer L. Garrett, Director
Monsanto Dairy Business, Lawrenceburg, KY
TABLE OF CONTENTS

1999–2000 Officers of ASAS and
  ASAS Midwestern Section ....................... Page 1
1999–2000 Officers of ADSA and
  ADSA Midwest Branch .......................... Page 2
Scientific Session Program ....................... Page 13
1999–2000 Committees ............................ Page 56
Past Recipients of Awards for
  Young Animal Science Leaders .............. Page 60
Past Winners of Invitational
  Competitive Research paper Awards ....... Page 62
Past Midwestern Section Presidents .......... Page 63
Future Meeting Dates ............................. Page 64
Floor Plans ......................................... Page 65
Room Assignments ................................. Page 68

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 13, 10:00 a.m. – 9:00 p.m.
Tuesday, March 14, 7:00 a.m. – 4:00 p.m.
Wednesday, March 15, 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>$50</td>
</tr>
<tr>
<td>Undergraduate Students</td>
<td>$10</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>$10</td>
</tr>
<tr>
<td>Post Doctoral Fellow</td>
<td>$10</td>
</tr>
<tr>
<td>ASAS Fellows</td>
<td>$0</td>
</tr>
<tr>
<td>Nonmember</td>
<td>$75</td>
</tr>
</tbody>
</table>

BOARD OF DIRECTORS MEETING

Monday, March 13, 8:00 a.m. – 12:00 noon
ASAS and ADSA, Savery Hotel, Iowa Room
SCHEDULE OF EVENTS

Monday, March 13

Poster Session (1:00 p.m. – 4:00 p.m.)
Nonruminant Nutrition III
See page 15

Scientific Sessions
Nonruminant Nutrition I and II
See pages 13 & 14

Symposium: Advances in Liquid Supplements for Cattle
AFIA and Ruminant Nutrition and Forages Committee
1:00 p.m. – 4:00 p.m.
Room 205IJ
See page 17

Contemporary Issues in Animal Agriculture
Undergraduate Competition Paper Session
4:00 p.m. – 6:00 p.m.
Room 144
See page 18

RECEPTION
Courtesy of Roche Animal Nutrition & Health
6:00 p.m. – 8:00 p.m.
Convention Center, Room 134

ACADEMIC QUADRATHLON

Quiz Bowl Competition
8:00 p.m.
Convention Center, Room 144

Results of the Academic Quadrathlon will be announced following the Quiz Bowl Competition

Tuesday, March 14

Extension Breakfast
Savery Hotel, Terrace Ballroom
6:45 a.m.

Program Chairs Breakfast
Savery Hotel, Room 210
6:45 a.m.
Poster Sessions (8:00 a.m. – 12:00 noon)
Breeding and Genetics II
   See Page 20
Environment and Livestock Production I
   See Page 21
Ruminant Nutrition and Forages II
   See Page 30

Refreshments
Courtesy of Optimum Quality Grains, LLC
   Exhibit Hall, Room 206
   9:00 a.m. – 11:30 a.m.

Scientific Sessions (8:00 a.m. – 12:00 noon)
Breeding and Genetics I
   See Page 19
Environment and Livestock Production II & III
   See Page 22
Growth, Development, Muscle Biology and Meat Science I
   See Page 24
Nonruminant Nutrition IV & V
   See Pages 25 & 27
Physiology I
   See Page 28
Ruminant Nutrition and Forages III
   See Page 33

Symposium-Enhancing Facilities to Improve Dairy Cattle Performance
Extension Committee-Extension I
   8:00 a.m. – 12:00 noon
   Room 138
   See Page 23

LUNCH

Tuesday, March 14, 11:30 a.m. – 1:30 p.m.
Exhibit Hall, Room 206
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’ll 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 it in advance. The box lunches available for sale will be on first-come basis.
**Poster Session** (1:00 p.m. – 5:00 p.m.)
Environment and Livestock Production IV & V
See Pages 35 & 36

**Refreshments**
Courtesy of Optimum Quality Grains, LLC
Exhibit Hall, Room 206
2:00 p.m. – 3:30 p.m.

**Scientific Sessions** (1:00 p.m. – 5:00 p.m.)
Environment and Livestock Production VI
See Page 37
Extension II
See Page 38
Growth, Development, Muscle Biology and Meat Science II
See Page 39
Nonruminant Nutrition VI & VII
See Pages 40 & 41
Ruminant Nutrition and Forages V & VI
See Pages 44 & 45
Teaching I
See Page 46

**Symposium-Managing Inbreeding in Livestock Populations**
Breeding and Genetics Committee-Breeding and Genetics III
1:00 p.m. – 4:00 p.m.
Room 205E
See Page 35

**Symposium-Role of Inhibin and Activin in Reproductive Function**
Physiology Committee-Physiology II
1:00 p.m. – 3:00 p.m.
Room 136
See Page 43

**Symposium-Feed and Forage Testing: NIRS Technology**
Ruminant Nutrition and Forages Committee-IV
1:00 p.m. – 3:00 p.m.
Room 138
See Page 44

6
Workshop—Understanding and Dealing with People: Personality Styles and Communicating with Them
Teaching Committee II
3:00 p.m. – 4:30 p.m.
Room 205D
See Page 47

Reception
Courtesy of IMC-Agrico, Feed Ingredient Division
5:00 p.m. – 7:00 p.m.
Exhibit Hall, Room 206

Wednesday, March 15

ASAS/ADSA Awards Program and Breakfast
7:00 a.m. – 8:30 a.m.
Convention Center, Room 134

ASAS Midwestern Section Business Meeting
J. R. Males, Presiding
8:30 a.m. – 9:00 a.m.
Convention Center, Room 134

ADSA Midwest Branch Business Meeting
R. J. Grant, Presiding
8:30 a.m. – 9:00 a.m.
Convention Center, Room 204AB

Poster Sessions (9:00 a.m. – 12:00 noon)
Environment and Livestock Production VII
See Page 48
Extension IV
See Page 50
Growth, Development, Muscle Biology and Meat Science III
See Page 51
Physiology III
See Page 53

Refreshments
Courtesy of Optimum Quality Grains, LLC
Exhibit Hall, Room 206
8:30 a.m. – 11:00 a.m.
Scientific Sessions (9:00 a.m. – 12:00 noon)
Breeding and Genetics IV
See Page 47
Ruminant Nutrition and Forages VII & VIII
See Page 54 & 55

Symposium-Defining the Relationship between Stress, Behavior and Performance
Environment and Livestock Production
Committee VIII
9:00 a.m. – 12:00 noon
Room 204AB
See Page 49

Symposium-Risk Management on Dairy Farms
Extension III
9:00 a.m. – 11:00 a.m.
Room 138
See Page 49

Symposium-Nutrition and Pork Quality: Oxymoron or Opportunity
Nonruminant Nutrition Committee VIII
9:00 a.m. – 12:00 noon
Room 204FG
See Page 52
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 2000 meetings
to the following companies:

Outstanding Young
Scientist Awards

Extension – Land O’Lakes
Research – Roche
Vitamins Inc., Animal Nutrition & Health
Teaching – Moorman’s, Inc.

NPPC Swine Innovation
(Abstract) Awards

Basic Research – National Pork Producers Council
Applied Research – National Pork Producers Council
Education – National Pork Producers Council

Innovation in Dairy
Research Award

Land O’Lakes

Agribusiness Award

ADM, Animal Health and Nutrition

Student Competition
Paper Awards

Graduate – DeKalb Feeds, Inc.
Undergraduate – Farmland Industries, Inc.

Academic Quadrathlon

American Protein Corporation
Intervet
Iowa State University

Contemporary Issues Competition

Optimum Quality Grains, LLC
Receptions

Monday – Roche Animal Nutrition & Health
Tuesday – IMC-Agrico, Feed Ingredient Division

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

BREEDING AND GENETICS
American Angus Association

EXTENSION
Monsanto Dairy Business

PHYSIOLOGY
R & D Systems

RUMINANT NUTRITION
American Feed Industry Association
Dairy Laboratories
Foss North America, Inc.
SPONSORS

PLATINUM LEVEL
($5,000.00 and above)
Roche Animal Nutrition & Health
IMC-Agrico, Feed Ingredient Division

GOLD LEVEL
($2,000.00–4,999.00)
Alpharma
Cargill Animal Nutrition Division
Fort Dodge Animal Health
Optimum Quality Grains, LLC
Roche Vitamins Inc., Animal Nutrition & Health

SILVER LEVEL
($1,000–1,999.00)
ADM, Animal Health and Nutrition
American Feed Industry Association
American Protein Corporation
BASF Corporation Animal Nutrition
Diamond V. Mills, Inc.
Gladwin A. Read, Inc.
Intervet
Land O’Lakes
National Pork Producers Council
Vetlife, a Division of Ivy Animal Health

BRONZE LEVEL
($500.00–999.00)
Akey, Inc.
Dairyland Laboratories
DeKalb Feeds, Inc.
Elanco Animal Health Research & Development
Farmland Industries, Inc.
Hubbard Feeds Inc.
Milk Products Inc.
Monsanto Animal Agricultural Group
Monsanto Dairy Business
MoorMan’s, Inc.
Pfizer Animal Health
Prince Agri-Products, Inc.
Purina Mills, Inc.

**OTHER**

(UP TO $499.00)

Agri-Nutrition Services, Inc.
American Angus Association
ExSeed Genetics
Foss North America, Inc.
Golden Sun Feeds, Inc.
Hormel Foods Corporation
International Ingredient Corp.
Iowa Testing Laboratories, Inc.
Kent Feeds, Inc.
Pettigrew Consulting International, LLC
R & D Systems
United Feeds, Inc.
Vigortone Ag Products, Inc.
# SCIENTIFIC SESSIONS PROGRAM

## NONRUMINANT NUTRITION I

### Sow and Chick Nutrition

Chair: William C. Weldon, Elanco Animal Health, Wilmington, NC

Monday, 1:00 p.m. - 2:30 p.m.
Room: 204FG

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>120</td>
<td>Added L-carnitine in sow gestation diets improves carcass characteristics of the offspring. R.E. Musser*, S.S. Dritz†, R.D. Goodband‡, M.D. Tokach§, D.L. Davis‖, J.L. Nelssen∗, K.Q. Owen‖, S. Hanni, J.S. Bauman, M.D. Heintz. 1Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>1:15</td>
<td>121</td>
<td>Maternal and fetal growth and metabolic characteristics affected by increased feed intake from d 30 to 57 of gestation. R.E. Musser*, D.L. Davis, R.D. Goodband, J.L. Nelssen, and M.D. Tokach, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>1:30</td>
<td>122</td>
<td>Threonine requirement of the high-producing lactating sow. D. R. Cooper*, J. F. Patience, R. T. Zijlstra. 1Prairie Swine Centre Inc., 2University of Saskatchewan, Saskatoon, Canada.</td>
</tr>
<tr>
<td>1:45</td>
<td>123</td>
<td>Bioavailability of phosphorus in meat and bone meal varying in origin, particle size, and processing pressure for chicks. S.L. Traylor*, G.L. Cromwell, and M.D. Lindemann, University of Kentucky, Lexington.</td>
</tr>
<tr>
<td>2:00</td>
<td>124</td>
<td>Limiting order of amino acids and the effects of phytase on protein quality in corn gluten meal fed to young chicks. C. M. Peter*, Y. Han, S. D. Boling, C. M. Parsons, and D. H. Baker, University of Illinois at Urbana-Champaign.</td>
</tr>
<tr>
<td>2:15</td>
<td>125</td>
<td>Effects of excess protein or methionine on the requirement for vitamin B-6 in chicks. C.S. Scherer* and D.H. Baker, University of Illinois, Urbana, IL USA.</td>
</tr>
</tbody>
</table>
### NONRUMINANT NUTRITION II

**Weanling and Growing-Finishing Pig Management**

Chair: John F. Less, Archer Daniels Midland, Decatur, IL

Monday, 1:00 p.m. - 3:00 p.m.  
Room: 204AB

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15</td>
<td>127</td>
<td>Floor-feeding enhances early appetite of weaned pigs. I. Mavromichalis* and D. H. Baker, University of Illinois at Urbana-Champaign.</td>
</tr>
<tr>
<td>2:00</td>
<td>130</td>
<td>Weighing accuracy in feedmills. T. van Kempen*, B. Park¹, M. Hannon², and P. Matzat³, ¹North Carolina State University, ²Park Consulting, ³Roche Animal Health and Nutrition.</td>
</tr>
<tr>
<td>2:15</td>
<td>131</td>
<td>Effect of particle size and enzyme supplementation on nutrient excretion of growing pigs. M.A. Oryschak¹², P.H. Simmins¹, and R.T. Zijlstra¹, ¹Prairie Swine Centre Inc., ²University of Saskatchewan, Saskatoon, Canada, ³Finnfeeds International Ltd., Marlborough, UK.</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.
Exhibit Hall, Room 206

Abstract Number Paper
134 Effect of litter size on amino acid mobilization among different tissues in lactating sows. S. W. Kim* and R. A. Easter, University of Illinois.


137 Use of chromium tripicolinate to improve pigs born alive confirmed in multiparous sows. M. D. Lindemann*, R. E. Hall1, and K. W. Purser*, University of Kentucky, Lexington, 1Land O’Lakes, Inc., Fishers, IN, 2Prince Agri Products, Inc., Quincy, IL.


140 Iron bioavailability of an iron-amino acid chelate. B. K. Anderson*, N. R. Augspurger3, M. Ellis1, and D. E. Nuzback3, 1University of Illinois at Urbana-Champaign, 2Albion Laboratories, Inc.

141 Maximizing digestion of meat and bone meal in vitro with minimal enzymes. Y. Qiao*, J. Koger1, and T. van Kempen1, 1North Carolina State University.

143 Effects of an isolated Lactobacillus on growth performance of weanling pigs. J. C. Whisenhunt*, S. D. Carter, S. E. Gilliland, R. W. Fent, and M. Rincker, Oklahoma State University, Stillwater.


145 Effects of pelleting and storage of a complex nursery pig diet on lysine bioavailability. I. Mavromichalis* and D. H. Baker, University of Illinois at Urbana-Champaign.

146 Nutritional strategies to lower pig starter feed costs among differing grain energy sources. D. G. Landblom* and W. W. Poland, Dickinson Research Extension Center, North Dakota State University, Dickinson, ND.

147 Blend-feeding regimens for nursery pigs. I. Mavromichalis*, C. M. Peter, and D. H. Baker, University of Illinois at Urbana-Champaign.


149 Effect of reduced dietary crude protein with supplemented crystalline amino acids on manure odors of growing pigs. E. R. Otto*, M. Yokoyama, S. Hengemuehle, and N. L. Trottier, 1Michigan State University, East Lansing, MI.

150 Sulfur amino acid to lysine ratio that optimizes performance in growing pigs. M. E. Johnston*, R. D. Boyd, and J. L. Usry, 1PIC USA Inc., Franklin, KY, 4Heartland Lysine Inc., Chicago, IL.

151 Valine requirement for 10- to 20-kg pigs. I. Mavromichalis* and D. H. Baker, University of Illinois at Urbana-Champaign.

152 Protein-amino acid utilization in soybean meal for young chickens and pigs as affected by microbial phytase. C. M. Peter*, T. M. Parr, and D. H. Baker, University of Illinois at Urbana-Champaign.

153 The interaction between hydrolysis time and acid concentration affects the measurement of amino acids in soybean meal and ileal digesta from growing pigs. M. R. Smiricky*, J. E. Wubben, D. M. Albin, E. Munger, and V. M. Gabert, University of Illinois, Urbana, IL.

154 Wheat screenings, field peas, and canola seed as replacements for corn and soybean meal in diets for growing-finishing pigs. R. L. Harrold*, D. Landblom, W. W. Poland, Jr, and K. B. Miller, 1NDSU, Fargo, 2NDSU, Dickinson.
<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td></td>
<td>Introduction John Moore</td>
</tr>
<tr>
<td>1:10</td>
<td>237</td>
<td>The history and current usage of liquid supplements. R. H. Klett*, M. J. Prokop², and D. L. Williams³, ¹X F Enterprises, Greeley, CO, ²Liquid Feed Commodities, Fremont, NE, ³Purina Mills, Inc., St. Louis, MO.</td>
</tr>
<tr>
<td>Time</td>
<td>Paper</td>
<td>Authors and Affiliations</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1:35</td>
<td>New technologies in liquid supplementation. J. S. Drouillard*1 and J. M. Harris2</td>
<td>1Kansas State University, Manhattan, KS, 2Westway Trading Corp., Tomball, TX.</td>
</tr>
<tr>
<td>2:00</td>
<td>Fats in liquid suspension supplements for dairy and beef cows. C.R. Staples*, J.L. Firkins2, and R. G. Lundquist3</td>
<td>1University of Florida, 2The Ohio State University, 3Lundquist and Associates.</td>
</tr>
<tr>
<td>2:25</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>2:40</td>
<td>Formulating diets using liquid supplements for growing and finishing cattle. R. H. Pritchard*1 and M. Sindt 2</td>
<td>1South Dakota State University, Brookings, SD/USA, 2Midwest P.M.S., Scottsbluff, NE/USA.</td>
</tr>
<tr>
<td>3:05</td>
<td>Meeting nitrogen requirements of beef cows with liquid supplements. J. A. Paterson*1 and R. Rawlings2</td>
<td>1Montana State University-Bozeman, 2PerforMix Nutrition Systems, Nampa, ID.</td>
</tr>
<tr>
<td>3:30</td>
<td>Panel Discussion - An inside look at the liquid feed industry</td>
<td>Danny Williams1 (moderator), Larry Carver2, Chet Fields3, and Joseph Harris4; 1Purina Mills Inc., St Louis, MO, 2Quality Liquid Feeds, Dodgeville, WI, 3U.S. Sugar Corp., Clewiston, FL, 4Westway Trading Corp, Tomball, TX</td>
</tr>
<tr>
<td>4:00</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>

### CONTEMPORARY ISSUES IN ANIMAL AGRICULTURE

**Undergraduate Competition**  
**Paper Session**

Chair: Jodi A. Sterle, Texas A&M University,  
College Station

Monday, 4:00 p.m. – 6:00 p.m.  
Room: 144

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
</table>
| 4:00  | Is Chromium a Necessary Component in Swine Diets?                    | Casey Bradley, Michigan State University  
Advisor: Dale Rozeboom                                                                 |
| 4:15  | A Case Study of Ethics of Animal Husbandry and Public Relations in Animal Agriculture | Irene F. Choi, Michigan State University  
Advisor: Adroaldo Zanella                                                                 |
| 4:30  | Ensuring the Future Competitiveness and Viability of Independent Pork Producers Within a Rapidly Changing Industry | Tiffany Gaston, University of Minnesota  
Advisor: Jerry Shurson                                                                 |
4:45  Genetically Modified Organisms  
Renee Hawkins, North Dakota State University  
Advisor: James Tilton

5:00  Racing and Training of Young Horses - Does it Make ‘em or Break ‘em?  
Tracey Hoffman, Michigan State University  
Advisor: Brian Neilsen

5:15  Food borne Illnesses (E. Coli 0157) and their Impact on Beef Demand  
Rachel Kaehler, North Dakota State University  
Advisor: Russ Danielson

5:30  Antibiotics - What is the Future?  
Shawn Kronner, Michigan State University  
Advisor: Dale Rozeboom

5:45  Johnes Disease - Should We Be Worried?  
Sara Moyer, Michigan State University  
Advisor: David Hawkins

BREEDING AND GENETICS I

Molecular Genetics

Chair: Kent A. Weigel, University of Wisconsin, Madison

Tuesday, 8:00 a.m. - 9:45 a.m.
Room: 205E

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Graduate Competitive Paper – Gene expression in hypothalamus and brown adipose tissue of mice divergently selected for heat loss. M. F. Allan*, M. K. Nielsen, and D. Pomp, University of Nebraska.</td>
</tr>
<tr>
<td>8:15</td>
<td>A Least Squares model for mapping QTL based on selective DNA pooling data. Jing Wang* and Jack Dekkers, Iowa State University, Ames, IA.</td>
</tr>
<tr>
<td>9:00</td>
<td>Identification of novel polymorphisms at the bovine calpastatin and insulin-like growth factor binding protein-2 loci. M. Pagan*, N.E. Raney1, M. Koohmaraie2, and C.W. Ernst1, 1Michigan State University, East Lansing, 2Roman L. Hruska U.S. Meat Animal Research Center ARS, USDA, Clay Center, NE.</td>
</tr>
</tbody>
</table>
Identification of polymorphic loci between two pig populations using representational difference analysis. C.R. Farber*, N.E. Raney, K. Nadarajah, D.L. Kuhlers, and C.W. Ernst, 1Department of Animal Science, Michigan State University, East Lansing, 2Animal and Dairy Sciences Department, Auburn University, AL.


BREEDING AND GENETICS II POSTERS

Molecular and Quantitative Genetics

Chair: Michael M. Schutz, Purdue University, West Lafayette, IN

Tuesday, 8:00 a.m. - 12:00 noon
Authors present, 10:00 a.m. - 12:00 noon
Exhibit Hall, Room 206

Abstract

Number Paper


12 Relationship of two PCR-RFLPs in the bovine calpastatin gene with calpastatin activity, meat tenderness, and carcass traits. H. Y. Chung*, M. E. Davis, H. C. Hines*, and D. M. Wulf, The Ohio State University, South Dakota University.

13 Effects of the calpain system on the growth of Angus bulls. M. E. Davis*, H. Y. Chung, H. C. Hines*, and D. M. Wulf, The Ohio State University, South Dakota State University.
Peroxisome Proliferator-Activated Receptor \( \alpha \) (PPAR\( \alpha \)): a candidate gene for performance, carcass and muscle quality in swine. R. S. Emnett\(^*\), E. Grindflek\(^1\), M. F. Rothschild\(^1\), S. J. Moeller\(^1\), D. L. Meeker\(^1\), K. M. Irvin\(^1\), and R. N. Goodwin\(^1\), \(^1\)The Ohio State University, \(^2\)Agricultural University of Norway, \(^3\)Iowa State University, \(^4\)National Pork Producers Council.

Genetic variation of Wood’s lactation curves in dairy sheep: a Bayesian approach. Yu-Mei Chang\(^*\), Romdhane Rekaya\(^2\), Daniel Gianola\(^1\), and David L. Thomas\(^1\), \(^1\)Department of Animal Sciences, University of Wisconsin-Madison, \(^2\)Department of Dairy Science, University of Wisconsin-Madison.

ENVIRONMENT AND LIVESTOCK PRODUCTION I
POSTERS

Swine Housing and Management

Tuesday, 8:00 a.m. - 12:00 noon
Authors present, 10:00 - 12:00 noon
Exhibit Hall, Room 206

32 Lean and carcass characteristics of pigs in deep-bedded hoop structures and confinement buildings during summer and winter. A. D. Penner\(^*\), M. E. Larson, and M. S. Honeyman, Iowa State University.

33 Performance of finishing pigs in deep-bedded hoop structures and confinement during summer and winter. M. E. Larson\(^*\), M. S. Honeyman, and A. D. Penner, Iowa State University.

34 The effect of removal of pigs from a group on growth performance and feed intake behavior of market weight pigs. N.R. Augspurger\(^*\), M. Ellis, and J.L. Beverly, University of Illinois.

35 The effect of group size on the variation in feed intake monitored using an electronic feeding system. Young Hyun\(^*\) and Mike Ellis\(^1\), \(^1\)University of Illinois.

36 Effects of Yucca extract supplementation on performance and lung integrity of grower-finisher pigs. L. Van den Berghe\(^1\), H.G. Schuerink\(^2\), and K.A. Jacques\(^*\), \(^1\)Agricultural College Ghent, Ghent, Belgium, \(^2\)Alltech Netherlands, Capelle aan den IJssel, The Netherlands, \(^3\)Alltech Inc., Nicholasville, KY, USA.
ENVIRONMENT AND LIVESTOCK PRODUCTION II

Swine Waste Management

Chair: W. Frank Owsley, Auburn University, Auburn, AL

Tuesday, 8:00 a.m. - 9:00 a.m.
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>37</td>
<td>Impact of dietary distillers dried drains with solubles on performance, manure characteristics, and odorous emissions of finishing pigs. A.K. Gralapp*, W.J. Powers, and D.S. Bundy, Iowa State University, Ames, IA.</td>
</tr>
<tr>
<td>8:30</td>
<td>39</td>
<td>Air pollution from swine production facilities differing in waste management practice. J.A. Zahn*1,2, J.L. Hatfield1, A.A. DiSpirito1, and Y.S. Do1, 1Iowa State University, Ames, 2National Soil Tilth Laboratory, USDA-ARS, Ames, IA.</td>
</tr>
</tbody>
</table>

ENVIRONMENT AND LIVESTOCK PRODUCTION III

Ruminant Production Systems-Health and Well being

Chair: Gregory P. Lardy, North Dakota State University, Fargo

Tuesday, 10:00 a.m. - 11:00 a.m.
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Number</td>
<td>Paper</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>-------</td>
</tr>
</tbody>
</table>

**EXTENSION I**

**Symposium: Enhancing Facilities to Improve Dairy Cattle Performance**

Chair: Richard J. Grant, University of Nebraska, Lincoln

Tuesday, 8:00 a.m. - 12:00 noon  Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>67</td>
<td>Housing strategies for calves and heifers. David Kammel* and Pat Hoffman, UW-Madison.</td>
</tr>
<tr>
<td>8:50</td>
<td>68</td>
<td>Managing heat stress in high producing herds. M.J. Brouk*, J.F. Smith, and J.P. Harner, Kansas State University, Manhattan, KS.</td>
</tr>
<tr>
<td>10:30</td>
<td>70</td>
<td>Issues associated with handling sand-laden manure. J.P. Harner*1, J.F. Smith, and M.J. Brouk, Kansas State University, Manhattan KS/U.S.</td>
</tr>
<tr>
<td>11:30</td>
<td></td>
<td>Speaker Panel, Question and Answer Session</td>
</tr>
</tbody>
</table>
## GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND MEAT SCIENCE I

### Quality And Safety

**Chair:** Steven J. Jones, University of Nebraska, Lincoln

**Tuesday, 8:00 a.m - 10:00 a.m.**

**Room:** 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>90</td>
<td>Evaluation of short-term supplementation of creatine monohydrate and alpha-lipoic acid as a means to improve fresh pork quality. Eric Berg*, Mike Linville, and Gary Allee, University of Missouri-Columbia.</td>
</tr>
<tr>
<td>8:15</td>
<td>91</td>
<td><strong>Undergraduate Competitive Paper</strong> - Warming chilled, normal-pH pork to body temperature duplicates the pale, soft, and exudative condition demonstrating pH and temperature interaction in PSE development. K. Freise*, S. Brewer, and J. Novakofski, University of Illinois.</td>
</tr>
<tr>
<td>8:30</td>
<td>92</td>
<td>Comparison of ham separation techniques. D.W. Newcom*,1 T.J. Baas1, R.N. Goodwin2, and P. Chen3,1 Iowa State University, 2National Pork Producers Council.</td>
</tr>
<tr>
<td>8:45</td>
<td>93</td>
<td>Consumer visual preferences of marbling and color of fresh beef steaks. K.M. Killinger*, C.R. Calkins, W.J. Umberger, D.M. Feuz, and K.M. Eskridge, University of Nebraska, Lincoln.</td>
</tr>
<tr>
<td>9:00</td>
<td>94</td>
<td>Effects of quality grade, postmortem age, blade tenderization, and endpoint cooking temperature on Warner-Bratzler shear force and sensory panel evaluation of beef longissimus steaks. C. D. George-Evins, J. A. Unruh*, J. L. Marsden, and C. L. Kastner, Kansas State University, Manhattan.</td>
</tr>
</tbody>
</table>
# NONRUMINANT NUTRITION IV

## Weanling Pig Nutrition

Chairs: Eric van Heugten, North Carolina State University, Raleigh

Mark J. Gahl, Farmland Industries, Inc., Kansas City, MO

Tuesday 8:00 a.m. - 12:00 noon
Room: 204FG

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>161</td>
<td>Biological role of pantothenic acid in the pig. T.S. Stahly and T.R. Lutz*, Iowa State University, Ames.</td>
</tr>
<tr>
<td>8:30</td>
<td>163</td>
<td>Effect of feeding organic and inorganic sources of zinc on nursery pig growth performance. C. L. Case* and M. S. Carlson, University of Missouri, Columbia, MO.</td>
</tr>
<tr>
<td>8:45</td>
<td>164</td>
<td><strong>Undergraduate Competitive Paper</strong> Impact of phytase and pharmacological concentrations of Zn on nursery pig performance and metallothionein in the liver and kidney. K. M. Hargrave*, M. M. Martinez, G. M. Hill, J. E. Link, C. W. Ernst, and N. E. Raney, Michigan State University, East Lansing.</td>
</tr>
<tr>
<td>9:30</td>
<td>167</td>
<td>Bioplex iron as a hematinic for nursery pigs. B.G. Harmon*, S.L. Barlow, and M.E. Einstein, Purdue University.</td>
</tr>
</tbody>
</table>
10:00  169  Effect of bile salt supplementation in fat digestion in early weaned pigs. B.G. Harmon*, G.M. Hill, and D.C. Mahan, 1Purdue University, 2Michigan State University, 3Ohio State University.


NONRUMINANT NUTRITION V

Growing-Finishing Pig Nutrition-Protein and Amino Acids

Chairs: Vince M. Gabert, University of Illinois, Urbana
David D. Hall, United Feeds, Inc., Sheridan, IN

Tuesday, 8:00 a.m. - 11:45 a.m.
Room: 204AB

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>177</td>
<td>Influence of dietary methionine to methionine plus cysteine ratios on nitrogen retention in growing pigs. A. T. H. Reijmers*, A. M. Gillis, and C. F. M. de Lange, University of Guelph, Guelph, Ontario, Canada.</td>
</tr>
<tr>
<td>8:45</td>
<td>180</td>
<td>Lack of interaction between lysine levels fed in the grower and finisher diets. J. C. Woodworth*, S. S. Deitz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>9:00</td>
<td>181</td>
<td>The effects of compensatory growth and form of amino acid supply on plasma urea concentration, organ weights, and carcass characteristics in gilts. R.L. Fischer*, P.S. Miller, and A.J. Lewis, University of Nebraska, Lincoln.</td>
</tr>
<tr>
<td>Time</td>
<td>Number</td>
<td>Paper</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>10:00</td>
<td>185</td>
<td>Effect of dietary protein and carbohydrates on internal nitrogen flow and excretion patterns in growing pigs. S. Zervas*1,2 and R.T. Zijlstra1, 1Prairie Swine Centre Inc., 2University of Saskatchewan, Saskatoon, Canada.</td>
</tr>
<tr>
<td>10:15</td>
<td>186</td>
<td>Response of grower-finisher pigs to declining energy intake at constant or proportional daily amino acid intake levels. C. M. Nyachoti*1, J. F. Patience1, R. T. Zijlstra2, D. Gillis2, R. D. Boyd2, and J. Usry2, 1Prairie Swine Centre Inc., Saskatoon, Canada., 2PIC, USA, Franklin, KY., 3Heartland Lysine, Chicago, IL.</td>
</tr>
<tr>
<td>10:45</td>
<td>188</td>
<td>Nutritional modifications to late finishing swine diets during periods of high ambient temperatures in a commercial production system. J. D. Spencer*1, G.L. Allee1, N. Allen1, J. Usry1, R.D. Boyd1, and M.E. Johnston1, 1University of Missouri-Columbia, 1Goldsboro Milling Co., 1Heartland Lysine, 1PIC-USA.</td>
</tr>
<tr>
<td>11:00</td>
<td>189</td>
<td>Predicting lysine requirements of finishing pigs using protein and lipid accretion curves. M. De La Llata*1, M.D. Tokach1, S.S. Dritz1, R.D. Goodband1, J.L. Nelssen1, and A.P. Schincke2, 1Kansas State University, Manhattan, 2Purdue University, West Lafayette, IN.</td>
</tr>
</tbody>
</table>

**PHYSIOLOGY I**

**Reproduction and Lactation**

Chair: Jeffrey S. Stevenson, Kansas State University, Manhattan

Tuesday, 8:00 a.m. - 10:45 a.m.

Room: 136

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>215</td>
<td>Innovation in Dairy Research Award - Decreased glucose availability increases substrate oxidation by isolated enterocytes. A. D. Beaulieu*, T.R. Overton, and J.K. Drackley, University of Illinois, Urbana, IL.</td>
</tr>
</tbody>
</table>
8:15  216  Effectiveness of intravaginal progesterone inserts and FSH to induce synchronized estrus and increase lambing rate in anestrous ewes. M. Knights*, T. Hoehn, P.E. Lewis, and E.K. Inskeep, West Virginia University Morgantown WV USA.

8:30  217  Assessment of flow cytometry and methods using SYBR-14/propidium iodide fluorochrome stain with extended, chilled semen from range-type beef bulls. A. A. Moravec*, G. P. Rupp2, M. J. Wilkerson1, and P. J. Chenoweth1, 1College of Veterinary Medicine, Kansas State University, Manhattan, KS, 2Great Plains Veterinary Education Center, University of Nebraska, Clay Center, NE.

8:45  218  The effects of bull exposure and lasalocid on pubescent estrus and timed AI conception rates in crossbred beef heifers. J. A. Small*, R. P. Del Vecchio2, W. P. McCaughey3, D. R. Ward4, and W. D. Sutherland1, 1Agriculture & Agri-Food Canada, Brandon, 2Louisiana State University, Baton Rouge.

9:00  219  Use of GnRH to increase the precision of estrus and augment timed insemination in heifers treated with melengestrol acetate and PGF2a. J.E. Huston*, S.R. Johnson2, V.L. Bogacz1, D.E. Grum1, and M.L. Day3, 1The Ohio State University, 2Kansas State University.

9:15  Break

9:30  220  Ovulation rate after GnRH or PGF2 alpha in early postpartum dairy cows. Ahmet Gumen* and Brad Seguin, University of Minnesota College of Veterinary Medicine St. Paul Mn.


10:00  222  Graduate Competitive Paper - Effects of Estradiol-17β on Serum and Anterior Pituitary (AP) Concentrations of IGF-I and IGF Binding Proteins (IGFBPs) in Barrows. L.A. Rempel*, T.M. Clark, and J.A. Clapper, South Dakota State University, Brookings, SD.

10:15  223  The effect of alternating fetal crushing on the growth of remaining conceptuses in Yorkshire (Y) and Meishan (M) pigs. K.A. Vonnahme*, M.E. Wilson, and S.P. Ford, Iowa State University, Ames.

10:30  224  Graduate Competitive Paper - Transrectal ultrasonography in gilts. C.J. Bracken*, M.C. Lucy, and W.R. Lamberson, University of Missouri, Columbia, MO, USA.
RUMINANT NUTRITION
AND FORAGES II
POSTERS

Tuesday, 8:00 a.m. - 12:00 noon
Authors present:
Even Abstract Numbers 8:00 a.m. - 10:00 a.m.
Odd Abstract Numbers: 10:00 a.m. - 12:00 noon
Exhibit Hall, Room 206

Abstract Number | Paper
--- | ---
242 | Effect of variety, stages of maturity and botanical fractions on phosphorus content, in situ degradability and availability of phosphorous of whole crop rice silage for ruminants. M. R. Islam*, M. Ishida1, S. Ando1, T. Nishida1, and N. Yoshida2. National Grassland Research Institute, Tochigi, Japan, Saitama Agriculture Experiment Station, Saitama, Japan.


245 | Beef cow-calf and forage production and legume persistence from pastures containing systems. M. L. Hermann* and J. R. Russell, Iowa State University, Ames.

246 | The effects of monensin on crude protein requirements of ruminal bacteria. C.J. Fu* and M.S. Kerley, University of Missouri-Columbia.

247 | Impact of frequency of supplementation on the forage use and performance of beef cattle consuming low-quality, tallgrass-prairie forage. C. G. Farmer*, R. C. Cochran1, D. D. Simms2, E. A. Klevesahl1, and T. A. Wickersham1. Kansas State University, Manhattan, Consolidated Nutrition, Omaha, NE.


249 | Effect of grazing system on performance of cow-calf pairs grazing bermudagrass pastures interseeded with wheat and legumes. L.W. Lomas*, J.L. Moyer, G.A. Milliken, and K.P. Coffey, Kansas State University, Parsons.

Effect of dietary energy and ionophore supplementation on frame growth, blood metabolites, and nitrogen balance in Holstein heifers. P.C. Hoffman*, L.M. Bauman¹, S.L. Denzine¹, M. Engstrom², and H. Chester-Jones³, ¹University of Wisconsin-Madison, ²Roche Animal Nutrition and Health, ³University of Minnesota, Waseca.

Effect of increased milk replacer consumption on performance and economics in Holstein heifer calves. D. R. Catherman, Strauss Feeds, LLC, Watertown, WI.

Effect of starch, fiber, or degradable intake protein (DIP) supplementation on utilization of fescue hay by heifers. M. L. Lusville*, K. C. Olson, and J. N. Spain, University of Missouri, Columbia.


Maximal replacement of dietary forage with a new wet corn milling feed product for lactating dairy cows. K. Boddugari*, R.J. Grant¹, R. Stock², and M. Lewis³, ¹University of Nebraska, Lincoln, NE, ²Cargill Corn Milling, Blair, NE.

Effect of wet corn gluten feed on growth and nutrient digestibility of replacement dairy heifers. D. Kleinschmit*, and R. J. Grant, ¹University of Nebraska, Lincoln, NE 68583-0908.

Blood amino acids and milk fatty acids in cows fed fishmeal and/or soybean meal. A. A. Abughazaleh*, D. J. Schingoethe, and A. R. Hippen, South Dakota State University.

High moisture and dry high oil corn for finishing feedlot steers. W.M. Cerkoney*, T.L. Mader¹, and F.N. Owens², ¹University of Nebraska, Concord, NE/USA, ²Optimum Quality Grains, L.L.C., Des Moines, IA/USA.


Effects of Bovamine™ Rumen Culture on the performance and carcass characteristics of feedlot steers. S.R. Rust**, K. Metz¹, and D.R. Ware², ¹Michigan State University, ²Nutrition Physiology Corporation.


Dry or high moisture high oil corn for finishing feedlot steers. F. N. Owens*, S. D. Soderlund¹, M. A. Hinds¹, D. W. Rice¹, and S. K. Duckett², ¹Optimum Quality Grains, L.L.C., Des Moines, IA, ²University of Idaho, Moscow, ID.
Effects of implanting and explanting on performance of finishing steers. B.A. Berry*, D.R. Gill, F.N. Owens, R.L. Ball, B. Freking, and B.A. Gardner, Oklahoma State University, Stillwater, OK, Kerr Foundation, Poteau, OK.


In situ fiber digestibility responses to feed intake and ruminal pH. M Basalan*, and F.N. Owens, Oklahoma State University, Stillwater, OK, Optimum Quality Grains, L.L.C., Des Moines, IA.


Effects of vitamin E supplementation on performance and health of newly received feedlot cattle. J. Carter*, D. Gill, and A. Confer, Oklahoma State University, Stillwater, Oklahoma.

Utilization of Bt corn residue and corn silage for growing beef steers. J.D. Folmer*, G.E. Erickson, C.T. Milton, T.J. Klopfenstein, and J.F. Beck, University of Nebraska, Lincoln, NE, Novartis Seeds, Golden Valley, MN.


RUMINANT NUTRITION AND FORAGES III

Feedlot and Stocker Nutrition

Chair: Todd Milton, University of Nebraska, Lincoln

Tuesday, 8:00 a.m. - 12:00 noon
Room: 205IJ

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>278</td>
<td>Degradable intake protein requirement of finishing steers fed a steam flaked corn-based diet. R. J. Cooper*, C. T. Milton, T. J. Klopfenstein, and D. J. Jordon, University of Nebraska, Lincoln, NE.</td>
</tr>
<tr>
<td>8:15</td>
<td>279</td>
<td>Programmed gain finishing systems in yearling steers fed dry-rolled corn or wet corn gluten feed finishing diets. T. L. Scott*1, C. T. Milton1, T. L. Mader2, and T. J. Klopfenstein1, 1University of Nebraska-Lincoln, 2University of Nebraska Northeast Research and Extension Center, Concord.</td>
</tr>
<tr>
<td>8:30</td>
<td>280</td>
<td>Effects of feeding whole soybeans on feedlot steer performance and carcass characteristics. E. E. D. Felton* and M. S. Kerley, University of Missouri, Columbia.</td>
</tr>
<tr>
<td>8:45</td>
<td>281</td>
<td>Graduate Competitive Paper - Effect of an accelerated finishing program on performance and carcass characteristics of early-weaned bulls and steers. J. P. Schoonmaker1, S. C. Loerch1, F. L. Fluharty1, D. M. Wulf2, T. B. Turner1, and S. J. Moeller2, 1The Ohio State University, Wooster, OH, 2South Dakota State University, Brookings, SD.</td>
</tr>
<tr>
<td>9:15</td>
<td>283</td>
<td>Graduate Competitive Paper - Characterizing essential amino acid flow to the small intestine in cattle consuming limited levels of forage. E. J. Scholljegerdes*, B. W. Hess, and P. A. Ludden, University of Wyoming, Laramie, Wyoming/USA.</td>
</tr>
<tr>
<td>9:30</td>
<td>284</td>
<td>Intake response to rumen and pre and post liver administration of monensin-sodium. S. Bierman* and R. Pritchard, 1South Dakota State University, Brookings, SD/USA.</td>
</tr>
</tbody>
</table>

10:00 Break


10:45 288 Undegradable intake protein supplementation of compensating, grazing steers. K.W. Creighton*¹, M.D. Ullerich¹, and T.J. Klopfenstein¹, ¹University of Nebraska, Lincoln.

11:00 289 Effects of increasing dietary Rumesin® concentrations during an imposed acidosis challenge. M. P. Blackford*², C. T. Milton¹, T. J. Klopfenstein¹, D. J. Jordon¹, T. L. Scott¹, R. J. Cooper¹, and C. Parrott², ¹University of Nebraska, Lincoln, NE, ²Elanco Animal Health, Greenfield, IN.


11:30 291 Implant programs using Synovex® Plus in feedlot heifers. C. N. Macken*¹, C. T. Milton¹, B. D. Dicke², D. McClellan¹, and F. L. Prouty², ¹University of Nebraska, Lincoln, NE, ²McClellan Consulting, Lincoln, NE, ³McClellan Consulting, Fremont, NE, ⁴Fort Dodge Animal Health, Overland Park, KS.

11:45 292 Comparison of finishing strategies for early or normal weaned steers. J. D. Arseneau*, R. P. Lemenager, and J. E. Tower, Purdue University, West Lafayette, IN, USA.
BREEDING AND GENETICS III

Symposium: Managing Inbreeding in Livestock Populations

Sponsored by: American Angus Association

Chair: Michael M. Schutz, Purdue University, West Lafayette, IN

Tuesday, 1:00 p.m. - 4:00 p.m.
Room: 205E

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>1:05</td>
<td>16</td>
<td>The scope of inbreeding and its implications in dairy cattle populations. K. A. Weigel*, University of Wisconsin, Madison, USA.</td>
</tr>
<tr>
<td>1:45</td>
<td>17</td>
<td>Inbreeding in swine seedstock herds. T.A. Rathje*, Danbred USA, L.L.C., Seward, NE, USA.</td>
</tr>
<tr>
<td>2:25</td>
<td>18</td>
<td>The interaction of selection intensity, inbreeding depression, and random genetic drift on short and long term response to selection: results from biological and finite locus simulations models. W.M. Muir*, 1Purdue University.</td>
</tr>
<tr>
<td>3:05</td>
<td>19</td>
<td>Studies on the effects of dominance and inbreeding in genetic evaluations of dairy cattle, beef cattle, and swine. I Misztal**, J. K. Bertrand1, M. Duangjinda1, and T. Druet2, 1University of Georgia, Athens 30602, 2Faculte Universitaire des Sciences Agronomiques, B-5030 Gembloux, Belgium.</td>
</tr>
<tr>
<td>3:45</td>
<td></td>
<td>Open Discussion</td>
</tr>
</tbody>
</table>

ENVIRONMENT AND LIVESTOCK PRODUCTION IV

POSTERS

Ruminant Health

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

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
</table>
Influence of ear injection of a clostridial vaccine on performance, growth implant payout and infrared thermal characteristics of beef heifers. D. A. Blasi*, J. M. Sargeant†, M. F. Spire†, S. I. Paisley‡, and J. E. Minton†, †Kansas State University, Manhattan, Kansas, ‡Kansas State University, Hutchinson, Kansas.

ENVIRONMENT AND LIVESTOCK PRODUCTION V
POSTERS

Ruminant Housing and Management Systems

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

Abstract Number Paper
47 Effect of nine years of grazing native grass pastures half vs three-quarter season on steers' gains the following year. F. K. Brazle*, Kansas State University, Manhattan.
48 Integration of Pasturing Systems for Cattle Finishing Programs. H. Koknaroglu** and M.P. Hoffman†, †Iowa State University, Ames, IA.
49 Factors Affecting Beef Cattle Performance and Profitability in Iowa. H. Koknaroglu**†, D. D. Loy†, D. E. Wilson†, M. P. Hoffman†, and J. D. Lawrence†, †Iowa State University Ames, IA.
50 Relative profitability of fall and spring calving in northern Missouri grazing systems. L. L. Melton*† and C. J. Kaiser‡, ‡New Mexico State University, Las Cruces, †University of Missouri, Columbia.
**ENVIRONMENT AND LIVESTOCK PRODUCTION VI**

**Swine Housing and Management**

Chair: Marcia S. Carlson, University of Missouri, Columbia

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
<th>Authors and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30</td>
<td>56</td>
<td>Examination of the interactive effects of stocking density and marketing strategies in a commercial production environment. J. C. Woodworth*, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelson, Kansas State University, Manhattan.</td>
<td></td>
</tr>
<tr>
<td>1:45</td>
<td>57</td>
<td>Effect of group sizes of 10, 20, 40 and 80 on productivity of grower-finisher pigs. S.A. Schmolke*, and H.W. Gonyou*, 1Prairie Swine Centre Inc., 2University of Saskatchewan, Saskatoon, Canada.</td>
<td></td>
</tr>
<tr>
<td>2:15</td>
<td>59</td>
<td>Effects of off-sow rearing upon <em>Campylobacter</em> colonization in neonatal pigs. R.B. Harvey*, R.E. Droleskey*, R.C. Anderson*, K.J. Genovese*, L.A. Egan*, and D.J. Nisbet*, 1Food and Feed Safety Research Unit, ARS, USDA, College Station, TX USA, 2College of Veterinary Medicine, Texas A&amp;M University, College Station, TX USA.</td>
<td></td>
</tr>
<tr>
<td>2:30</td>
<td></td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>3:00</td>
<td>60</td>
<td>Effects of genotype, environment, and feed grade antibiotics on serum concentrations of IGF-1 and a 1-acid glycoprotein (AGP) and their relationship to swine growth. T.E. Weber*, B.T. Richert*, D.C. Kendall*, A.P. Schinckel*, and P. Matzat*, 1Purdue University, West Lafayette, IN, 2Roche Vitamins, Parker, CO.</td>
<td></td>
</tr>
<tr>
<td>3:15</td>
<td>61</td>
<td>The evaluation of well-being in early weaned pigs as measured by adaptability. D.C. Lay Jr.*, and M.F. Haussmann, Iowa State University.</td>
<td></td>
</tr>
</tbody>
</table>
Graduate Competitive Paper - Evaluation of genotype, strategic use of antibiotics and grow-finish management effects on lean growth rate and carcass characteristics. D.C. Kendall*1, B.T. Richert1, T.E. Weber1, K.A. Bowers1, S.A. DeCamp1, A.P. Schinckel2, and P. Matzat2, 1Purdue University, West Lafayette, IN, 2Roche Vitamins, Parker, CO.

Exogenous ACTH administration during gestation alters offspring development, immune function and behavior. M. F. Haussmann*1, J. A. Carroll2, G. D. Weesner3, M. J. Daniels1, and D. C. Lay, Jr.1, 1Iowa State University, Ames, IA, 2Animal Physiology Research Unit, ARS-USDA, Columbia, MO, 3Purdue University, West Lafayette, IN.

EXTENSION II

Chair: Stephen L. Boyles, The Ohio State University, Columbus

Tuesday, 1:00 p.m. - 3:00 p.m.
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15</td>
<td>72</td>
<td>Swine News - An information delivery tool for the pork industry. M.T. See*, North Carolina State University, Raleigh NC.</td>
</tr>
<tr>
<td>1:30</td>
<td>73</td>
<td>Assessing Indiana Pork Producers Media Use and Educational Needs to Remain Viable in the Swine Industry. S. A. DeCamp*1, B. T. Richert1, B. A. Talbert1, D. C. Kendall1, K. A. Bowers1, and G. Slipher2, 1Purdue University, West Lafayette, IN, 2Indiana Pork Producers, Indianapolis, IN.</td>
</tr>
<tr>
<td>1:45</td>
<td>74</td>
<td>Summary of 1998 income and expenses from 12 monitor dairy herds in Nebraska. K. Boddugari*1, D. Jose1, and R.J. Grant1, 1University of Nebraska, Lincoln, NE.</td>
</tr>
<tr>
<td>2:00</td>
<td>75</td>
<td>Evaluating cost of treatment for bovine respiratory disease. R. Larson* and V. Pierce, University of Missouri, Columbia.</td>
</tr>
</tbody>
</table>
2:15  76  Intake, body weight gain and feed efficiency in calves fed milk replacers containing hydrolyzed red blood cells. J. D. Quigley*, C. A. Jaynes1, M. L. Miller1, H. Chester-Jones2, G. D. Marx3, and D. M. Allen4, 1American Protein Corporation, Ames, IA, 2University of Minnesota, Waseca, 3University of Minnesota, Crookston, 4University of Minnesota, St. Paul.

2:30  77  Correlation of plasma total protein and immunoglobulin in calves 7 to 9 days of age. C. A. Jaynes*, M. L. Miller1, J. C. Haupert1, and J. D. Quigley1, 1American Protein Corporation, Ames, IA.

2:45  78  Effects of method of milk replacer feeding on intake, growth and feed efficiency of dairy calves. M. L. Miller*, C. A. Jaynes1, and J. D. Quigley1, 1American Protein Corporation, Ames, IA.

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND MEAT SCIENCE II

Growth, Development, Muscle Biology

Chair: Wesley N. Osburn, Michigan State University, East Lansing

Tuesday, 1:00 p.m. - 3:15 p.m.
Room: 204C

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>98</td>
<td>Increased uncoupling protein-1 (UCP-1) mRNA in mice selected for low heat loss versus high heat loss. T. G. McDaneld* and J. L. Miner1, 1University of Nebraska.</td>
</tr>
<tr>
<td>1:45</td>
<td>101</td>
<td>Porcine melanin-concentrating hormone (MCH): cDNA sequence, tissue distribution of mRNA, and effect of weaning and piglet size on hypothalamic gene expression. R. L. Matteri*, C. J. Dyer1, K. J. Touchette2, J. A. Carroll1, and G. L. Allee2, 1USDA-ARS Animal Physiology Unit, Columbia, MO, 2University of Missouri, Columbia, MO.</td>
</tr>
</tbody>
</table>
2:00 102 Growth response by high and low lean growth capacity pigs to immune system stress. R. D. Boyd*, M. A. Mellencamp¹, M. E. Johnston¹, M. E. White², T. Molitor², K. L. Houseknecht³, and E. R. Wilson¹, ¹PIC USA, Inc., Franklin, KY, ²University of Minnesota, Saint Paul, MN, ³Purdue University, West Lafayette, IN.

2:15 103 Graduate Competitive Paper - Conjugated linoleic acid improves feed efficiency, decreases backfat and improves pork quality attributes. B. R. Wiegand*, J. E. Swan, S. T. Larsen, F. C. Parrish, Jr., and T. J. Baas, ¹Iowa State University Ames, IA.


2:45 105 Graduate Competitive Paper - Characterization of muscle growth in implanted feedlot heifers using a muscle cell culture system. J. L. Montgomery*, C. R. Kerth¹, K. J. Morrow¹, and M. F. Miller¹, ¹Texas Tech University, Lubbock TX, ²Auburn University, Auburn AL.

3:00 106 The effects of implant dosage on beef carcass characteristics and longissimus muscle. K. S. Kirchofer*, C. R. Calkins¹, C. T. Milton¹, and R. T. Brandt², ¹University of Nebraska, Lincoln, ²Hoechst Roussel Vet., Overland Park, KS.

NONRUMINANT NUTRITION VI

Growing-Finishing Pig Nutrition

Chair: Theo van Kempen, North Carolina State University, Raleigh

Tuesday, 1:00 p.m. - 3:00 p.m.
Room: 204AB

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
</table>
1:30 194 Graduate Competitive Paper - Boron supplementation improves performance and inflammatory response in pigs. T.A. Armstrong* and J.W. Spears, North Carolina State University, Raleigh, NC.

1:45 195 Hair measurements as an indicator of selenium status of pigs. Y. Y. Kim* and D. C. Mahan, Ohio State University, Columbus.

2:00 196 Effects of adding and removing dietary fat on growth performance and carcass characteristics of pigs from 25 to 120 kg. M. De La LLata*, M.D. Tokach, S.S. Dritz, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.

2:15 197 Economics of adding fat and increasing lysine:calorie ratio in diets for gilts from 27 to 120 kg. M. De La LLata*, M. Langemeier, S.S. Dritz, M.D. Tokach, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.

2:30 198 Effects of different sources of phosphorus and calcium on urine pH and ammonia emission. I.B. Kim*, D.W. Kim1, P. Ferker1, and T. van Kempen1, 1North Carolina State University, Raleigh, NC.


NONRUMINANT NUTRITION VII

Value-Added Grains and Enzymes

Chairs: Thomas E. Sauber, Optimum Quality Grains, LLC, West Des Moines, IA
Barton S. Borg, American Protein Corporation, Ames, IA

Tuesday, 1:00 p.m. - 4:45 p.m.
Room: 204FG

Abstract

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>200</td>
<td>Effects of processing on nutritional value of normal and high-oil corn in nursery pigs. L.J. McKinney*, J.D. Hancock, K.C. Behnke, D.W. Dean, C.W. Starkey, and J.M. DeRouchey, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>1:15</td>
<td>201</td>
<td>Ileal starch, apparent protein, and true protein digestibility of different corn hybrids fed to growing pigs. L. L. Andersen**, J. L. Snow2, P. K. Ku1, H. H. Stein3, M. Allen1, and N. L. Trotter1, 1Michigan State University, East Lansing, 2University of Illinois, Urbana, 3FAF Miniatech A/S, Odense, Denmark.</td>
</tr>
</tbody>
</table>
1:30 202 Evaluation of high oil corn for grow-finish pigs. K. A. Bowers*, D. C. Kendall, and B. T. Richert, Purdue University, West Lafayette, IN.


2:00 204 Effect of reduction of dietary calcium and phosphorus and(or) phytase addition on the ileal digestibility of amino acids in pigs. S. L. Johnston*, L. L. Southern, and L. D. Bunting, LSU Agricultural Center.


2:30 206 Bioavailability of phosphorus in low-oligosaccharide, low-phytate soybean meal for pigs. G.L. Cromwell*1, S.L. Taylor1, M.D. Lindemann1, T.E. Sauber2, and D.W. Race2, 1University of Kentucky, Lexington, 2Optimum Quality Grains, Des Moines, IA.

2:45 207 Relative phosphorus availability and retention of low-phytate/low-oligosaccharide soybean meals for growing pigs and chicks. J. D. Spencer*1, G. L. Allee1, J. W. Frank1, and T.E. Sauber2, 1University of Missouri-Columbia, 2Optimum Quality Grains, LLC.

3:00 208 Effects of low-phytate corn and low-oligosaccharide, low-phytate soybean meal in diets on performance, bone traits and phosphorus excretion by growing pigs. G.L. Cromwell*1, S.L. Taylor1, L.A. White1, E.G. Xavier1, M.D. Lindemann1, T.E. Sauber2, and D.W. Race2, 1University of Kentucky, Lexington, 2Optimum Quality Grains, Des Moines, IA.

3:15 209 Comparison of apparent nutrient digestibility values of normal and low-phytate/low-oligosaccharide soybean meals in growing pigs. J. W. Frank*1, C. D. Cooper1, G. L. Allee1, and T. E. Sauber2, 1University of Missouri, Columbia, MO, 2Optimum Quality Grains, LLC, Urbandale, IA.

3:30 210 Effect of high available phosphorus corn and phytase on phytate phosphorus utilization and growth performance of young pigs. J. S. Sands*1, O. Adeola1, D. Ragland1, C. A. Baxter1, B. C. Joern1, and T. E. Sauber2, 1Purdue University, West Lafayette, IN 47907, 2Optimum Quality Grains, Urbandale, IA 50322.

3:45 211 Nutrient retention and growth performance of pigs fed diets formulated with low-phytate corn and/or low-phytate/low-oligosaccharide soybean meal. J. D. Spencer*1, G.L. Allee1, J.W. Frank1, and T.E. Sauber2, 1University of Missouri-Columbia, 2Optimum Quality Grains, LLC.
4:00 212 The influence of fiber-degrading enzymes and steeping on the apparent ileal digestibilities of amino acids in growing pigs fed a semipurified corn starch soybean meal-based diet. D.M. Albin*, M.R. Smiricky, J.E. Wubben, and V.M. Gabert, University of Illinois, Urbana, IL.

4:15 213 The influence of feed enzymes and feed steeping on total tract digestibility and fecal output in growing pigs fed a corn-soybean meal diet. M. R. Smiricky*, D. M. Albin, J. E. Wubben, and V. M. Gabert, University of Illinois, Urbana, IL.

4:30 214 Effects of Hemicell® addition to corn-soybean meal diets on growth performance, carcass traits, and apparent nutrient digestibility of finishing pigs. L.A. Pettey*, S.D. Carter, B.W. Senne, and J.A. Shriver, Oklahoma State University, Stillwater.

PHYSIOLOGY II

Symposium: Role of Inhibin and Activin in Reproductive Function

Sponsored by: R&D Systems

Chair: Jonathan E. Wheaton, University of Minnesota, St. Paul

Tuesday, 1:00 p.m. - 3:00 p.m.
Room: 136

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>225</td>
<td>Mechanism of inhibin action. T. K. Woodruff*, Northwestern University.</td>
</tr>
<tr>
<td>2:00</td>
<td>226</td>
<td>Physiology and expression of inhibin/activin transcripts and different molecular forms of inhibin protein during follicle development in pigs. H. D. Guthrie*, W. M. Garrett1, and S. O. Mack2, 1Germplasm and Gamete Physiology Laboratory, ARS, USDA, Beltsville, MD 20705, 2Dept. of Physiology and Biophysics, Howard University, Washington, DC 20059.</td>
</tr>
</tbody>
</table>
RUMINANT NUTRITION
AND FORAGES IV

Symposium - Feed and Forage Testing:
NIRS Technology

Sponsored by: Dairyland Laboratories and Foss
North America, Inc.

Chair: Patrick C. Hoffman, University of Wisconsin,
Madison

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>293</td>
<td>An inside look at NIRS Technology. Thomas R. Boyd*, Caltest, LLC.</td>
</tr>
<tr>
<td>1:40</td>
<td>294</td>
<td>Application of NIRS in routine feed and forage analysis. Neal Martin*1, 1US Dairy Forage Research Center, USDA-ARS, Madison, WI.</td>
</tr>
</tbody>
</table>

RUMINANT NUTRITION
AND FORAGES V

Dairy Nutrition

Chair: Patrick C. Hoffman, University of Wisconsin,
Madison

Tuesday, 3:15 p.m. - 5:00 p.m.
Room: 134

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:15</td>
<td>296</td>
<td>Effects of supplemental biotin on performance of Holstein cows in early lactation. C.A. Zimmerly* and W.P. Weiss, The Ohio State University, Wooster, USA.</td>
</tr>
<tr>
<td>3:30</td>
<td>297</td>
<td>Effects of feeding Holstein calves a complete pelleted calf starter containing varying levels of alfalfa leaf meal. D. M. Allen*1, W. P. Hansen1, H. Chester-Jones2, J. G. Linn1, and G. D. Marx2, 1University of Minnesota, St. Paul, 2University of Minnesota, Waseca, 3University of Minnesota, Crookston.</td>
</tr>
</tbody>
</table>
3:45 298 Effect of initial feeding program on heifer performance when Rumensin is later incorporated into the diet. J.A. Isch*, J.E. Shirley¹, M.V. Scheffel¹, E.C. Titgemeyer¹, and E.C. Thomas², ¹Kansas State University, Manhattan, ²Elanco Animal Health, Indianapolis, IN.

4:00 299 Evaluation of wet corn gluten feed in diets for lactating dairy cows. M.J. VanBaale*¹, J.E. Shirley¹, M.V. Scheffel¹, E.C. Titgemeyer¹, and R.U. Lindquist², ¹Kansas State University, Manhattan, ²Minnesota Corn Processors, MN.

4:15 300 Effect of processing and fat removal on the value of cottonseed in diets for lactating dairy cows. M.J. Meyer*¹, J.E. Shirley¹, and E.C. Titgemeyer¹, ¹Kansas State University, Manhattan, KS.

4:30 301 Nutritive value of silages from MON810 Bt and non-Bt near-isogenic corn hybrids. M. A. Faust*¹ and S. M. Spangler², ¹Iowa State University, Ames, ²Monsanto, St. Louis, MO.

4:45 302 Influence of particle size on the effectiveness of the fiber in barley silage. H.W. Soita*¹, D.A. Christensen¹, and J.J. McKinnon¹, ¹University of Saskatchewan, Saskatoon, SK., Canada.

RUMINANT NUTRITION AND FORAGES VI

Grazing Cow/Calf

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

Tuesday, 3:15 p.m. - 5:00 p.m.
Room: 138

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30</td>
<td>304</td>
<td>Timing of realimentation of mature cows that were feed-restricted during pregnancy influences calf birth weights and growth rates. H. C. Freely*, C. L. Ferrell, and T. G. Jenkins, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.</td>
</tr>
</tbody>
</table>
4:00 306 Supplementation based on the metabolizable protein system versus the crude protein system for primiparous heifers grazing winter range. H. H. Patterson*, D. C. Adams, and T. J. Klopfenstein, University of Nebraska, Lincoln, NE.


4:30 308 Evaluation of alfalfa leaf meal in creep feeding diets. L. R. Miller* 1, C. M. Zehnder 2, G. C. Lamb 2, A. DiCostanzo 1, and A. Miron 1, 1University of Minnesota, St. Paul, MN, 2North Central Research and Outreach Center, Grand Rapids, MN, 3Harvest States/Land O Lakes Feeds, Sioux Falls, SD.

4:45 309 Graduate Competitive Paper - Energy, DIP, or UIP as the first limiting nutrient for gain in nursing calves grazing native range in southeastern North Dakota. T. W. Loy*, G. P. Lardy, M. L. Bauer, and J. S. Caton, North Dakota State University, Fargo, ND.

TEACHING

Chair: Anthony F. Jilek, University of Wisconsin-River Falls, River Falls

Tuesday, 1:15 p.m. - 2:30 p.m.

Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15</td>
<td>325</td>
<td>Curriculum review for the Department Of Animal Sciences (ANSC). M.A. Diekman* and J.D. Armstrong, Purdue University, West Lafayette, IN/USA.</td>
</tr>
<tr>
<td>1:30</td>
<td>326</td>
<td>Implementation of an interdisciplinary grazing livestock systems major. D. R. Brink*, L. E. Moser, W. H. Schacht, J. A. Gosey, and G. H. Pfeiffer, University of Nebraska, Lincoln, NE.</td>
</tr>
<tr>
<td>1:45</td>
<td>327</td>
<td>Effects of college major on student acceptance of animal utilization by humans, and perceptions about ethics, welfare, and food safety in animal agriculture. R. D. Pinckney, L. Backstrom*, and V. D. Leibbrandt, University of Wisconsin-Madison, Madison, WI/U.S.A.</td>
</tr>
<tr>
<td>2:00</td>
<td>328</td>
<td>Meat judging as a learning tool. P. T. Berg 1 and A. N. Scheaffer*, North Dakota State University.</td>
</tr>
<tr>
<td>2:15</td>
<td>329</td>
<td>Industry expectations of undergraduate and postgraduate meat science curriculum. C. L. Lorenzen* 1, E. P. Berg 2, and A. D. Clarke 1, 1Food Science and Engineering Unit, 2Animal Science Unit, University of Missouri-Columbia.</td>
</tr>
<tr>
<td>2:30</td>
<td></td>
<td>Break</td>
</tr>
</tbody>
</table>
TEACHING WORKSHOP

Tuesday 3:00 p.m. - 4:30 p.m.
Room: 205D

Understanding and Dealing with People Personality Styles and Communicating with Them. Dr. Larry Swain, University of Wisconsin-River Falls.

BREEDING AND GENETICS IV

Quantitative Genetics and Breeding

Chair: William O. Herring, University of Missouri, Columbia

Wednesday, 9:00 a.m. - 12:00 noon
Room: 205D

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Abstract</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>20</td>
<td>Models for estimating the genetic correlation between direct and maternal effects.</td>
<td>L. D. Van Vleck*1 and M. D. MacNeil2, 1USDA, ARS, US Meat Animal Research Center, Lincoln, NE, 2USDA, ARS, Livestock &amp; Range Research Laboratory, Miles City, MT.</td>
</tr>
<tr>
<td>9:15</td>
<td>21</td>
<td>Genetic analysis of mature cow weight of crossbred beef cattle.</td>
<td>J. Arango*1, L. V. Cundiff2, and L. D. Van Vleck2, 1University of Nebraska, Lincoln, NE, 2USDA, ARS, US Meat Animal Research Center, Clay Center, NE, 2Lincoln, NE.</td>
</tr>
<tr>
<td>9:30</td>
<td>22</td>
<td>Genetic parameters for cow weights at different ages.</td>
<td>J. M. Rumph*1, R. M. Koch1, K. E. Gregory2, L. V. Cundiff2, and L. D. Van Vleck2, 1University of Nebraska, Lincoln, NE, 2USDA, ARS, Livestock &amp; Range Research Laboratory, Miles City, MT, 2Lincoln, NE.</td>
</tr>
<tr>
<td>10:00</td>
<td>24</td>
<td>Divergent selection for predicted transmitting for type in Holsteins: II. Response in linear type and yield traits.</td>
<td>B. J. DeGroot*1, J. F. Keown1, and L. D. Van Vleck2, 1University of Nebraska, Lincoln, NE, 2USDA, ARS, US Meat Animal Research Center, Lincoln, NE.</td>
</tr>
</tbody>
</table>
10:15  25  Bayesian inference on genetic parameters of calving difficulty in Italian Piedmontese cattle. K. Kizilkaya* and R. J. Tempelman1, 1Michigan State University, East Lansing, MI.


10:45  27  Frequency of the Rendement Napole (rn) gene in Hampshire swine. S.J. Moeller*, T.J. Baas, R.S. Emnett1, D.L. Meeker1, and K.M. Irvin1, 1The Ohio State University, Columbus, OH, 2Iowa State University, Ames, IA.

11:00  28  Analysis of length of productive life and of lifetime prolificacy in Landrace sows using survival models. S Guo*1, D Gianola1, and T Short2, 1University of Wisconsin-Madison, 2PIC USA.

11:15  29  Correlated responses in litter and growth traits to 2-stage selection for ovulation rate and litter size in swine. A. Ruvedez-Flores*, J. P. Cassady1, and R. K. Johnson1, 1Department of Animal Science, University of Nebraska-Lincoln.

11:30  30  Genetic parameters of pork longissimus dorsi quality. R. N. Goodwin*1, P. J. Berger2, and T. J. Baas2, 1National Pork Producers Council, Des Moines, IA, 2Iowa State University, Ames, IA.

11:45  31  Genetic parameter estimates for prolificacy, growth and fleece characteristics in Polypay sheep. K. J. Hanford*, L. D. VanVleck2, and G. D. Snowder3, 1University of Nebraska, Lincoln, 2USDA, ARS, US Meat Animal Research Center, Lincoln, NE, 3USDA, ARS, US Sheep Experimental Station, Dubois, ID.

ENVIRONMENT AND LIVESTOCK PRODUCTION VII POSTERS

Waste Management and Odor

Wednesday, 9:00 a.m. - 12:00 noon
Authors present 9:00 a.m. - 10:30 a.m.
Exhibit Hall, Room 206

Abstract Number 64  Paper
Composting is a viable alternative to traditional livestock waste disposal. P.M. Walker*, T.R. Kelley*, and K.D. Smiciklas*, Illinois State University, Normal.

Microbial odor production and odor consumption in cattle feedlot soils under varying environmental conditions. D. N. Miller*, USDA, ARS, U.S. Meat Animal Research Center.

ENVIRONMENT AND LIVESTOCK PRODUCTION VIII

Symposium: Describing and Understanding the Relationships between Stress, Behavior and Performance

Chair: Jeffery A. Carroll, USDA-ARS, University of Missouri, Columbia

Wednesday, 9:00 a.m. - 12:00 noon
Room: 204AB

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Welcome and overview, Jeff Carroll</td>
</tr>
<tr>
<td>9:10</td>
<td>Stress - Behavior - Performance: An overview of the relationships. Don Lay, Iowa State University, Ames.</td>
</tr>
<tr>
<td>10:20</td>
<td>Break</td>
</tr>
<tr>
<td>10:35</td>
<td>Effect of Environmental Toxins on Reproduction in Ruminants. Ron Randal, Texas A&amp;M University, College Station.</td>
</tr>
<tr>
<td>11:05</td>
<td>Thermoregulatory Responses of Cattle to Heat Stress. Don Spiers, University of Missouri, Columbia.</td>
</tr>
<tr>
<td>11:40</td>
<td>Discussion by speakers</td>
</tr>
</tbody>
</table>

EXTENSION III

Symposium: Risk Management on Dairy Farms

Sponsored by: Monsanto Dairy Business

Chair: Marjorie A. Faust, Iowa State University, Ames

Wednesday, 9:00 a.m. - 11:00 a.m.
Room: 138

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>Losing your shirt in or out of the dairy business. P.R. Tozer*, The Pennsylvania State University.</td>
</tr>
<tr>
<td>88</td>
<td>Managing production risk in dairy: nutritional and forecasting aspects. N. R. St-Pierre*, The Ohio State University, Columbus.</td>
</tr>
</tbody>
</table>
### EXTENSION IV

**POSTERS**

Wednesday, 9:00 a.m. - 12:00 noon  
Authors present, 10:00 a.m. - 12:00 noon  
Exhibit Hall, Room 206

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>Effect of zinc from zinc sulfate in calf milk replacer on performance and scouring of calves. T. E. Johnson, H. B. Perry, B. L. Miller, and M. A. Fowler, Land O’Lakes, Webster City, Iowa, USA.</td>
</tr>
<tr>
<td>80</td>
<td>Dairy case farm business plan. K. R. Boddugari*, D. Jose¹, and R. Valluru¹, ¹University of Nebraska, Lincoln, NE.</td>
</tr>
<tr>
<td>81</td>
<td>Characterizing the effects of changes for DHIA measures for profit changes in dairy herds. M. Lunak* and M. Faust, Iowa State University, Ames IA.</td>
</tr>
<tr>
<td>82</td>
<td>Growth response and carcass characteristics of yearling steers utilizing different implant strategies. G. D. Fike*, D. L. DeWitt¹, and J. Illig², ¹Iowa State University, Ames, Iowa, ²Humboldt Veterinary Clinic, Humboldt, Iowa.</td>
</tr>
<tr>
<td>83</td>
<td>Grazing and finishing performance and carcass characteristics of steers fed Arsoy (high protein) supplements during late-summer grazing. J. F. Gleghorn*, T. T. Marston, and D. O. Yauk, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>84</td>
<td><strong>NPPC Education Award</strong> - Teaching skills in farrowing management by distance education. D. E. Reese¹, L. J. Johnston², K. J. Stalder*, W. L. Singleton¹, J. Felt³, and K. B. Kephart*, ¹University of Nebraska, Lincoln, ²University of Minnesota, Morris, ³University of Tennessee, Knoxville, ⁴Purdue University, West Lafayette, IN, ⁵National Pork Producers Council, Clive, IA.</td>
</tr>
<tr>
<td>86</td>
<td>Comparisons of variables and statistical process control chart designs to detect a persistent change in estrus detection efficiency in dairy herds. A. de Vries*, and B. J. Conlin, University of Minnesota, St. Paul, Minnesota.</td>
</tr>
</tbody>
</table>
# GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND MEAT SCIENCE III POSTERS

Chair: Michael E. Spurlock, Purdue University, West Lafayette, IN

Wednesday, 9:00 a.m. - 12:00 noon
Authors present, 9:00 a.m. - 10:30 a.m.
Exhibit Hall, Room 206

<table>
<thead>
<tr>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>108</td>
<td>Effects of quality grade, postmortem age, blade tenderization, and endpoint cooking temperature on Warner-Bratzler shear force and sensory panel evaluation of beef gluteus medius steaks. C. D. George-Evins, J. A. Unruh, J. L. Marsden, and C. L. Kastner, Kansas State University, Manhattan, Kansas.</td>
</tr>
<tr>
<td>112</td>
<td>Pre-rigor injection using glycolytic inhibitors in low-quality beef muscles. N. C. Jerez*, C. R. Calkins, and J. Velazco, University of Nebraska, Lincoln, Instituto Tecnologico y Estudios Superiores de Monterrey, Mexico.</td>
</tr>
<tr>
<td>114</td>
<td>The effects of post-harvest time and temperature on glycolytic potential of beef muscle. D. J. Hanson* and C. R. Calkins, University of Nebraska-Lincoln.</td>
</tr>
</tbody>
</table>
The effect of rendement napole genotype and time of feeding of supplemental magnesium sulfate on carcass characteristics and on pork quality. M. D. Hemann*, M. Ellis¹, F. K. McKeith¹, K. D. Miller¹, and K. Purser², ¹University of Illinois, Urbana-Champaign, ²Prince Agri-Products, Quincy, IL.

Deletion analysis of three actin-binding sites in muscle talin. H.-S. Lee*, R.M. Bellin, and R.M. Robson, Iowa State University, Ames, IA.

Influence of level of vitamin E and level and time of feeding of vitamin D₃ on growth, carcass, and pork quality characteristics in pigs. K.L. Enright¹, K.D. Miller*¹, L.L. Berger¹, F.K. McKeith¹, G. Lynch², and M. Ellis¹, ¹University of Illinois, ²BASF Corporation.

Behavior of mice selected for high and low heat loss during light and dark photoperiods. J. G. Jones*¹ and J. L. Miner¹, ¹University of Nebraska.

Fiber type composition of the muscles of the beef chuck and round. K. S. Kirchofer*¹, C. R. Calkins¹, and B. L. Gwartney², ¹University of Nebraska, Lincoln, ²National Cattlemen’s Beef Association, Greenwood Village, CO.

NONRUMINANT NUTRITION VIII

Symposium: Nutrition and Pork Quality:
Oxymoron or Opportunity

Chair: Scott D. Carter, Oklahoma State University, Stillwater

Wednesday, 9:00 a.m. – 12:00 noon
Room:204FG

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Pork Quality – Definition and Perception. Dr. Floyd McKeith, University of Illinois.</td>
</tr>
<tr>
<td>9:20</td>
<td>Muscle Biology and Pork Quality. Dr. Dave Gerrard, Purdue University.</td>
</tr>
<tr>
<td>9:40</td>
<td>Genetic Prerequisites for Desirable Pork Quality. Dr. Eldon Wilson, and Dr. Andrzej Sosnicki, PIC.</td>
</tr>
<tr>
<td>10:00</td>
<td>Conjugated Linoleic Acid and Pork Quality. Dr. Fred Parrish, Iowa State University.</td>
</tr>
<tr>
<td>10:30</td>
<td>Effect of Vitamin Nutrition on Pork Quality. Dr. Donnie Ray Campbell, Roche.</td>
</tr>
<tr>
<td>11:00</td>
<td>Nutritive Effects on Pork Quality: Protein, Fats, and Minerals. Dr. Mike Ellis, University of Illinois.</td>
</tr>
<tr>
<td>11:30</td>
<td>Roundtable Discussion</td>
</tr>
</tbody>
</table>
PHYSIOLOGY III
POSTERS

Wednesday, 9:00 a.m - 12:00 noon
Authors present, 10:00 a.m. - 12:00 noon
Exhibit Hall, Room 206

Abstract Number Paper
228 Prostaglandin E2 production in pig anterior pituitary cells treated with bacterial lipopolysaccharide. J. E. Minton* and C. M. Hill, Kansas State University.


230 Function of the reproductive system of neonatal pigs born naturally or by Cesarean section. J.A. Daniel*1, D.H. Keisler1, C.J. Dyer2, R.L. Matteri2, and J.A. Carroll2, 1University of Missouri-Columbia, 2Animal Physiology Research Unit, Agricultural Research Service, USDA.


232 Regression Of Non-Suckled Mammary Glands During Lactation In Sows As Influenced By Dietary Nutrients. S. W. Kim*, W. L. Hurley, and R. A. Easter, University of Illinois.

233 Differences in serum immunoglobulin G1 and total protein concentrations in neonatal calves on days 1, 5, and 10. L.E. Wankel*, T.T. Marston, G.L. Stokka, and T.G. Rozell, Kansas State University, Manhattan.

234 Suckling versus bottle-feeding of colostrum to Holstein calves. S. T. Franklin*, D. M. Amaral-Phillips, and A. A. Polley, University of Kentucky, Lexington, KY.

235 Effects of gonadotropin treatment on incidence of estrus and pregnancy rate in ewes synchronized with Synchro-Mate-B (SMB) and subjected to laparoscopic artificial insemination (LAI) during the breeding season. D.A. Redmer*1, R.G. Haugen1, T.K. Stenbak1, D.R. Arnold1, H.R. Berginski1, W. Limesand1, A.T. Grazul-Bilska1, D.D. Gourley2, R.L. Riese2, and L.P. Reynolds1, 1North Dakota State University, Fargo, ND, 2Elite Genetics, Waukon, IA.

236 Regression equations for estimating relative future profits of cows calculated from a dynamic programming model. A. de Vries* and B.J. Conlin, University of Minnesota, St. Paul, Minnesota.
## Ruminant Nutrition and Forages VII

### Feedlot and Stocker Nutrition

Chair: Hugh Chester-Jones, University of Minnesota, Waseca

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

Room: 205IJ

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>310</td>
<td>Bloodmeal and fishmeal improves efficiency of growing cattle. J. W. Lehmkühler* and M. S. Kerley, University of Missouri, Columbia, MO/USA.</td>
</tr>
<tr>
<td>9:30</td>
<td>312</td>
<td>Effects of corn and four levels of soybean meal fed with prairie hay to beef steers on intake, digestion and fecal concentration of nitrogen, starch and ADF. T. N. Bodine*, H. T. Purvis II, and C. J. Ackerman,. Oklahoma Agricultural Experiment Station, Oklahoma State University.</td>
</tr>
<tr>
<td>10:30</td>
<td>316</td>
<td>Ruminal digestion and fermentation patterns of heifers receiving supplemental soybean oil or corn while grazing summer pasture. L. Brokaw*, B. W. Hess, and D. C. Rule, University of Wyoming, Laramie.</td>
</tr>
</tbody>
</table>
10:45 317 Undegraded intake protein value of corn steep compared to soybean meal. H. H. Patterson*, T. J. Klopfenstein*, D. J. Jordan, C. B. Wilson, and R. A. Stock, University of Nebraska, Lincoln, NE, Cargill Corn Milling, Blair, NE.


RUMINANT NUTRITION AND FORAGES VIII

Sheep Nutrition

Chair: Guy L. M. Chappell, University of Kentucky, Lexington

Wednesday, 9:00 a.m. - 10:15 a.m.
Room: 205E

<table>
<thead>
<tr>
<th>Time</th>
<th>Abstract Number</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>320</td>
<td>Influence of soybean oil on intake and utilization of mature fescue hay by wethers. R. F. Bapst* and E. S. Vanzant, University of Kentucky, Lexington.</td>
</tr>
<tr>
<td>9:45</td>
<td>323</td>
<td>Effects of feeding corn vs. casein in concentrated rations on flux of nitrogenous compounds across the PDV. M. B. McDonagh*, H. C. Freety, and C. L. Ferrell, USDA, Meat Animal Research Center, Clay Center, NE.</td>
</tr>
</tbody>
</table>
PROGRAM COMMITTEES
1999–2000

BREEDING AND GENETICS

M. Schutz, Chair
K. Weigel
W. Herring

ENVIRONMENT AND LIVESTOCK PRODUCTION

J. Spain, Chair
E. Pajor
J. Carroll

EXTENSION

S. Boyles, Chair
L. Johnston
J. Smith

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY, AND MEAT SCIENCE

W. Osburn, Chair
M. Spurlock
S. Johnes

NONRUMINANT NUTRITION

D. Holzgrafe, Chair
S. Carter
P. Miller

PHYSIOLOGY

J. Wheaton, Chair
J. Stevenson
D. Miller

RUMINANT NUTRITION AND FORAGES

P. Hoffman, Chair
L. Lomas
T. Milton

56
TEACHING

T. Jilek, Chair
R. Dado
R. Harrold

YOUNG ANIMAL SCIENCE LEADERS AWARDS COMMITTEES 1999–2000

EXTENSION AWARD

A. Sutton, Chair
T. Baas
R. Goodband
N. St. Pierre
J. Barmore
M. Tokach

RESEARCH AWARD

J. Garrett, Chair
B. Newton
R. Prather
J. Firkins
D. Pomp
R. Johnson

TEACHING AWARD

R. Shaver, Chair
H. Tyler
P. Clark
C. Youngs
D. Parrett
J. Spain
AGRIBUSINESS AWARD

D. Williams, Chair
D. McLaren
P. Windschitl
D. Dill
C. Luhman
E. Lanka

NPPC INNOVATION AWARD

S. Ford, Chair
B. Richert
G. Louis
T. Ward
D. Boyd
T. Stahly

INNOVATION IN DAIRY RESEARCH AWARD

R. Shaver, Chair
J. Barmore
M. Faust
J. Firkins
A. Kertz
J. Stevenson

SPECIAL COMMITTEES
1999–2000

ASAS NOMINATIONS

S. Ford, Chair
R. Lemenager
T. Stahly

ADSA NOMINATIONS

R. Shaver, Chair
J. Drackley
M. Faust
ACADEMIC QUADRATHLON COMMITTEE

M. Bauer, Chair
B. Richert
M. Carlson
W. Powers
M. Weber
H. Tyler
S. Kelm
B. Johnson

STUDENT CAREER AND PLACEMENT

D. Williams, Chair
J. Quigley

STUDENT CONTEMPORARY ISSUES

J. Sterle, Chair
R. Erickson
A. Prill Adams
J. Galvin
C. Ernst
T. Safranski

INVITATIONAL COMPETITIVE RESEARCH PAPER COMPETITION COMMITTEES 1999–2000

GRADUATE STUDENTS

J. Caton, Chair
J. Odle
R. Nold
M. Wiltbank
A. DiConstanso
D. Buskirk
UNDERGRADUATE STUDENTS

S. Franklin, Chair
H. Tyler
D. Moser
J. Miner
E. Titgemeyer
G. Lardy

PAST RECIPIENTS OF AWARDS
FOR YOUNG ANIMAL
SCIENCE LEADERS

OUTSTANDING EXTENSION
SPECIALIST AWARD

1971 G. E. Ricketts, University of Illinois
1972 V. B. Mayrose, Purdue University
1974 M. R. Geasler, Iowa State University
1976 R. J. Vatthauer, University of Wisconsin
1977 R. J. Epley, University of Minnesota
1978 W. L. Singleton, Purdue University
1979 D. E. Schafer, Kansas State University
1980 L. R. Corah, Kansas State University
1981 M. G. Hogberg, Michigan State University
1982 C. W. Spaeth, Kansas State University
1983 L. H. Thompson, University of Illinois
1984 M. F. Hutjens, University of Illinois
1985 G. L. Kuhl, Kansas State University
1986 D. D. Simms, Kansas State University
1987 F. K. Brazle, Kansas State University
1988 S. B. Laudert, Kansas State University
1989 M. A. Russell, Purdue University
1990 D. F. Parrett, University of Illinois
1991 D. B. Faulkner, University of Illinois
1992 J. L. Nelssen, Kansas State University
1993 A. P. Schinckel, Purdue University
1994 D. A. Funk, University of Wisconsin, Madison
1995 G. C. Shurson, University of Minnesota
1996 R. D. Shaver, University of Wisconsin, Madison
1997 R. D. Goodband, Kansas State University
1998 Not given
1999 M. D. Tokach, Kansas State University

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

60
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. Kooohmaraie, 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

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. Hauser, Southern Illinois University
1980  T. R. Carr, University of Illinois
1981  M. E. Dikeman, Kansas State University
1982  R. E. Morrow, University of Missouri
1983  D. J. Kesler, University of Illinois
1984  R. A. Easter, University of Illinois
1985  D. F. Parrett, University of Illinois
1986  J. G. Sebranek, Iowa State University
1987  D. R. Brink, University of Nebraska
1988  K. M. Irvin, The Ohio State University
1989  R. P. Lemenager, Purdue University
1990  B. R. Skaar, Iowa State University
1991  D. A. Nichols, Kansas State University
1992  M. A. Russell, Purdue University
1993  D. K. Combs, University of Wisconsin, Madison
1994  L. C. Martin, Kansas State University
1995  M. E. Benson, Michigan State University
1996  B. D. Banks, Michigan State University
1997  H. D. Tyler, Iowa State University
1998  C. R. Youngs, Iowa State University
1999  J. N. Spain, University of Missouri
AGRICULTURAL 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. Luhan, Land O’lakes Research Farm, Webster City, IA
1999 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 S. L. Strickland, University of Nebraska
1999 B. A. DeMontigny, North Dakota State University

GRADUATE STUDENTS
1976 D. G. Haught, Iowa State University
1977 L. L. Berger, University of Nebraska
1978 G. F. Collings, Michigan State University
1979 R. D. Boyd, University of Nebraska
1980 D. G. Cieslak, University of Wisconsin
1981 W. F. Pope, University of Nebraska
1982 P. F. Saenger, Purdue University
1983 D. A. Redmer, University of Missouri
1984 W. F. Brown, University of Nebraska
1985 J. H. Brendemuhl, University of Nebraska
1986 P. L. Houghton, Purdue University
1987 M. H. Wilde, The Ohio State University
1988 T. R. Radke, University of Nebraska
1989 K. K. Kreikemeier, Kansas State University
1990 R. A. Nold, Kansas State University
1991 M. D. Tokach, University of Minnesota
1992 G. F. Louis, University of Nebraska
1993 B. T. Larson, University of Missouri
1994 L. H. Anderson, The Ohio State University
1995 M. L. Augenstein, University of Minnesota
1996 D. D. Kochler, University of Minnesota
1997 R. A. Nold, South Dakota State University
1998 K. J. Rozeboom, University of Minnesota
1999 L. A. Averette, North Carolina State University
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

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. Allec, Missouri
1995  S. K. Weibel, Purina Mills, Bloomingston, IL
1996  D. L. Meeker, National Pork Producers Council, Des Moines, IA
1997  T. S. Stahlly, Iowa State
1998  R. P. Lemenager, Purdue
1999  S. P. Ford, Iowa 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

FUTURE MEETINGS

2001  March 19–21
2002  March 18–20
2003  March 17–19
# Room Assignments

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday p.m.</strong></td>
<td></td>
</tr>
<tr>
<td>Nonruminant Nutrition I</td>
<td>204FG</td>
</tr>
<tr>
<td>Nonruminant Nutrition II</td>
<td>204AB</td>
</tr>
<tr>
<td>Nonruminant Nutrition III</td>
<td>Exhibit Hall, Room 206</td>
</tr>
<tr>
<td>Ruminant Nutrition &amp; Forages I</td>
<td>205IJ</td>
</tr>
<tr>
<td>Contemporary Issues</td>
<td>144</td>
</tr>
<tr>
<td>Reception</td>
<td>134</td>
</tr>
<tr>
<td>Quiz Bowl</td>
<td>144</td>
</tr>
</tbody>
</table>

| **Tuesday a.m.**                              |                                   |
| Extension Breakfast                           | Savery Hotel, Terrace Ballroom    |
| Program Chairs Breakfast                      | Savery Hotel, Room 210            |
| Refreshments                                  | Exhibit Hall, Room 206            |
| Breeding & Genetics I                         | 205E                             |
| Breeding & Genetics II                        | Exhibit Hall, Room 206           |
| Environment & Livestock Production I          | 134                              |
| Environment & Livestock Production II         | 134                              |
| Environment & Livestock Production III        | 138                              |
| Extension I                                   | 138                              |
| Growth, Development,                          |                                   |
| Muscle Bio & Meat Science I                   | 204C                             |
| Nonruminant Nutrition IV                      | 204FG                            |
| Nonruminant Nutrition V                       | 204AB                            |
| Physiology I                                  | 136                              |
| Ruminant Nutrition & Forages II               | Exhibit Hall, Room 206           |
| Ruminant Nutrition & Forages III              | 205IJ                            |

| **Tuesday p.m.**                              |                                   |
| Refreshments                                  | Exhibit Hall, Room 206            |
| Breeding & Genetics III                       | 205E                             |
| Environment & Livestock Production IV         | Exhibit Hall, Room 206           |
| Environment & Livestock Production V          | Exhibit Hall, Room 206           |
| Environment & Livestock Production VI         | 205IJ                            |
| Extension II                                  | 134                              |
| Growth, Development,                          |                                   |
| Muscle Bio & Meat Science II                  | 204C                             |
| Nonruminant Nutrition VI                      | 204AB                            |
| Nonruminant Nutrition VII                     | 204FG                            |
| Physiology II                                 | 136                              |
| Ruminant Nutrition & Forages IV               | 138                              |
| Ruminant Nutrition & Forages V                | 134                              |
| Ruminant Nutrition & Forages VI               | 138                              |
| Teaching                                      | 205D                             |
| Teaching Workshop                             | 205D                             |
| Reception                                     |                                   |
| **Wednesday a.m.**                            |                                   |
| ADSA/ASAS Breakfast                           | 134                              |
| Refreshments                                  | Exhibit Hall, Room 206           |
| Midwestern Section ASAS Business Meeting      | 134                              |
| Midwestern Section ADSA Business Meeting      |                                   |
| Breeding & Genetics IV                        | 204AB                            |

68
<table>
<thead>
<tr>
<th>Topic</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment &amp; Livestock Production VII</td>
<td>Exhibit Hall, Room 206</td>
</tr>
<tr>
<td>Environment &amp; Livestock Production VIII</td>
<td>204AB</td>
</tr>
<tr>
<td>Extension III</td>
<td>138</td>
</tr>
<tr>
<td>Extension IV</td>
<td>Exhibit Hall, Room 206</td>
</tr>
<tr>
<td>Growth, Development, Muscle Bio &amp; Meat Science III</td>
<td>Exhibit Hall, Room 206</td>
</tr>
<tr>
<td>Nonruminant Nutrition VIII</td>
<td>204FG</td>
</tr>
<tr>
<td>Physiology III</td>
<td>Exhibit Hall, Room 206</td>
</tr>
<tr>
<td>Ruminant Nutrition &amp; Forages VII</td>
<td>205IJ</td>
</tr>
<tr>
<td>Ruminant Nutrition &amp; Forages VIII</td>
<td>205E</td>
</tr>
</tbody>
</table>