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**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

	Before March 1	After March 1
ADSA/ASAS Members	\$50	\$70
Undergraduate Students	\$10	\$10
Graduate Students	\$10	\$10
Post Doctoral Fellow	\$10	\$10
ASAS Fellows	\$0	\$0
Nonmember	\$75	\$100

**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





**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**

Courtesy of Diamond V. Mills, Inc., Cargill Animal  
Nutrition Division, Vetlife, and Milk Products, Inc.  
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**

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Iowa Testing Laboratories, Inc.  
Kent Feeds, Inc.  
Pettigrew Consulting International, LLC  
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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

Abstract		
Time	Number	Paper
1:00	120	Added L-carnitine in sow gestation diets improves carcass characteristics of the offspring. R.E. Musser* <sup>1</sup> , S.S. Dritz <sup>1</sup> , R.D. Goodband <sup>1</sup> , M.D. Tokach <sup>1</sup> , D.L. Davis <sup>1</sup> , J.L. Nelssen <sup>1</sup> , K.Q. Owen <sup>2</sup> , S. Hanni <sup>1</sup> , J.S. Bauman <sup>3</sup> , and M. Heintz <sup>3</sup> , <sup>1</sup> Kansas State University, Manhattan , <sup>2</sup> Lonza, Inc., Fair Lawn, NJ, <sup>3</sup> Global Ventures Inc., Pipestone, MN.
1:15	121	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.
1:30	122	Threonine requirement of the high-producing lactating sow. D. R. Cooper* <sup>1,2</sup> , J. F. Patience <sup>1</sup> , and R. T. Zijlstra <sup>1</sup> , <sup>1</sup> Prairie Swine Centre Inc., <sup>2</sup> University of Saskatchewan, Saskatoon, Canada.
1:45	123	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.
2:00	124	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.
2:15	125	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.





**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

	Abstract	
Time	Number	Paper
1:00	126	Effects of diet processing on growth performance of early-weaned pigs. J. T. Sawyer, J. C. Woodworth*, J. L. Nelssen, M. D. Tokach, R. D. Goodband, and S. S. Dritz, Kansas State University.
1:15	127	Floor-feeding enhances early appetite of weaned pigs. I. Mavromichalis* and D. H. Baker, University of Illinois at Urbana-Champaign.
1:30	128	Effects of feeder design (conventional dry, Crystal Spring dry and Crystal Spring wet/dry) on growth performance, water usage, and stomach morphology in finishing pigs. N. Amornthewaphat*, J. D. Hancock, K. C. Behnke, R. H. Hines, G. A. Kennedy, D. W. Dean, C. W. Starkey, D. J. Lee, C. L. Jones, and L. J. McKinney, Kansas State University, Manhattan.
1:45	129	Effects of feeder design and particle size of corn on growth performance, water usage, and stomach morphology in finishing pigs. N. Amornthewaphat*, J. D. Hancock, K. C. Behnke, R. H. Hines, G. A. Kennedy, D. W. Dean, D. J. Lee, J. S. Park, C. L. Jones, and L. J. McKinney, Kansas State University, Manhattan.
2:00	130	Weighing accuracy in feedmills. T. van Kempen* <sup>1</sup> , B. Park <sup>2</sup> , M. Hannon <sup>3</sup> , and P. Matzat <sup>3</sup> , <sup>1</sup> North Carolina State University, <sup>2</sup> Park Consulting, <sup>3</sup> Roche Animal Health and Nutrition.
2:15	131	Effect of particle size and enzyme supplementation on nutrient excretion of growing pigs. M.A. Oryschak* <sup>1,2</sup> , P.H. Simmins <sup>3</sup> , and R.T. Zijlstra <sup>1</sup> , <sup>1</sup> Prairie Swine Centre Inc., <sup>2</sup> University of Saskatchewan, Saskatoon, Canada, <sup>3</sup> Finnfeeds International Ltd., Marlborough, UK.
2:30	132	Respiratory disease challenge effects on N balance, IGF-I, organ weights, and carcass characteristics in growing pigs. J.A. Loughmiller*, S.S. Dritz, J.L. Nelssen, M.D. Tokach, R.D. Goodband, and B.W. Fenwick, Kansas State University.





2:45 133 The effects of dietary feather meal concentration and space allocation on growth performance and carcass characteristics of barrows. K.-W. Ssu\*<sup>1</sup>, M. C. Brumm<sup>2</sup>, P. S. Miller<sup>1</sup>, and R. L. Fischer<sup>1</sup>, <sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Haskell Agriculture Lab, University of Nebraska.

**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.
- 135 Supplemental copper proteinate for sows. J. T. Yen\*, J. J. Ford, and J. Klindt, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.
- 136 Effect of chromium picolinate on parity one sow reproductive and farrowing performance. S.S. Dritz\*, M.D. Tokach, R.D. Goodband, and J.L. Nelssen, Kansas State University, Manhattan.
- 137 Use of chromium tripicolinate to improve pigs born alive confirmed in multiparous sows. M. D. Lindemann\*<sup>1</sup>, R. E. Hall<sup>2</sup>, and K. W. Purser<sup>3</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>Land O'Lakes, Inc., Fishers, IN, <sup>3</sup>Prince Agri Products, Inc., Quincy, IL.
- 138 Effect of lower concentrations of copper proteinate compared to copper sulfate on nursery pig growth performance. M. S. Carlson<sup>1</sup>, C. Wu\*<sup>1</sup>, A. Tsunoda<sup>1</sup>, D. W. Bollinger<sup>1</sup>, T. L. Veum<sup>1</sup>, and G. W. Tibbetts<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, MO, <sup>2</sup>Alltech Biotechnology, Inc., Nicholasville, KY.
- 139 Effect of lower concentrations of zinc proteinate compared to zinc oxide on nursery pig growth performance. M. S. Carlson<sup>1</sup>, C. Wu<sup>1</sup>, A. Tsunoda\*<sup>1</sup>, D. W. Bollinger<sup>1</sup>, T. L. Veum<sup>1</sup>, and G. W. Tibbetts<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, MO, <sup>2</sup>Alltech Biotechnology, Inc., Nicholasville, KY.
- 140 Iron bioavailability of an iron-amino acid chelate. B. K. Anderson\*<sup>1</sup>, N. R. Augspurger<sup>1</sup>, M. Ellis<sup>1</sup>, and D. E. Nuzback<sup>2</sup>, <sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Albion Laboratories, Inc.
- 141 Maximizing digestion of meat and bone meal *in vitro* with minimal enzymes. Y. Qiao\*<sup>1</sup>, J. Koger<sup>1</sup>, and T. van Kempen<sup>1</sup>, <sup>1</sup>North Carolina State University.





- 142 Effect of high intensity sweetener level on nursery pig performance. K.W. Purser\*<sup>1</sup>, T.L. Ward<sup>2</sup>, and D. Felisa<sup>3</sup>, <sup>1</sup>Prince Agri Products, Inc., Quincy, IL, <sup>2</sup>Consolidated Nutrition, L.C., Decatur, IN, <sup>3</sup>Pancosma S.A., Geneva, Switzerland.
- 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.
- 144 The effect of dried bacterial cell powder on growth performance in nursery pigs. K. Watanabe\*<sup>1</sup>, Y. Toride<sup>1</sup>, J.L. Usry<sup>2</sup>, and D.J. Burnham<sup>2</sup>, <sup>1</sup>Ajinomoto Co, Inc., <sup>2</sup>Heartland Lysine, Inc., Chicago, IL.
- 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.
- 148 Optimum threonine:lysine ratio in a corn-soybean meal diet for pigs in the late nursery phase (12-23 kg). M. E. Johnston\*<sup>1</sup>, D. R. Cook<sup>2</sup>, R. D. Boyd<sup>1</sup>, K. D. Haydon<sup>3</sup>, and J. L. Usry<sup>4</sup>, <sup>1</sup>PIC USA Inc., Franklin, KY, <sup>2</sup>Akey Inc., Lewisburg, OH, <sup>3</sup>Heartland Pork, Alden, IA, <sup>4</sup>Heartland Lysine Inc., Chicago, IL.
- 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. Trotter, <sup>1</sup>Michigan State University, East Lansing, MI.
- 150 Sulfur amino acid to lysine ratio that optimizes performance in growing pigs. M. E. Johnston\*<sup>1</sup>, R. D. Boyd<sup>1</sup>, and J. L. Usry<sup>2</sup>, <sup>1</sup>PIC USA Inc., Franklin, KY, <sup>2</sup>Heartland 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 hydrolyses 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\*<sup>1</sup>, D. Landblom<sup>2</sup>, W. W. Poland, Jr.<sup>2</sup>, and K. B. Miller<sup>1</sup>, <sup>1</sup>NDSU, Fargo, <sup>2</sup>NDSU, Dickinson.







- 155 The efficacy of feather meal in improving performance and carcass composition of growing-finishing swine. D. C. Brown\*<sup>1</sup>, J. K. Apple<sup>1</sup>, C. V. Maxwell<sup>1</sup>, K. G. Friesen<sup>2</sup>, B. Z. deRodas<sup>1</sup>, and Z. B. Johnson<sup>1</sup>, <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>The Pork Group, Division of Tyson Foods, Rogers, AR.
- 156 Effects of modified tall oil and creatine monohydrate on growth performance, carcass characteristics, and meat quality of growing-finishing barrows. P. R. O'Quinn\*, B. S. Andrews, R. D. Goodband, J. A. Unruh, J. L. Nelssen, J. C. Woodworth, and M. D. Tokach, Kansas State University, Manhattan.
- 157 Effects of feeding modified tall oil and supplemental magnesium on growth performance, carcass characteristics, and meat quality of growing-finishing gilts. P. R. O'Quinn\*, J. L. Nelssen, J. A. Unruh, R. D. Goodband, J. C. Woodworth, and M. D. Tokach, Kansas State University, Manhattan.
- 158 The introduction of conjugated linoleic acid enriched beef tallow into the diet of laying hens. R. Aydin\*<sup>1</sup>, M.W. Pariza<sup>2</sup>, and M.E. Cook<sup>1,2</sup>, <sup>1</sup>Animal Sciences Department, <sup>2</sup>Department of Food Microbiology and Toxicology, University of Wisconsin, Madison.
- 159 Effect of betaine on growth, carcass traits, and pork quality of finishing pigs. J. O. Matthews\*, L. L. Southern, A. D. Higbie, M. A. Persica, and T. D. Bidner, LSU Agricultural Center.
- 160 Margins of safety can be lowered for supplemental copper, zinc, iron, and manganese in finishing pig diets. B. W. James\*, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan.



## RUMINANT NUTRITION AND FORAGES I

### Symposium: Advances in Liquid Supplements for Cattle

Sponsored by: American Feed Industry  
Association, Liquid Feed Committee

Chair: John E. Moore, University Representative,  
AFIA Liquid Feed Committee

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

<b>Abstract</b>		
<b>Time</b>	<b>Number</b>	<b>Paper</b>
1:00		Introduction John Moore
1:10	237	The history and current usage of liquid supplements. R. H. Klett* <sup>1</sup> , M. J. Prokop <sup>2</sup> , and D. L. Williams <sup>3</sup> , <sup>1</sup> X F Enterprises, Greeley, CO, <sup>2</sup> Liquid Feed Commodities, Fremont, NE, <sup>3</sup> Purina Mills, Inc., St. Louis, MO.





1:35	238	New technologies in liquid supplementation. J. S. Drouillard* <sup>1</sup> and J. M. Harris <sup>2</sup> , <sup>1</sup> Kansas State University, Manhattan, KS, <sup>2</sup> Westway Trading Corp., Tomball, TX.
2:00	239	Fats in liquid suspension supplements for dairy and beef cows. C.R. Staples* <sup>1</sup> , J.L. Firkins <sup>2</sup> , and R. G. Lundquist <sup>3</sup> , <sup>1</sup> University of Florida, <sup>2</sup> The Ohio State University, <sup>3</sup> Lundquist and Associates.
2:25		Break
2:40	240	Formulating diets using liquid supplements for growing and finishing cattle. R. H. Pritchard* <sup>1</sup> and M. Sindt <sup>2</sup> , <sup>1</sup> South Dakota State University, Brookings, SD/USA, <sup>2</sup> Midwest P.M.S., Scottsbluff, NE/USA.
3:05	241	Meeting nitrogen requirements of beef cows with liquid supplements. J. A. Paterson* <sup>1</sup> and R. Rawlings <sup>2</sup> , <sup>1</sup> Montana State University-Bozeman, <sup>2</sup> PerforMix Nutrition Systems, Nampa, ID.
3:30		Panel Discussion - An inside look at the liquid feed industry Danny Williams <sup>1</sup> (moderator), Larry Carver <sup>2</sup> , Chet Fields <sup>3</sup> , and Joseph Harris <sup>4</sup> ; <sup>1</sup> Purina Mills Inc., St Louis, MO, <sup>2</sup> Quality Liquid Feeds, Dodgeville, WI, <sup>3</sup> U.S. Sugar Corp., Clewiston, FL, <sup>4</sup> Westway Trading Corp, Tomball, TX
4:00		Adjourn



## 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

Time	Paper
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



Time	Abstract Number	Paper
8:00	1	<b>Graduate Competitive Paper</b> – 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.
8:15	2	A Least Squares model for mapping QTL based on selective DNA pooling data. Jing Wang* and Jack Dekkers, Iowa State University, Ames, IA.
8:30	3	A preliminary genomic scan for chromosomal regions affecting plasma FSH concentrations in pubertal boars. G. A. Rohrer*, J. J. Ford, and T. Wise, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE USA.
8:45	4	Linkage mapping in pigs using single nucleotide polymorphisms (SNPs): I. SNP Discovery. S. C. Fahrenkrug*, B. A. Freking, G. A. Rohrer, and J. W. Keele, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE USA.
9:00	5	Identification of novel polymorphisms at the bovine calpastatin and insulin-like growth factor binding protein-2 loci. M. Pagan* <sup>1</sup> , N.E. Raney <sup>1</sup> , M. Koohmaraie <sup>2</sup> , and C.W. Ernst <sup>1</sup> , <sup>1</sup> Michigan State University, East Lansing, <sup>2</sup> Roman L. Hruska U.S. Meat Animal Research Center ARS, USDA, Clay Center, NE.





- 9:15 6 Identification of polymorphic loci between two pig populations using representational difference analysis. C.R. Farber\*<sup>1</sup>, N.E. Raney<sup>1</sup>, K. Nadarajah<sup>2</sup>, D.L. Kuhlers<sup>2</sup>, and C.W. Ernst<sup>1</sup>, <sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, <sup>2</sup>Animal and Dairy Sciences Department, Auburn University, AL.
- 9:30 7 **Undergraduate Competitive Paper** - Identification of differentially expressed genes in developing pig fetuses. S.R. Wesolowski\*, N.E. Raney, and C.W. Ernst, Michigan State University, East Lansing.

## 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<br>Number | Paper  |
|--------------------|--|
| 8                  | Porcine myostatin cDNA sequence: Comparison between Meishan, Duroc, Hampshire and Yorkshire pigs. G.R. Voelker*, J.C. Conroy, and M.B. Wheeler, University of Illinois, Urbana, Illinois, 61801.   |
| 9                  | Detecting interactions among factors affecting stillbirths in Holstein cattle in the United States with multiparous dams. C. L. Meyer*, P. J. Berger, and K. J. Koehler, Iowa State University.  |
| 10                 | Detecting interactions among factors affecting stillbirths in Holstein cattle in the United States with primiparous dams. C. L. Meyer*, P. J. Berger, and K. J. Koehler, Iowa State University.  |
| 11                 | Selection for lean growth rate in a synthetic line of Yorkshire-Meishan pigs 1. Selection pressure applied and direct response. P. Chen*, T. J. Baas, and J. C. M. Dekkers, Iowa State University.   |
| 12                 | Relationship of two PCR-RFLPs in the bovine calpastatin gene with calpastatin activity, meat tenderness, and carcass traits. H. Y. Chung* <sup>1</sup> , M. E. Davis <sup>1</sup> , H. C. Hines <sup>1</sup> , and D. M. Wulf <sup>2</sup> , <sup>1</sup> The Ohio State University, <sup>2</sup> South Dakota University. |
| 13                 | Effects of the calpain system on the growth of Angus bulls. M. E. Davis* <sup>1</sup> , H. Y. Chung <sup>1</sup> , H. C. Hines <sup>1</sup> , and D. M. Wulf <sup>2</sup> , <sup>1</sup> The Ohio State University, <sup>2</sup> South Dakota State University.  |





- 14 Peroxisome Proliferator-Activated Receptor  $\gamma$  (*PPAR $\gamma$* ): a candidate gene for performance, carcass and muscle quality in swine. R. S. Emnett\*<sup>1</sup>, E. Grindflek<sup>2</sup>, M. F. Rothschild<sup>3</sup>, S. J. Moeller<sup>1</sup>, D. L. Meeker<sup>1</sup>, K. M. Irvin<sup>1</sup>, and R. N. Goodwin<sup>4</sup>, <sup>1</sup>The Ohio State University, <sup>2</sup>Agricultural University of Norway, <sup>3</sup>Iowa State University, <sup>4</sup>National Pork Producers Council.
- 15 Genetic variation of Wood's lactation curves in dairy sheep: a Bayesian approach. Yu-Mei Chang\*<sup>1</sup>, Romdhane Rekaya<sup>2</sup>, Daniel Gianola<sup>1</sup>, and David L. Thomas<sup>1</sup>, <sup>1</sup>Department of Animal Sciences, University of Wisconsin-Madison, <sup>2</sup>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



**Abstract  
Number**

**Paper**

- 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 systems. Young Hyun\*<sup>1</sup> and Mike Ellis<sup>1</sup>, <sup>1</sup>University of Illinois.
- 36 Effects of Yucca extract supplementation on performance and lung integrity of grower-finisher pigs. L. Van den Berghe<sup>1</sup>, H.G. Schuerink<sup>2</sup>, and K.A. Jacques\*<sup>3</sup>, <sup>1</sup>Agricultural College Ghent, Ghent, Belgium, <sup>2</sup>Alltech Netherlands, Capelle aan den IJssel, The Netherlands, <sup>3</sup>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

Abstract		
Time	Number	Paper
8:00	37	Impact of dietary distillers dried grains with solubles on performance, manure characteristics, and odorous emissions of finishing pigs. A.K. Galapp*, W.J. Powers, and D.S. Bundy, Iowa State University, Ames, IA.
8:15	38	Development of an odor quantification model to correlate human odor response magnitudes to air concentrations of volatile organic compounds emitted from swine effluent. J.A. Zahn*, A.A. DiSpirito, Y.S. Do, D.W. Russel, and E.E. Cooper, Iowa State University, Ames.
8:30	39	Air pollution from swine production facilities differing in waste management practice. J.A. Zahn* <sup>1,2</sup> , J.L. Hatfield <sup>2</sup> , A.A. DiSpirito <sup>1</sup> , and Y.S. Do <sup>1</sup> , <sup>1</sup> Iowa State University, Ames, <sup>2</sup> National Soil Tilth Laboratory, USDA-ARS, Ames, IA.
8:45	40	Effects of dietary manipulation on nutrient output in growing swine. J. L. Waggoner, L. T. Frobish, C. W. Wood, and W. F. Owsley*, Auburn University.



**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

Abstract		
Time	Number	Paper
10:00	41	Efficacy of wool-polyester blankets in improving weight gain and health of newborn beef calves in dry lot conditions. T. W. Loy*, J. W. Schroeder, G. P. Lardy, G. T. Wallace, and W. D. Slanger, North Dakota State University, Fargo.





- 10:15 42 An ecological study of the percentage of feedlot cattle shedding detectable *Escherichia coli* O157:H7 in the feces and potential relationships to characteristics of the pen. D.R. Smith\*, M.P. Blackford, S.M. Younts, R.A. Moxley, J.T. Gray, L.L. Hungerford, C.T. Milton, and T.J. Klopfenstein, University of Nebraska, Lincoln.
- 10:30 43 Effects of intranasal versus intramuscular modified live vaccines and vaccine timing on health and performance of newly received beef steers. G. C. Duff\*, K. J. Malcolm-Callis, D. A. Walker, M. W. Wiseman, M. L. Galyean, and L. J. Perino, Clayton Livestock Research Center, New Mexico State Univ., Clayton, NM.
- 10:45 44 **Undergraduate Competitive Paper** - Large round bale feeder design affects the occurrence of aggressive interactions in beef cows. L. Korzun\*, D.D. Buskirk, T.M. Harrigan, D.R. Hawkins, and A.J. Zanella, Michigan State University, East Lansing, MI.

**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

Time	Abstract Number	Paper
8:00	67	Housing strategies for calves and heifers. David Kammel* and Pat Hoffman, UW-Madison.
8:50	68	Managing heat stress in high producing herds. M.J. Brouk*, J.F. Smith, and J.P. Harner, Kansas State University, Manhattan, KS.
9:40	69	Grouping strategies to ensure individual cow performance. Greg Bethard* <sup>1</sup> and Sandra Stokes <sup>2</sup> , <sup>1</sup> Monsanto Dairy Business, <sup>2</sup> Texas Agricultural Extension Service, The Texas A&M University System.
10:30	70	Issues associated with handling sand-laden manure. J.P. Harner* <sup>1</sup> , J.F. Smith, and M.J. Brouk, Kansas State University, Manhattan KS/U.S.
11:30		Speaker Panel, Question and Answer Session





**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

	Abstract
Time	Number Paper
8:00	90 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.
8:15	91 <b>Undergraduate Competitive Paper</b> - 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.
8:30	92 Comparison of ham separation techniques. D.W. Newcom* <sup>1</sup> , T.J. Baas <sup>1</sup> , R.N. Goodwin <sup>2</sup> , and P. Chen <sup>1</sup> , <sup>1</sup> Iowa State University, <sup>2</sup> National Pork Producers Council.
8:45	93 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.
9:00	94 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.
9:15	95 The impact of fertilization with poultry litter on microbial contamination of grass-fed beef Carcasses. J. R. Davis*, J. K. Apple, D. H. Hellwig, E. B. Kegley, and F. W. Pohlman, University of Arkansas, Fayetteville.
9:30	96 The impact of feeding poultry litter on microbial contamination of beef carcasses. J. R. Davis*, J. K. Apple, D. H. Hellwig, E. B. Kegley, and F. W. Pohlman, University of Arkansas, Fayetteville.
9:45	97 <b>Graduate Competitive Paper</b> – Reduction of microbial pathogens in ground beef using multiple intervention technology. M. R. Stivarius*, F. W. Pohlman, K. S. McElyea, M. G. Johnson, J. K. Apple, A. L. Waldroup, and Z. B. Johnson, University of Arkansas, Fayetteville.







## 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

		Abstract
Time	Number	Paper
8:00	161	Biological role of pantothenic acid in the pig. T.S. Stahly and T.R. Lutz*, Iowa State University, Ames.
8:15	162	Food-grade sorghum in diets for nursery pigs. D. W. Dean*, J. D. Hancock, R. H. Hines, L. J. McKinney, K. C. Behnke, and D. J. Lee, Kansas State University, Manhattan.
8:30	163	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.
8:45	164	<b>Undergraduate Competitive Paper</b> 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.
9:00	165	Efficacy of added zinc oxide levels with or without an antibacterial agent in the postweaning diets of pigs. D. C. Mahan*, S. D. Carter, G. C. Cromwell, G. M. Hill, R. L. Harrold, A. J. Lewis, and T. L. Veum, NCR-42 Swine Nutrition Committee.
9:15	166	Effect of mannan oligosaccharide (Bio-Mos®) supplementation with and without zinc oxide on performance and immunocompetence of weanling pigs. M. E. Davis* <sup>1</sup> , C. V. Maxwell <sup>1</sup> , E. B. Kegley <sup>1</sup> , B. Z. de Rodas <sup>1</sup> , K. G. Friesen <sup>1</sup> , D. H. Hellwig <sup>1</sup> , D. C. Brown <sup>1</sup> , and R. A. Dvorak <sup>2</sup> , <sup>1</sup> University of Arkansas, Fayetteville, <sup>2</sup> Alltech, Inc., Nicholasville, KY.
9:30	167	Bioplex iron as a hematinic for nursery pigs. B.G. Harmon*, S.L. Barlow, and M.E. Einstein, Purdue University.
9:45	168	Effect of dietary phosphorus regimen on body P and N accretion-excretion in pigs. T.S. Stahly*, D.R. Cook, T.R. Lutz, and R.C. Ewan, Iowa State University, Ames, IA.





- 10:00 169 Effect of bile salt supplementation in fat digestion in early weaned pigs. B.G. Harmon<sup>\*1</sup>, G.M. Hill<sup>2</sup>, and D.C. Mahan<sup>3</sup>, <sup>1</sup>Purdue University, <sup>2</sup>Michigan State University, <sup>3</sup>Ohio State University.
- 10:15 170 The tryptophan requirement of Phase I nursery pigs. A. C. Guzik<sup>\*1</sup>, B. J. Kerr<sup>2</sup>, T. D. Bidner<sup>1</sup>, and L. L. Southern, <sup>1</sup>LSU Agricultural Center, Baton Rouge, LA, <sup>2</sup>Nutri Quest, Chesterfield, MO.
- 10:30 171 Efficacy of a modified high protein Peptide Plus<sup>TM</sup> in phase 1 diets for conventionally reared nursery pigs. C.V. Maxwell<sup>\*1</sup>, B.Z. de Rodas<sup>1</sup>, M.E. Davis<sup>1</sup>, Z.B. Johnson<sup>1</sup>, D.C. Brown<sup>1</sup>, D.L. Kirkpatrick<sup>1</sup>, and C.R. Hamilton<sup>2</sup>, <sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>Esteem Products, Inc, Irving, TX.
- 10:45 172 Effects of spray-dried animal plasma source on weanling pig performance. M. U. Steidinger<sup>\*</sup>, R. D. Goodband, M. D. Tokach, J. L. Nelssen, S. S. Dritz, and R. E. Musser, Kansas State University.
- 11:00 173 **NPPC Basic Research Award** - Feeding spray-dried plasma (SDP) alters the immunological response of the weaned pig to a lipopolysaccharide (LPS) challenge. K.J. Touchette<sup>\*1</sup>, J.A. Carroll<sup>2</sup>, G.L. Allee<sup>1</sup>, R.L. Matteri<sup>2</sup>, C.J. Dyer<sup>2</sup>, L.A. Beausang<sup>3</sup>, and M.E. Zannelli<sup>3</sup>, <sup>1</sup>University of Missouri-Columbia, <sup>2</sup>Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO, <sup>3</sup>Endogen, Inc., Woburn, MA.
- 11:15 174 Effects of water-soluble globulin on the growth performance of weanling pigs fed different diet complexities. M. U. Steidinger<sup>\*1</sup>, R. D. Goodband<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. L. Nelssen<sup>1</sup>, S. S. Dritz<sup>1</sup>, B. Borg<sup>2</sup>, and J. Campbell<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>American Protein Corp., Ames IA.
- 11:30 175 Effects of pH level in spray-dried blood meal on growth performance in nursery pigs. J. M. DeRouchey<sup>\*</sup>, J. L. Nelssen, M. D. Tokach, R. D. Goodband, J. C. Woodworth, and D. E. Real, Kansas State University, Manhattan.
- 11:45 176 **Graduate Competitive Paper** - Efficacy of different sources of zinc oxide for young pigs: growth and gut morphology. I. Mavromichalis<sup>\*</sup>, C. M. Peter, T. M. Parr, D. Ganessunker, and D. H. Baker, University of Illinois at Urbana-Champaign.





**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

	Abstract	
Time	Number	Paper
8:00	177	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.
8:15	178	Effects of dietary betaine and methionine on growth performance, carcass characteristics, and plasma metabolites of finishing barrows. S.J. Kitt*, P.S. Miller, A.J. Lewis, and R.L. Fischer, University of Nebraska, Lincoln.
8:30	179	Growth performance of gilts fed a standard corn-soybean meal diet or low-crude protein diets supplemented with crystalline amino acids. J. L. Figueroa*, A. J. Lewis, P. S. Miller, and R. L. Fischer, University of Nebraska, Lincoln.
8:45	180	Lack of interaction between lysine levels fed in the grower and finisher diets. J. C. Woodworth*, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan.
9:00	181	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.
9:15	182	Effect of reduced dietary crude protein on nitrogen retention and ammonia production in growing pigs. E. R. Otto*, M. Yokoyama, S. Hengemuehle, and N. L. Trotter, Michigan State University, East Lansing, MI.
9:30	183	Amino acids fortified corn diets for late-finishing barrows. H. Liu*, G. L. Allee, E. P. Berg, K. J. Touchette, J. D. Spencer, and J. W. Frank, University of Missouri-Columbia.
9:45	184	Effect of reducing protein and adding amino acids on performance, carcass characteristics, and nitrogen excretion, and the valine requirement of early-finishing barrows. H. Liu*, G. L. Allee, K.J. Touchette, J. W. Frank, and J. D. Spencer, University of Missouri-Columbia.





- 10:00 185 Effect of dietary protein and carbohydrates on internal nitrogen flow and excretion patterns in growing pigs. S. Zervas\*<sup>1,2</sup> and R.T. Zijlstra<sup>1</sup>, <sup>1</sup>Prairie Swine Centre Inc., <sup>2</sup>University of Saskatchewan, Saskatoon, Canada.
- 10:15 186 Response of grower-finisher pigs to declining energy intake at constant or proportional daily amino acid intake levels. C. M. Nyachoti\*<sup>1</sup>, J. F. Patience<sup>1</sup>, R. T. Zijlstra<sup>1</sup>, D. Gillis<sup>1</sup>, R. D. Boyd<sup>2</sup>, and J. Usry<sup>3</sup>, <sup>1</sup>Prairie Swine Centre Inc., Saskatoon, Canada., <sup>2</sup>PIC, USA, Franklin, KY., <sup>3</sup>Heartland Lysine, Chicago, IL.
- 10:30 187 Effects of lysine level fed from 19 to 36 kg on growth performance and backfat of barrows and gilts. B. W. James\*, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University.
- 10:45 188 Nutritional modifications to late finishing swine diets during periods of high ambient temperatures in a commercial production system. J. D. Spencer\*<sup>1</sup>, G.L. Allee<sup>1</sup>, N. Allen<sup>2</sup>, J. Usry<sup>3</sup>, R.D. Boyd<sup>4</sup>, and M.E. Johnston<sup>4</sup>, <sup>1</sup>University of Missouri-Columbia, <sup>2</sup>Goldsboro Milling Co., <sup>3</sup>Heartland Lysine, <sup>4</sup>PIC-USA.
- 11:00 189 Predicting lysine requirements of finishing pigs using protein and lipid accretion curves. M. De La Lata\*<sup>1</sup>, M.D. Tokach<sup>1</sup>, S.S. Dritz<sup>1</sup>, R.D. Goodband<sup>1</sup>, J.L. Nelssen<sup>1</sup>, and A.P. Schinckel<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Purdue University, West Lafayette, IN.
- 11:15 190 Nitrogen and phosphorus excretion from pigs fed different soybean fractions. B.W. Senne\*, S.D. Carter, L.A. Pettey, and J.A. Shriver, Oklahoma State University, Stillwater.
- 11:30 191 Effects of adding fiber sources to low protein, amino acid-supplemented diets on nitrogen excretion and performance of finishing pigs. J.A. Shriver\*, S.D. Carter, L.A. Pettey, and B.W. Senne, Oklahoma State University, Stillwater.



## PHYSIOLOGY I

### Reproduction and Lactation

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

Tuesday, 8:00 a.m. - 10:45 a.m.  
Room: 136

	Abstract	
Time	Number	Paper
8:00	215	<b>Innovation in Dairy Research Award</b> - Decreased glucose availability increases substrate oxidation by isolated enterocytes. A. D. Beaulieu*, T.R. Overton, and J.K. Drackley, University of Illinois, Urbana, IL.





- 8:15 216 Effectiveness of intravaginal progesterone inserts and FSH to induce synchronized estrus and increase lambing rate in anestrus 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<sup>\*1</sup>, G. P. Rupp<sup>2</sup>, M. J. Wilkerson<sup>1</sup>, and P. J. Chenoweth<sup>1</sup>, <sup>1</sup>College of Veterinary Medicine, Kansas State University, Manhattan, KS , <sup>2</sup>Great 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<sup>\*1</sup>, R. P. Del Vecchio<sup>2</sup>, W. P. McCaughey<sup>1</sup>, D. R. Ward<sup>1</sup>, and W. D. Sutherland<sup>1</sup>, <sup>1</sup>Agriculture & Agri-Food Canada, Brandon, <sup>2</sup>Louisiana 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 PGF<sub>2</sub>a. J.E. Huston<sup>\*1</sup>, S.K. Johnson<sup>2</sup>, V.L. Bogacz<sup>1</sup>, D.E. Grum<sup>1</sup>, and M.L. Day<sup>1</sup>, <sup>1</sup>The Ohio State University, <sup>2</sup>Kansas State University.
- 9:15 Break
- 9:30 220 Ovulation rate after GnRH or PGF<sub>2</sub> alpha in early postpartum dairy cows. Ahmet Gumen\* and Brad Seguin, University of Minnesota College of Veterinary Medicine St. Paul Mn.
- 9:45 221 Effect of timing of feeding MGA in conjunction with a GnRH-PGF<sub>2</sub>a synchronization protocol on reproductive performance in postpartum cows. V.L. Bogacz\*, J.E. Huston, D.E. Grum, and M.L. Day<sup>1</sup>, <sup>1</sup>The Ohio State University.
- 10:00 222 **Graduate Competitive Paper** - Effects of Estradiol-17 $\beta$  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 phosphorous content, in situ degradability and availability of phosphorous of whole crop rice silage for ruminants. M. R. Islam\*<sup>1</sup>, M. Ishida<sup>1</sup>, S. Ando<sup>1</sup>, T. Nishida<sup>1</sup>, and N. Yoshida<sup>2</sup>, <sup>1</sup>National Grassland Research Institute, Tochigi, Japan, <sup>2</sup>Saitama Agriculture Experiment Station, Saitama, Japan.
- 243 Degradability of NDF in overseeded oat, wheat, and rye forages harvested on five dates in the spring. W.K. Coblenz\*, K.P. Coffey, J.E. Turner, D.A. Scarbrough, J.S. Weyers, K.F. Harrison, L.B. Daniels, C.F. Rosenkrans, D.W. Kellogg, and D.S. Hubbell, III, University of Arkansas, Fayetteville.
- 244 Effects of grazing crop residues from bt-corn hybrids on the performance of gestating beef cows. J.R. Russell\*, M.J. Hersom, A. Pugh, K. Barrett, and D. Farnham, Iowa State University, Ames.
- 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\*<sup>1</sup>, R. C. Cochran<sup>1</sup>, D. D. Simms<sup>2</sup>, E. A. Klevesahl<sup>1</sup>, and T. A. Wickersham<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Consolidated Nutrition, Omaha, NE.
- 248 Selectivity of grazing cattle for birdsfoot trefoil and tall fescue in mixed pasture. L. Wen\*, J.E. Williams, R.L. Kallenbach, C. Roberts, R.L. McGraw, P.R. Beuselinck, J.F. Thompson, L. Gebrehiwot, H. Benedict, and E. Navarro, University of Missouri-Columbia, Columbia, MO USA.
- 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.
- 250 First limiting nutrient for lactating beef cows fed grass hay. A. M. Encinias\*, H. B. Encinias, G. P. Lardy, D. Jackson, and J. S. Caton, North Dakota State University, Fargo, ND.





- 251 Effect of dietary energy and ionophore supplementation on frame growth, blood metabolites, and nitrogen balance in Holstein heifers. P.C. Hoffman<sup>\*1</sup>, L.M. Bauman<sup>1</sup>, S.L. Denzine<sup>1</sup>, M. Engstrom<sup>2</sup>, and H. Chester-Jones<sup>3</sup>, <sup>1</sup>University of Wisconsin-Madison, <sup>2</sup>Roche Animal Nutrition and Health, <sup>3</sup>University of Minnesota, Waseca.
- 252 Effect of increased milk replacer consumption on performance and economics in Holstein heifer calves. D. R. Catherman, Strauss Feeds, LLC, Watertown, WI.
- 253 Effect of starch, fiber, or degradable intake protein (DIP) supplementation on utilization of fescue hay by heifers. M. L. Linville<sup>\*</sup>, K. C. Olson, and J. N. Spain, University of Missouri, Columbia.
- 254 Cow variation for nutrient digestion in the rumen, estimated using the in situ procedure. J-M. Akayezu<sup>\*</sup>, J. M. Cassady, and J. G. Linn, University of Minnesota, St. Paul.
- 255 Maximal replacement of dietary forage with a new wet corn milling feed product for lactating dairy cows. K. Boddugari<sup>\*1</sup>, R.J. Grant<sup>1</sup>, R. Stock<sup>2</sup>, and M. Lewis<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Cargill Corn Milling, Blair, NE.
- 256 Effect of wet corn gluten feed on growth and nutrient digestibility of replacement dairy heifers. D. Kleinschmit<sup>\*1</sup> and R. J. Grant, <sup>1</sup>University of Nebraska, Lincoln, NE 68583-0908.
- 257 Blood amino acids and milk fatty acids in cows fed fishmeal and/or soybean meal. A. A. Abughazaleh<sup>\*</sup>, D. J. Schingoethe, and A. R. Hippen, South Dakota State University.
- 258 High moisture and dry high oil corn for finishing feedlot steers. W.M. Cerkoney<sup>\*1</sup>, T.L. Mader<sup>1</sup>, and F.N. Owens<sup>2</sup>, <sup>1</sup>University of Nebraska, Concord, NE/USA, <sup>2</sup>Optimum Quality Grains, L.L.C., Des Moines, IA/USA.
- 259 Efficacy of an enzyme/live yeast culture product with and without monensin/tylosin in high grain diets for yearling steers. R.A. Dvorak<sup>\*</sup>, Alltech Inc., Nicholasville, KY, USA.
- 260 Effects of Bovamine<sup>TM</sup> Rumen Culture on the performance and carcass characteristics of feedlot steers. S.R. Rust<sup>\*1</sup>, K. Metz<sup>1</sup>, and D.R. Ware<sup>2</sup>, <sup>1</sup>Michigan State University, <sup>2</sup>Nutrition Physiology Corporation.
- 261 Evaluation of carbohydrate supplementation for beef steers grazing summer tall fescue. L. J. Driedger<sup>\*</sup>, E. S. Vanzant, B. T. Larson, I. Carrasco, and F. Humeau, University of Kentucky, Lexington.
- 262 Effect of trenbolone acetate on production of steers grazing spring fescue. K. P. Coffey<sup>\*</sup>, W. K. Coblenz, E. L. Piper, C. F. Rosenkrans, Jr., D. S. Hubbell, III, K. F. Harrison, T. M. Denard, F. W. Pohlman, D. H. Hellwig, and L. J. McBeth, University of Arkansas, Fayetteville.
- 263 Dry or high moisture high oil corn for finishing feedlot steers. F. N. Owens<sup>\*1</sup>, S. D. Soderlund<sup>1</sup>, M. A. Hinds<sup>1</sup>, D. W. Rice<sup>1</sup>, and S. K. Duckett<sup>2</sup>, <sup>1</sup>Optimum Quality Grains, L.L.C., Des Moines, IA., <sup>2</sup>University of Idaho, Moscow, ID.





- 264 Effects of implanting and explanting on performance of finishing steers. B.A. Berry\*<sup>1</sup>, D.R. Gill<sup>1</sup>, F.N. Owens<sup>1</sup>, R.L. Ball<sup>1</sup>, B. Freking<sup>2</sup>, and B.A. Gardner<sup>1</sup>, <sup>1</sup>Oklahoma State University, Stillwater, OK, <sup>2</sup>Kerr Foundation, Poteau, OK.
- 265 Impact of implants and monensin on weight of steers fed at maintenance. B.A. Gardner\*<sup>1</sup>, F.N. Owens<sup>2</sup>, J.T. Wagner<sup>1</sup>, R. Ball<sup>1</sup>, and D.R. Gill<sup>1</sup>, <sup>1</sup>Oklahoma State University, Stillwater, <sup>2</sup>Optimum Quality Grains, LLC, Des Moines.
- 266 Effects of non-protein nitrogen source in blocks supplemented to cattle fed prairie hay. C. A. Loest\*, E. C. Titgemeyer, J. S. Drouillard, B. D. Lambert, and A. M. Trater, Kansas State University, Manhattan.
- 267 In situ fiber digestibility responses to feed intake and ruminal pH. M. Basalan\*<sup>1</sup> and F. N. Owens<sup>2</sup>, <sup>1</sup>Oklahoma State University, Stillwater, OK, <sup>2</sup>Optimum Quality Grains, L.L.C. Des Moines, IA.
- 268 Effects of alfalfa leaf meal on feedlot performance and incidence of liver abscesses. D. Standorf\*<sup>1</sup>, A. DiCostanzo<sup>1</sup>, G.C. Lamb<sup>2</sup>, L.J. Smith<sup>3</sup>, and A. Miron<sup>4</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>North Central Research and Outreach Center, Grand Rapids, MN, <sup>3</sup>Northwest Research and Outreach Center, Crookston, MN, <sup>4</sup>Land O Lakes/Harvest States Feed, Sioux Falls, SD.
- 269 Alfalfa hay levels in limit-fed, high-energy growing diets for beef steers. S. P. Montgomery\*, J. S. Drouillard, J. J. Sindt, T. B. Farran, H. J. LaBrune, R. D. Hunter, J. J. Higgins, and T. A. Nutsch, Kansas State University, Manhattan.
- 270 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.
- 271 Utilization of Bt corn residue and corn silage for growing beef steers. J. D. Folmer\*<sup>1</sup>, G. E. Erickson<sup>1</sup>, C. T. Milton<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, and J. F. Beck<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Novartis Seeds, Golden Valley, MN.
- 272 Effect of Bt corn silage on short-term lactational performance and ruminal fermentation in dairy cows. J. D. Folmer\*<sup>1</sup>, R. J. Grant<sup>1</sup>, C. T. Milton<sup>1</sup>, and J. F. Beck<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Novartis Seeds, Golden Valley, MN.
- 273 Effects of oscillating dietary protein on visceral organ mass in lambs. T. L. Wechter\*, P. A. Ludden, and B. W. Hess, University of Wyoming, Laramie, WY.
- 274 Field pea (*Pisum sativum*) replacement of corn in lamb finishing diets. E. R. Loe\*, M. L. Bauer, G. P. Lardy, P. T. Berg, and B. L. Moore, North Dakota State University, Fargo.
- 275 Metabolizable protein level in lamb finishing diets. E. R. Loe\*, M. L. Bauer, G. P. Lardy, P. T. Berg, and B. L. Moore, North Dakota State University, Fargo.
- 276 The effect of dietary energy and protein on feed intake, gain and nitrogen balance in callipyge and normal genotype lambs. S.N. Al-Dabeeb\*, S.L. Nissen, D.G. Morrial, J.A. Rathmacher, Iowa State University, Ames.







277 Ewe and lamb production on smooth bromegrass and alfalfa pastures. W. A. Head, Jr.\*, G. J. Cuomo, M. V. Rudstrom, C. C. Sheaffer, and M. H. Reese, University of Minnesota.

## 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

Time	Abstract Number	Paper
8:00	278	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.
8:15	279	Programmed gain finishing systems in yearling steers fed dry-rolled corn or wet corn gluten feed finishing diets. T. L. Scott* <sup>1</sup> , C. T. Milton <sup>1</sup> , T. L. Mader <sup>2</sup> , and T. J. Klopfenstein <sup>1</sup> , <sup>1</sup> University of Nebraska-Lincoln, <sup>2</sup> University of Nebraska Northeast Research and Extension Center, Concord.
8:30	280	Effects of feeding whole soybeans on feedlot steer performance and carcass characteristics. E. E. D. Felton* and M. S. Kerley, University of Missouri, Columbia.
8:45	281	<b>Graduate Competitive Paper</b> - Effect of an accelerated finishing program on performance and carcass characteristics of early-weaned bulls and steers. J. P. Schoonmaker <sup>1</sup> , S. C. Loerch <sup>1</sup> , F. L. Fluharty <sup>1</sup> , D. M. Wulf <sup>2</sup> , T. B. Turner <sup>1</sup> , and S. J. Moeller <sup>1</sup> , <sup>1</sup> The Ohio State University, Wooster, OH, <sup>2</sup> South Dakota State University, Brookings, SD.
9:00	282	<b>Graduate Competitive Paper</b> - Brown Midrib-3 improves fiber digestibility of corn silage diets fed to growing beef steers. K. E. Tjardes*, D. D. Buskirk, M. S. Allen, N. K. Ames, L. D. Bourquin, and S. R. Rust, Michigan State University, East Lansing, MI.
9:15	283	<b>Graduate Competitive Paper</b> - 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.
9:30	284	Intake response to rumen and pre and post liver administration of monensin-sodium. S. Bierman* and R. Pritchard, <sup>1</sup> South Dakota State University, Brookings, SD/USA.





- 9:45 285 Comparison of self-limiting supplements for yearling steers grazing native range. C. S. Schauer\*, G. P. Lardy, and K. K. Sedivec, North Dakota State University, Fargo.
- 10:00 Break
- 10:15 286 **Undergraduate Competitive Paper** - Effects of oscillating dietary protein on growth and serum metabolites in growing steers. L. A. Ciminski\*, T. L. Wechter, E. J. Scholljegerdes, P. A. Ludden, B. W. Hess, and D. D. Byerly, University of Wyoming, Laramie, WY.
- 10:30 287 **Undergraduate Competitive Paper** - Effects of processing field peas (*Pisum sativum*) in steer grower diets. E. J. Bock\*, M. L. Bauer, G. P. Lardy, and T. C. Gilbery, North Dakota State University, Fargo.
- 10:45 288 Undegradable intake protein supplementation of compensating, grazing steers. K.W. Creighton\*<sup>1</sup>, M.D. Ullerich<sup>1</sup>, and T.J. Klopfenstein<sup>1</sup>, <sup>1</sup>University of Nebraska, Lincoln.
- 11:00 289 Effects of increasing dietary Rumesin® concentrations during an imposed acidosis challenge. M. P. Blackford\*<sup>1</sup>, C. T. Milton<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, D. J. Jordon<sup>1</sup>, T. L. Scott<sup>1</sup>, R. J. Cooper<sup>1</sup>, and C. Parrott<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Elanco Animal Health, Greenfield, IN.
- 11:15 290 Effect of barley and wet corn gluten feed combinations on performance and carcass characteristics of steers. E. R. Loe\*, M. L. Bauer, G. P. Lardy, D. E. Schimek, and P. T. Berg, North Dakota State University, Fargo.
- 11:30 291 Implant programs using Synovex® Plus in feedlot heifers. C. N. Macken\*<sup>1</sup>, C. T. Milton<sup>1</sup>, B. D. Dicke<sup>2</sup>, D. McClellan<sup>3</sup>, and F. L. Prouty<sup>4</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Cattlemen's Consulting, Lincoln, NE, <sup>3</sup>McClellan Consulting, Fremont, NE, <sup>4</sup>Fort 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

	<b>Abstract</b>
<b>Time</b>	<b>Number Paper</b>
1:00	Introduction
1:05	16 The scope of inbreeding and its implications in dairy cattle populations. K. A. Weigel*, University of Wisconsin, Madison, USA.
1:45	17 Inbreeding in swine seedstock herds. T.A. Rathje*, Danbred USA, L.L.C., Seward, NE, USA.
2:25	18 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* <sup>1</sup> , <sup>1</sup> Purdue University.
3:05	19 Studies on the effects of dominance and inbreeding in genetic evaluations of dairy cattle, beef cattle, and swine. I Misztal* <sup>1</sup> , J. K. Bertrand <sup>1</sup> , M. Duangjinda <sup>1</sup> , and T. Druet <sup>2</sup> , <sup>1</sup> University of Georgia, Athens 30602, <sup>2</sup> Faculte Universitaire des Sciences Agronomiques, B-5030 Gembloux, Belgium.
3:45	Open Discussion



**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

<b>Abstract</b>	<b>Paper</b>
<b>Number</b>	
45	Effect of a tylosin tartrate pellet included with component brand implants on the incidence of implant site abscesses in steers and heifers. W. G. Zollers, Jr.* <sup>1</sup> , D. L. Cook <sup>1</sup> , T. H. Janes <sup>2</sup> , W. E. Barton <sup>2</sup> , and G. D. Hindman <sup>1</sup> , <sup>1</sup> Ivy Laboratories, Overland Park, KS, <sup>2</sup> CAVL, Inc., Amarillo, TX.





- 46 Influence of ear injection of a clostridial vaccine on performance, growth implant payout and infrared thermal characteristics of beef heifers. D. A. Blasi\*<sup>1</sup>, J. M. Sargeant<sup>1</sup>, M. F. Spire<sup>1</sup>, S. I. Paisley<sup>2</sup>, and J. E. Minton<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, Kansas, <sup>2</sup>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\*<sup>1</sup> and M.P. Hoffman<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, IA.
- 49 Factors Affecting Beef Cattle Performance and Profitability in Iowa. H. Koknaroglu\*<sup>1</sup>, D. D. Loy<sup>1</sup>, D. E. Wilson<sup>1</sup>, M. P. Hoffman<sup>1</sup>, and J. D. Lawrence<sup>1</sup>, <sup>1</sup>Iowa State University Ames, IA.
- 50 Relative profitability of fall and spring calving in northern Missouri grazing systems. L. L. Melton\*<sup>1</sup> and C. J. Kaiser<sup>2</sup>, <sup>1</sup>New Mexico State University, Las Cruces, <sup>2</sup>University of Missouri, Columbia.
- 51 Response of dairy cows fed *Aspergillus Oryzae* during short-term heat stress. K.H. Ominski\*, K.M. Wittenberg, A.D. Kennedy, and S.A. Moshtaghi-Nia, University of Manitoba, Winnipeg, Manitoba, Canada.
- 52 A chronic model of performance and thermoregulatory responses to ergot bodies. P.A. Eichen, D.E. Spiers, G. Rottinghaus, and K. Fritsche\*, University of Missouri, Columbia, Missouri.
- 53 Assessment of feedlot cattle responses to heat stress using continuous monitoring methods. M.J. Leonard\*<sup>1</sup>, D.E. Spiers<sup>1</sup>, and G.L. Hahn<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, Missouri, <sup>2</sup>USDA-ARS, U.S. Meat Animal Research Center, Clay Center, Nebraska.





**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

	<b>Abstract</b>	
<b>Time</b>	<b>Number</b>	<b>Paper</b>
1:00	54	Impact of wean-to-finish management on growing-finishing pig performance. M.C. Brumm* <sup>1</sup> , A.K. Baysinger <sup>2</sup> , E.T. Clemens <sup>1</sup> , R.W. Wills <sup>1</sup> , and R. Thaler <sup>3</sup> , <sup>1</sup> University of Nebraska, Concord, NE/USA, <sup>2</sup> Alpharma, Inc., Ft. Lee, NJ/USA, <sup>3</sup> South Dakota State University, Brookings, SD/USA.
1:15	55	<b>NPPC Applied Research Award</b> - Effects of group size, floor space, and feeder placement on nursery pig performance. B.F. Wolter* <sup>1</sup> , M. Ellis <sup>1</sup> , S.E. Curtis <sup>1</sup> , E.N. Parr <sup>2</sup> , and D.M. Weibel <sup>2</sup> , <sup>1</sup> University of Illinois, <sup>2</sup> United Feeds, Inc.
1:30	56	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. Nelssen, Kansas State University, Manhattan.
1:45	57	Effect of group sizes of 10, 20, 40 and 80 on productivity of grower-finisher pigs. S.A. Schmolke* <sup>1,2</sup> and H.W. Gonyou <sup>1</sup> , <sup>1</sup> Prairie Swine Centre Inc., <sup>2</sup> University of Saskatchewan, Saskatoon, Canada.
2:00	58	Sow performance using electronic sow feeding versus conventional feeding systems. D. B. Edwards* <sup>1</sup> , R. O. Bates <sup>1</sup> , and R. L. Korthals <sup>2</sup> , <sup>1</sup> Michigan State University, East Lansing, <sup>2</sup> Osborne Industries, Inc., Osborne, KS.
2:15	59	Effects of off-sow rearing upon <i>Campylobacter</i> colonization in neonatal pigs. R.B. Harvey* <sup>1</sup> , R.E. Droleskey <sup>1</sup> , R.C. Anderson <sup>1</sup> , K.J. Genovese <sup>1</sup> , L.A. Egan <sup>2</sup> , and D.J. Nisbet <sup>1</sup> , <sup>1</sup> Food and Feed Safety Research Unit, ARS, USDA, College Station, TX USA, <sup>2</sup> College of Veterinary Medicine, Texas A&M University, College Station, TX USA.
2:30		Break
3:00	60	Effects of genotype, environment, and feed grade antibiotics on serum concentrations of IGF-I and a 1-acid glycoprotein (AGP) and their relationship to swine growth. T.E. Weber* <sup>1</sup> , B.T. Richert <sup>1</sup> , D.C. Kendall <sup>1</sup> , A.P. Schinckel <sup>1</sup> , and P. Matzat <sup>2</sup> , <sup>1</sup> Purdue University, West Lafayette, IN, <sup>2</sup> Roche Vitamins, Parker, CO.
3:15	61	The evaluation of well-being in early weaned pigs as measured by adaptability. D.C. Lay Jr.* and M.F. Haussmann, Iowa State University.





- 3:30 62 **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\*<sup>1</sup>, B.T. Richert<sup>1</sup>, T.E. Weber<sup>1</sup>, K.A. Bowers<sup>1</sup>, S.A. DeCamp<sup>1</sup>, A.P. Schinckel<sup>1</sup>, and P. Matzat<sup>2</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Roche Vitamins, Parker, CO.
- 3:45 63 Exogenous ACTH administration during gestation alters offspring development, immune function and behavior. M. F. Haussmann\*<sup>1</sup>, J. A. Carroll<sup>2</sup>, G. D. Weesner<sup>3</sup>, M. J. Daniels<sup>1</sup>, and D. C. Lay, Jr.<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>Animal Physiology Research Unit, ARS-USDA, Columbia, MO, <sup>3</sup>Purdue 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



	Abstract	
Time	Number	Paper
1:00	71	Market research to support the development of a branded meat product: A consumer survey. D.S. Knipe <sup>1</sup> , B. Wansink <sup>1</sup> , R.K. Knipe* <sup>1</sup> , A.R. Cobb <sup>1</sup> , D. Jennings <sup>1</sup> , H.K. Johnson <sup>2</sup> , and D. Oswald <sup>1</sup> , <sup>1</sup> University of Illinois, Urbana, Illinois, <sup>2</sup> H.K.Johnson Assoc. Industry Consultant, Chicago, Illinois.
1:15	72	Swine News - An information delivery tool for the pork industry. M.T. See*, North Carolina State University, Raleigh NC.
1:30	73	Assessing Indiana Pork Producers Media Use and Educational Needs to Remain Viable in the Swine Industry. S. A. DeCamp* <sup>1</sup> , B. T. Richert <sup>1</sup> , B. A. Talbert <sup>1</sup> , D. C. Kendall <sup>1</sup> , K. A. Bowers <sup>1</sup> , and G. Slipher <sup>2</sup> , <sup>1</sup> Purdue University, West Lafayette, IN, <sup>2</sup> Indiana Pork Producers, Indianapolis, IN.
1:45	74	Summary of 1998 income and expenses from 12 monitor dairy herds in Nebraska. K. Boddugari* <sup>1</sup> , D. Jose <sup>1</sup> , and R.J. Grant <sup>1</sup> , <sup>1</sup> University of Nebraska, Lincoln, NE.
2:00	75	Evaluating cost of treatment for bovine respiratory disease. R. Larson* and V. Pierce, University of Missouri, Columbia.





- 2:15 76 Intake, body weight gain and feed efficiency in calves fed milk replacers containing hydrolyzed red blood cells. J. D. Quigley\*<sup>1</sup>, C. A. Jaynes<sup>1</sup>, M. L. Miller<sup>1</sup>, H. Chester-Jones<sup>2</sup>, G. D. Marx<sup>3</sup>, and D. M. Allen<sup>4</sup>, <sup>1</sup>American Protein Corporation, Ames, IA, <sup>2</sup>University of Minnesota, Waseca, <sup>3</sup>University of Minnesota, Crookston, <sup>4</sup>University 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\*<sup>1</sup>, M. L. Miller<sup>1</sup>, J. C. Haupert<sup>1</sup>, and J. D. Quigley<sup>1</sup>, <sup>1</sup>American 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\*<sup>1</sup>, C. A. Jaynes<sup>1</sup>, and J. D. Quigley<sup>1</sup>, <sup>1</sup>American 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



Time	Abstract Number	Paper
1:00	98	Increased uncoupling protein-1 (UCP-1) mRNA in mice selected for low heat loss versus high heat loss. T. G. McDaneld* <sup>1</sup> and J. L. Miner <sup>1</sup> , <sup>1</sup> University of Nebraska.
1:15	99	<b>Undergraduate Competitive Paper</b> - Monitoring bone metabolism in growing horses and turkeys. J.N. Hawkins* <sup>1</sup> , K.J. Lang <sup>1</sup> , K.L. Waite <sup>1</sup> , T.L. Peters <sup>1</sup> , B.D. Nielsen <sup>1</sup> , K.D. Roberson <sup>1</sup> , and M.W. Orth <sup>1</sup> , <sup>1</sup> Michigan State University, East Lansing, MI.
1:30	100	Porcine agouti-related peptide: cloning, tissue distribution, and quantitation of size-related differences in gene expression. C.J. Dyer* <sup>1</sup> , K.J. Touchette <sup>2</sup> , G.L. Allee <sup>2</sup> , J.A. Carroll <sup>1</sup> , and R.L. Matteri <sup>1</sup> , <sup>1</sup> USDA-ARS Animal Physiology Unit, Columbia, MO, <sup>2</sup> University of Missouri, Columbia, MO.
1:45	101	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* <sup>1</sup> , C.J. Dyer <sup>1</sup> , K.J. Touchette <sup>2</sup> , J.A. Carroll <sup>1</sup> , and G.L. Allee <sup>2</sup> , <sup>1</sup> USDA-ARS Animal Physiology Unit, Columbia, MO, <sup>2</sup> University of Missouri, Columbia, MO.





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|------|-----|---|
| 2:00 | 102 | Growth response by high and low lean growth capacity pigs to immune system stress. R. D. Boyd* <sup>1</sup> , M. A. Mellencamp <sup>1</sup> , M. E. Johnston <sup>1</sup> , M. E. White <sup>2</sup> , T. Molitor <sup>2</sup> , K. L. Houseknecht <sup>3</sup> , and E. R. Wilson <sup>1</sup> , <sup>1</sup> PIC USA, Inc., Franklin, KY, <sup>2</sup> University of Minnesota, Saint Paul, MN, <sup>3</sup> Purdue University, West Lafayette, IN. |
| 2:15 | 103 | <b>Graduate Competitive Paper</b> - 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, <sup>1</sup> Iowa State University Ames, IA.  |
| 2:30 | 104 | Compositional differences in hams and loins of CLA-fed stress genotype pigs as determined by TOBEC and primal cut dissection. J.E. Swan*, B.R. Wiegand, S.T. Larsen, F.C. Parrish, Jr., and T.J. Baas, Iowa State University Ames, IA.  |
| 2:45 | 105 | <b>Graduate Competitive Paper</b> - Characterization of muscle growth in implanted feedlot heifers using a muscle cell culture system. J. L. Montgomery* <sup>1</sup> , C. R. Kerth <sup>2</sup> , K. J. Morrow <sup>1</sup> , and M. F. Miller <sup>1</sup> , <sup>1</sup> Texas Tech University, Lubbock TX, <sup>2</sup> Auburn University, Auburn AL.   |
| 3:00 | 106 | The effects of implant dosage on beef carcass characteristics and longissimus muscle. K. S. Kirchofer* <sup>1</sup> , C. R. Calkins <sup>1</sup> , C. T. Milton <sup>1</sup> , and R. T. Brandt <sup>2</sup> , <sup>1</sup> University of Nebraska, Lincoln, <sup>2</sup> Hoechst 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

- | Time | Abstract<br>Number | Paper  |
|------|--------------------|--|
| 1:00 | 192                | <b>Graduate Competitive Paper</b> - Effect of soy isoflavones on growth and carcass traits of growing finishing barrows. R. L. Payne*, T. D. Bidner, and L. L. Southern, Louisiana State University Agricultural Center. |
| 1:15 | 193                | Effect of sucrose on growth, carcass traits, and meat quality in growing-finishing pigs. L. K. Camp*, L. L. Southern, and T. D. Bidner, Louisiana State University Agricultural Center.                                  |







1:30	194	<b>Graduate Competitive Paper</b> - 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 Lata*, 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 Lata*, 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. Kim <sup>1</sup> , P. Ferket <sup>1</sup> , and T. van Kempen <sup>1</sup> , <sup>1</sup> North Carolina State University, Raleigh, NC.
2:45	199	Odor characteristics of swine manure and nutrient balance of grow-finish pigs fed diets with and without distillers dried grains with solubles. M.J. Spiehs*, M.H. Whitney, G.C. Shurson, and R.E. Nicolai, University of Minnesota, St. Paul.



## 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	
Time	Number	Paper
1:00	200	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. DeRouche, Kansas State University, Manhattan.
1:15	201	Ileal starch, apparent protein, and true protein digestibility of different corn hybrids fed to growing pigs. L. L. Andersen* <sup>1</sup> , J. L. Snow <sup>2</sup> , P. K. Ku <sup>1</sup> , H. H. Stein <sup>3</sup> , M. Allen <sup>1</sup> , and N. L. Trottier <sup>1</sup> , <sup>1</sup> Michigan State University, East Lansing, <sup>2</sup> University of Illinois, Urbana, <sup>3</sup> FAF Minatech A/S, Odense, Denmark.





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.
1:45	203	Effects of conjugated linoleic acid and high oil corn on growth performance and pork quality in finishing pigs. J. C. Sparks*, J. E. Swan, S. T. Larsen, B. R. Wiegand, F. C. Parrish, and D. R. Zimmerman, Iowa State University, Ames, IA.
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.
2:15	205	Evaluation of nutrient release values for phytase in growing-finishing swine diets. M. D. Lindemann, A. L. de Souza*, H. J. Monegue, and G. L. Cromwell, University of Kentucky, Lexington.
2:30	206	Bioavailability of phosphorus in low-oligosaccharide, low-phytate soybean meal for pigs. G.L. Cromwell* <sup>1</sup> , S.L. Traylor <sup>1</sup> , M.D. Lindemann <sup>1</sup> , T.E. Sauber <sup>2</sup> , and D.W. Rice <sup>2</sup> , <sup>1</sup> University of Kentucky, Lexington, <sup>2</sup> Optimum 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* <sup>1</sup> , G. L. Allee <sup>1</sup> , J. W. Frank <sup>1</sup> , and T.E. Sauber <sup>2</sup> , <sup>1</sup> University of Missouri-Columbia, <sup>2</sup> Optimum 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* <sup>1</sup> , S.L. Traylor <sup>1</sup> , L.A. White <sup>1</sup> , E.G. Xavier <sup>1</sup> , M.D. Lindemann <sup>1</sup> , T.E. Sauber <sup>2</sup> , and D.W. Rice <sup>2</sup> , <sup>1</sup> University of Kentucky, Lexington, <sup>2</sup> Optimum 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* <sup>1</sup> , C. D. Cooper <sup>1</sup> , G. L. Allee <sup>1</sup> , and T. E. Sauber <sup>2</sup> , <sup>1</sup> University of Missouri, Columbia, MO, <sup>2</sup> Optimum 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* <sup>1</sup> , O. Adeola <sup>1</sup> , D. Ragland <sup>1</sup> , C. A. Baxter <sup>1</sup> , B. C. Joern <sup>1</sup> , and T. E. Sauber <sup>2</sup> , <sup>1</sup> Purdue University, West Lafayette, IN 47907, <sup>2</sup> Optimum 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* <sup>1</sup> , G.L. Allee <sup>1</sup> , J.W. Frank <sup>1</sup> , and T.E. Sauber <sup>2</sup> , <sup>1</sup> University of Missouri-Columbia, <sup>2</sup> Optimum 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

Time	Abstract Number	Paper
1:00	225	Mechanism of inhibin action. T. K. Woodruff*, Northwestern University.
2:00	226	Physiology and expression of inhibin/activin transcripts and different molecular forms of inhibin protein during follicle development in pigs. H. D. Guthrie* <sup>1</sup> , W. M. Garrett <sup>1</sup> , and S. O. Mack <sup>2</sup> , <sup>1</sup> Germplasm and Gamete Physiology Laboratory, ARS, USDA, Beltsville, MD 20705, <sup>2</sup> Dept. of Physiology and Biophysics, Howard University, Washington, DC 20059.
2:45	227	Inhibin production and secretion by granulosa-thecal cell tumors in mares. M.T. Bailey, S.A. Christman, M.H.T. Troedsson, M.M. Ababneh, and J.E. Wheaton*, Department of Animal Science, University of Minnesota.





**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

	Abstract	
Time	Number	Paper
1:00	293	An inside look at NIRS Technology. Thomas R. Boyd*, Caltest, LLC.
1:40	294	Application of NIRS in routine feed and forage analysis. Neal Martin* <sup>1</sup> , <sup>1</sup> US Dairy Forage Research Center, USDA-ARS, Madison, WI.
2:20	295	Application of NIRS in predicting energy and ruminally undegraded protein in forages. D. K. Combs*, P. C. Hoffman, and D. J. Undersander, University of Wisconsin, Madison.



**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

	Abstract	
Time	Number	Paper
3:15	296	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.
3:30	297	Effects of feeding Holstein calves a complete pelleted calf starter containing varying levels of alfalfa leaf meal. D. M. Allen* <sup>1</sup> , W. P. Hansen <sup>1</sup> , H. Chester-Jones <sup>2</sup> , J. G. Linn <sup>1</sup> , and G. D. Marx <sup>3</sup> , <sup>1</sup> University of Minnesota, St. Paul, <sup>2</sup> University of Minnesota, Waseca, <sup>3</sup> University of Minnesota, Crookston.





- 3:45 298 Effect of initial feeding program on heifer performance when Rumensin is later incorporated into the diet. J.A. Isch\*<sup>1</sup>, J.E. Shirley<sup>1</sup>, M.V. Scheffel<sup>1</sup>, E.C. Titgemeyer<sup>1</sup>, and E.C. Thomas<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Elanco Animal Health, Indianapolis, IN.
- 4:00 299 Evaluation of wet corn gluten feed in diets for lactating dairy cows. M.J. VanBaale\*<sup>1</sup>, J.E. Shirley<sup>1</sup>, M.V. Scheffel<sup>1</sup>, E.C. Titgemeyer<sup>1</sup>, and R.U. Lindquist<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Minnesota 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\*<sup>1</sup>, J.E. Shirley<sup>1</sup>, and E.C. Titgemeyer<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, KS.
- 4:30 301 Nutritive value of silages from MON810 Bt and non-Bt near-isogenic corn hybrids. M. A. Faust\*<sup>1</sup> and S. M. Spangler<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Monsanto, St. Louis, MO.
- 4:45 302 Influence of particle size on the effectiveness of the fiber in barley silage. H.W. Soita\*<sup>1</sup>, D.A. Christensen<sup>1</sup>, and J.J. McKinnon<sup>1</sup>, <sup>1</sup>University 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

Time	Abstract Number	Paper
3:15	303	<b>Undergraduate Competitive Paper</b> - The value of legume forage species for stockpiled forage grazing by calves. K. J. Vander Pol* and J.R. Russell, Iowa State University, Ames.
3:30	304	Timing of realimentation of mature cows that were feed-restricted during pregnancy influences calf birth weights and growth rates. H. C. Freetly*, C. L. Ferrell, and T. G. Jenkins, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.
3:45	305	<b>Undergraduate Competitive Paper</b> - Influence of breed, age and sex on plasma copper concentration in beef cattle. B. Hill*, J. E. Link, D. R. Hawkins, J. B. Barber, S. E. Kronner, and G. M. Hill, Michigan State University, East Lansing, MI.





- 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.
- 4:15 307 Forage production and quality of an early grazed hay meadow. A. D. Schleicher\*, B. W. Hess, D. W. Koch, and L. J. Held, University of Wyoming, Laramie, WY.
- 4:30 308 Evaluation of alfalfa leaf meal in creep feeding diets. L.R. Miller\*<sup>1</sup>, C.M. Zehnder<sup>1</sup>, G.C. Lamb<sup>2</sup>, A. DiCostanzo<sup>1</sup>, and A. Miron<sup>3</sup>, <sup>1</sup>University of Minnesota, St. Paul, MN, <sup>2</sup>North Central Research and Outreach Center, Grand Rapids, MN, <sup>3</sup>Harvest 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



Time	Abstract Number	Paper
1:15	325	Curriculum review for the Department Of Animal Sciences (ANSC). M.A. Diekman* and J.D. Armstrong, Purdue University, West Lafayette, IN/USA.
1:30	326	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.
1:45	327	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.
2:00	328	Meat judging as a learning tool. P. T. Berg <sup>1</sup> and A. N. Scheaffer*, North Dakota State University.
2:15	329	Industry expectations of undergraduate and post-graduate meat science curriculum. C. L. Lorenzen* <sup>1</sup> , E. P. Berg <sup>2</sup> , and A. D. Clarke <sup>1</sup> , <sup>1</sup> Food Science and Engineering Unit, <sup>2</sup> Animal Science Unit, University of Missouri-Columbia.
2:30		Break





## 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

	Abstract
Time	Number Paper
9:00	20 Models for estimating the genetic correlation between direct and maternal effects. L. D. Van Vleck* <sup>1</sup> and M. D. MacNeil <sup>2</sup> , <sup>1</sup> USDA, ARS, US Meat Animal Research Center, Lincoln, NE, <sup>2</sup> USDA, ARS, Livestock & Range Research Laboratory, Miles City, MT.
9:15	21 Genetic analysis of mature cow weight of crossbred beef cattle. J. Arango* <sup>1</sup> , L. V. Cundiff <sup>2</sup> , and L. D. Van Vleck <sup>3</sup> , <sup>1</sup> University of Nebraska, Lincoln, NE, <sup>2,3</sup> USDA, ARS, US Meat Animal Research Center, <sup>2</sup> Clay Center, NE, <sup>3</sup> Lincoln, NE.
9:30	22 Genetic parameters for cow weights at different ages. J. M. Rumph* <sup>1</sup> , R. M. Koch <sup>1</sup> , K. E. Gregory <sup>2</sup> , L. V. Cundiff <sup>2</sup> , and L. D. Van Vleck <sup>2,3</sup> , <sup>1</sup> University of Nebraska, Lincoln, NE, <sup>2,3</sup> US Meat Animal Research Center, <sup>2</sup> Clay Center, NE, <sup>3</sup> Lincoln, NE.
9:45	23 Divergent selection for predicted transmitting for type in Holsteins: I. Estimates for genetic parameters for linear type and yield traits. B. J. DeGroot* <sup>1</sup> , J. F. Keown <sup>1</sup> , and L. D. Van Vleck <sup>2</sup> , <sup>1</sup> University of Nebraska, Lincoln, NE, <sup>2</sup> USDA, ARS, US Meat Animal Research Center, Lincoln, NE.
10:00	24 Divergent selection for predicted transmitting for type in Holsteins: II. Response in linear type and yield traits. B. J. DeGroot* <sup>1</sup> , J. F. Keown <sup>1</sup> , and L. D. Van Vleck <sup>2</sup> , <sup>1</sup> University of Nebraska, Lincoln, NE, <sup>2</sup> USDA, ARS, US Meat Animal Research Center, Lincoln, NE.





- 10:15 25 Bayesian inference on genetic parameters of calving difficulty in Italian Piedmontese cattle. K. Kizilkaya\*<sup>1</sup> and R. J. Tempelman<sup>1</sup>, <sup>1</sup>Michigan State University, East Lansing, MI.
- 10:30 26 Selection for lean growth rate in a synthetic line of Yorkshire-Meishan pigs 2. Correlated responses in litter traits. P. Chen\*, T. J. Baas, and J. C. M. Dekkers, Iowa State University.
- 10:45 27 Frequency of the Rendement Napole (rn) gene in Hampshire swine. S.J. Moeller\*<sup>1</sup>, T.J. Baas<sup>2</sup>, R.S. Emmett<sup>1</sup>, D.L. Meeker<sup>1</sup>, and K.M. Irvin<sup>1</sup>, <sup>1</sup>The Ohio State University, Columbus, OH, <sup>2</sup>Iowa 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\*<sup>1</sup>, D Gianola<sup>1</sup>, and T Short<sup>2</sup>, <sup>1</sup>University of Wisconsin-Madison, <sup>2</sup>PIC USA.
- 11:15 29 Correlated responses in litter and growth traits to 2-stage selection for ovulation rate and litter size in swine. A. Ru<sup>^</sup>edz-Flores\*<sup>1</sup>, J. P. Cassady<sup>1</sup>, and R. K. Johnson<sup>1</sup>, <sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln.
- 11:30 30 Genetic parameters of pork longissimus dorsi quality. R. N. Goodwin\*<sup>1</sup>, P. J. Berger<sup>2</sup>, and T. J. Baas<sup>2</sup>, <sup>1</sup>National Pork Producers Council, Des Moines, IA, <sup>2</sup>Iowa State University, Ames, IA.
- 11:45 31 Genetic parameter estimates for prolificacy, growth and fleece characteristics in Polypay sheep. K. J. Hanford\*<sup>1</sup>, L. D. Van Vleck<sup>2</sup>, and G. D. Snowder<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, <sup>2</sup>USDA, ARS, US Meat Animal Research Center, Lincoln, NE, <sup>3</sup>USDA, 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<br>Number | Paper   |
|--------------------|---|
| 64                 | Composting is a viable alternative to traditional livestock waste disposal. P.M. Walker* <sup>1</sup> , T.R. Kelley <sup>1</sup> , and K.D. Smiciklas <sup>1</sup> , Illinois State University, Normal. |
| 65                 | Potential for pathogens to overwinter in swine manure containing ground piglet carcass. L. J. Johnston*, S. M. Goyal, and C. J. Clanton, University of Minnesota, Morris and St. Paul.                  |







- 66 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

<b>Time</b>	<b>Paper</b>
9:00	Welcome and overview, Jeff Carroll
9:10	Stress - Behavior - Performance: An overview of the relationships. Don Lay, Iowa State University, Ames.
9:45	Influence of Stress on the Immune Function. Ernie Minton, Kansas State University, Manhattan.
10:20	Break
10:35	Effect of Environmental Toxins on Reproduction in Ruminants. Ron Randal, Texas A&M University, College Station.
11:05	Thermoregulatory Responses of Cattle to Heat Stress. Don Spiers, University of Missouri, Columbia.
11:40	Discussion by speakers



**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

<b>Time</b>	<b>Abstract Number</b>	<b>Paper</b>
9:00	87	Losing your shirt in or out of the dairy business. P.R. Tozer*, The Pennsylvania State University.
9:45	88	Managing production risk in dairy: nutritional and forecasting aspects. N. R. St-Pierre*, The Ohio State University, Columbus.





- 10:15 89 Risk assessment of dairy heifer replacement options. J. Heinrichs<sup>1</sup>, P. Tozer<sup>1</sup>, P. Hoffman<sup>2</sup>, H. Chester-Jones\*<sup>3</sup>, and M. A. Faust<sup>4</sup>, <sup>1</sup>The Pennsylvania State University, <sup>2</sup>University of Wisconsin, <sup>3</sup>University of Minnesota, <sup>4</sup>Iowa State University.
- 10:45 Discussion
- 11:00 Adjourn

## EXTENSION IV 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**

- 79 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.
- 80 Dairy case farm business plan. K.R. Boddugari\*<sup>1</sup>, D. Jose<sup>1</sup>, and R. Valluru<sup>1</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE.
- 81 Characterizing the effects of changes for DHIA measures for profit changes in dairy herds. M. Lunak\* and M. Faust, Iowa State University, Ames IA.
- 82 Growth response and carcass characteristics of yearling steers utilizing different implant strategies. G.D. Fike\*<sup>1</sup>, D.L. DeWitt<sup>1</sup>, and J. Illg<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, Iowa, <sup>2</sup>Humboldt Veterinary Clinic, Humboldt, Iowa.
- 83 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.
- 84 **NPPC Education Award** - Teaching skills in farrowing management by distance education. D. E. Reese<sup>1</sup>, L. J. Johnston<sup>2</sup>, K. J. Stalder\*<sup>3</sup>, W. L. Singleton<sup>4</sup>, J. Felt<sup>5</sup>, and K. B. Kephart<sup>6</sup>, <sup>1</sup>University of Nebraska, Lincoln, <sup>2</sup>University of Minnesota, Morris, <sup>3</sup>University of Tennessee, Knoxville, <sup>4</sup>Purdue University, West Lafayette, IN, <sup>5</sup>National Pork Producers Council, Clive, IA.
- 85 Manure Nutrient Analysis of Kansas Swine Lagoons. J. M. DeRouchey\*<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. L. Nelssen<sup>1</sup>, M. D. Tokach<sup>1</sup>, G. L. Keeler<sup>2</sup>, and S. S. Dritz<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Kansas Department of Agriculture, Topeka.
- 86 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.





## 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

### Abstract Number

- | Abstract Number | Paper   |
|-----------------|---|
| 107             | Myostatin expression in skeletal muscle of developing Meishan and Yorkshire piglets. G.R. Voelker*, J.C. Conroy, and M.B. Wheeler, University of Illinois, Urbana.  |
| 108             | 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.   |
| 109             | Effects of quality grade, postmortem age, blade tenderization, and endpoint cooking temperature on Warner-Bratzler shear force and sensory panel evaluation of beef semimembranosus steaks. C. D. George-Evins*, J. A. Unruh, J. L. Marsden, and C. L. Kastner, Kansas State University, Manhattan.   |
| 110             | Reduction of microbial pathogens in ground beef utilizing hurdle technology and a novel ozone generator. M. R. Stivarius*, F. W. Pohlman, K. S. McElyea, M. G. Johnson, J. K. Apple, A. L. Waldroup, and Z. B. Johnson, University of Arkansas, Fayetteville.   |
| 111             | Effects of ractopamine (RAC) on carcass parameters in finishing pigs. A. L. Schroeder* <sup>1</sup> , D. H. Mowrey <sup>1</sup> , E. E. Thomas <sup>1</sup> , R. E. Karnak <sup>1</sup> , L. A. Brown <sup>1</sup> , R. W. Mandigo <sup>2</sup> , F. K. McKeith <sup>3</sup> , D. M. Roth <sup>1</sup> , and K. Prusa <sup>4</sup> , <sup>1</sup> Elanco Animal Health, <sup>2</sup> University of Nebraska, <sup>3</sup> University of Illinois, <sup>4</sup> Iowa State University.   |
| 112             | Pre-rigor injection using glycolytic inhibitors in low-quality beef muscles. N. C. Jerez* <sup>1</sup> , C. R. Calkins <sup>1</sup> , and J. Velazco <sup>2</sup> , <sup>1</sup> University of Nebraska, Lincoln, <sup>2</sup> Instituto Tecnológico y Estudios Superiores de Monterrey, Mexico.  |
| 113             | Effects of various levels of ractopamine (RAC) on growth performance in finishing pigs. A. L. Schroeder <sup>1</sup> , D. H. Mowrey* <sup>1</sup> , E. E. Thomas, G. M. Moore <sup>1</sup> , L. E. Watkins, L.A. Brown <sup>1</sup> , J. C. Parrott, R.E. Karnak <sup>1</sup> , A. J. Lewis, P.S. Miller <sup>2</sup> , T. R. Cline <sup>3</sup> , J. H. Eisemann <sup>4</sup> , R. A. Easter <sup>5</sup> , and W. L. Miller <sup>6</sup> , <sup>1</sup> Elanco Animal Health, <sup>2</sup> University of Nebraska, <sup>3</sup> Purdue University, <sup>4</sup> North Carolina State University, <sup>5</sup> University of Illinois. |
| 114             | 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.   |





- 115 The effect of rendement napole genotype and time of feeding of supplemental magnesium sulfate on carcass characteristics and on pork quality. M. D. Hemann\*<sup>1</sup>, M. Ellis<sup>1</sup>, F. K. McKeith<sup>1</sup>, K. D. Miller<sup>1</sup>, and K. Purser<sup>2</sup>, <sup>1</sup>University of Illinois, Urbana-Champaign, <sup>2</sup>Prince Agri-Products, Quincy, IL.
- 116 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.
- 117 Influence of level of vitamin E and level and time of feeding of vitamin D<sub>3</sub> on growth, carcass, and pork quality characteristics in pigs. K.L. Enright<sup>1</sup>, K.D. Miller\*<sup>1</sup>, L.L. Berger<sup>1</sup>, F.K. McKeith<sup>1</sup>, G. Lynch<sup>2</sup>, and M. Ellis<sup>1</sup>, <sup>1</sup>University of Illinois, <sup>2</sup>BASF Corporation.
- 118 Behavior of mice selected for high and low heat loss during light and dark photoperiods. J. G. Jones\*<sup>1</sup> and J. L. Miner<sup>1</sup>, <sup>1</sup>University of Nebraska.
- 119 Fiber type composition of the muscles of the beef chuck and round. K. S. Kirchofer\*<sup>1</sup>, C. R. Calkins<sup>1</sup>, and B. L. Gwartney<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, <sup>2</sup>National 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

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





## 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<br>Number | Paper  |
|--------------------|--|
| 228                | Prostaglandin E <sub>2</sub> production in pig anterior pituitary cells treated with bacterial lipopolysaccharide. J. E. Minton* and C. M. Hill, Kansas State University.  |
| 229                | A comparison of the immunological response to Lipopolysaccharide (LPS) versus E.coli challenge in the weaned pig. M.E. Zannelli* <sup>1</sup> , K.J. Touchette <sup>2</sup> , G.L. Allee <sup>2</sup> , R.L. Matteri <sup>3</sup> , L.A. Beausang <sup>1</sup> , L.J. Luchene <sup>1</sup> , and J.A. Carroll <sup>3</sup> , <sup>1</sup> Endogen, Inc., Woburn, MA, <sup>2</sup> University of Missouri-Columbia, <sup>3</sup> Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO.  |
| 230                | Function of the reproductive system of neonatal pigs born naturally or by Cesarean section. J.A. Daniel* <sup>1</sup> , D.H. Keisler <sup>1</sup> , C.J. Dyer <sup>2</sup> , R.L. Matteri <sup>2</sup> , and J.A. Carroll <sup>2</sup> , <sup>1</sup> University of Missouri-Columbia, <sup>2</sup> Animal Physiology Research Unit, Agricultural Research Service, USDA.  |
| 231                | Characterization of the gene for porcine endometrial/placental membrane folate binding protein (mFBP). J. L. Vallet*, T. P. L. Smith, T. S. Sonstegard, M. P. Heaton, and S. C. Fahrenkrug, USDA, ARS, RLH US Meat Animal Research Center, Clay Center, NE.  |
| 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 SynchronMate-B (SMB) and subjected to laparoscopic artificial insemination (LAI) during the breeding season. D.A. Redmer* <sup>1</sup> , R.G. Haugen <sup>1</sup> , T.K. Stenbak <sup>1</sup> , D.R. Arnold <sup>1</sup> , H.R. Berginski <sup>1</sup> , W. Limesand <sup>1</sup> , A.T. Grazul-Bilska <sup>1</sup> , D.D. Gourley <sup>2</sup> , R.L. Riese <sup>2</sup> , and L.P. Reynolds <sup>1</sup> , <sup>1</sup> North Dakota State University, Fargo, ND, <sup>2</sup> Elite 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

	Abstract
Time	Number Paper
9:00	310 Bloodmeal and fishmeal improves efficiency of growing cattle. J. W. Lehmkuhler* and M. S. Kerley, University of Missouri, Columbia, MO/USA.
9:15	311 Influence of diet on colonic pH and generic and acid-resistant <i>Escherichia coli</i> in beef steers. T. L. Scott*, C. B. Wilson, D. Bailey, T. J. Klopfenstein, C. T. Milton, R. A. Moxley, D. R. Smith, J. T. Gray, and L. L. Hungerford, University of Nebraska-Lincoln.
9:30	312 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* <sup>1</sup> , H. T. Purvis II <sup>1</sup> , and C. J. Ackerman <sup>2</sup> , <sup>1</sup> Oklahoma Agricultural Experiment Station, <sup>2</sup> Oregon State University.
9:45	313 Increasing levels of monensin in limit-fed, high-energy growing diets for beef steers and effects on subsequent finishing performance. S. P. Montgomery*, J. S. Drouillard, J. J. Sindt, T. B. Farran, H. J. LaBrune, R. D. Hunter, J. J. Higgins, and T. A. Nutsch, Kansas State University, Manhattan.
10:00	314 Combinations of wet corn gluten feed and steam flaked corn in finishing cattle diets. J. J. Sindt* <sup>1</sup> , J. S. Drouillard <sup>1</sup> , S. P. Montgomery <sup>1</sup> , T. B. Farran <sup>1</sup> , H. J. LaBrune <sup>1</sup> , R. D. Hunter <sup>1</sup> , J. J. Higgins <sup>1</sup> , R. T. Ethington <sup>2</sup> , and R. U. Lindquist <sup>2</sup> , <sup>1</sup> Kansas State University, Manhattan, <sup>2</sup> Minnesota Corn Processors, Inc., Marshall, MN.
10:15	315 Evaluating the relationship between blood glucose, performance, morbidity, and mortality in receiving heifers. H. J. LaBrune*, J. S. Drouillard, T. B. Farran, J. J. Sindt, S. P. Montgomery, and R. D. Hunter, Kansas State University, Manhattan, KS.
10:30	316 Ruminant 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.





- 10:45 317 Undegraded intake protein value of corn steep compared to soybean meal. H. H. Patterson\*<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, D. J. Jordon<sup>1</sup>, C. B. Wilson<sup>1</sup>, and R. A. Stock<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, NE, <sup>2</sup>Cargill Corn Milling, Blair, NE.
- 11:00 318 Large round bale feeder design affects wastage of hay. D. D. Buskirk\*, T. M. Harrigan, A. J. Zanella, and D. R. Hawkins, Michigan State University.
- 11:15 319 The impact of pregnancy on jejunal cellular proliferation in beef heifers. A. N. Scheaffer\*, J. S. Caton, M. L. Bauer, and L. P. Reynolds, <sup>1</sup>North Dakota State University, Fargo.

## 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



Time	Abstract Number	Paper
9:00	320	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.
9:15	321	Impact of heating degree days in bermudagrass hay on nutrient digestion by lambs. L. J. McBeth*, K. P. Coffey, W. K. Coblenz, J. E. Turner, D. A. Scarbrough, C. R. Bailey, and M. R. Stivarius, University of Arkansas, Fayetteville.
9:30	322	Effects of oscillating dietary protein on diet digestibility and nitrogen balance in lambs. T. L. Wechter*, P. A. Ludden, and B. W. Hess, University of Wyoming, Laramie, WY.
9:45	323	Effects of feeding corn vs. casein in concentrated rations on flux of nitrogenous compounds across the PDV. M. B. McDonagh*, H. C. Freetly, and C. L. Ferrell, USDA, Meat Animal Research Center, Clay Center, NE.
10:00	324	Intestinal cellular proliferation in sheep consuming low-quality forage or high concentrate diets. J. S. Caton*, K. C. Swanson, A. N. Scheaffer, M. L. Bauer, and L. P. Reynolds, <sup>1</sup> North Dakota State University, Fargo.





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### **PHYSIOLOGY**

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D. Miller

### **RUMINANT NUTRITION AND FORAGES**

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T. Milton







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COMMITTEES  
1999–2000**

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N. St. Pierre  
J. Barmore  
M. Tokach



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B. Newton  
R. Prather  
J. Firkins  
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R. Johnson

**TEACHING AWARD**

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

#### OUTSTANDING RESEARCHER AWARD

1971	D. H. Baker, University of Illinois
1972	C. E. Allen, University of Minnesota
1974	F. N. Owens, University of Illinois
1976	W. G. Bergen, Michigan State University
1977	D. E. Bauman, University of Illinois





1978	G. L. Allee, Kansas State University
1979	S. E. Curtis, University of Illinois
1980	T. L. Veum, University of Missouri
1981	R. L. Prior, Roman L. Hruska U.S. Meat Animal Research Center
1982	B. D. Schanbacher, Roman L. Hruska U.S. Meat Animal Research Center
1983	H. A. Garverick, University of Missouri
1984	G. C. Fahey, Jr., University of Illinois
1985	J. J. Ford, Roman L. Hruska U.S. Meat Animal Research Center
1986	C. L. Ferrell, Roman L. Hruska U.S. Meat Animal Research Center
1987	D. Gianola, University of Illinois
1988	S. P. Ford, Iowa State University
1989	L. L. Berger, University of Illinois
1990	M. F. Rothschild, Iowa State University
1991	M. F. Smith, University of Missouri
1992	D. L. Harmon, Kansas State University
1993	M. Koohmaraie, Roman L. Hruska, U.S. Meat Animal Research Center
1994	L. G. Sheffield, University of Wisconsin, Madison
1995	J. Odle, University of Illinois
1996	J. L. Nelssen, Kansas State University
1997	R. S. Prather, University of Missouri
1998	D. Pomp, University of Nebraska
1999	R. W. Johnson, University of Illinois

### OUTSTANDING TEACHER AWARD



1971	B. G. Harmon, University of Illinois
1972	R. E. Hunsley, Purdue University
1974	D. H. Gee, South Dakota State University
1976	T. R. Cline, Purdue University
1977	P. J. Cunningham, University of Nebraska
1978	B. D. Moser, University of Nebraska
1979	C. L. Hausler, Southern Illinois University
1980	T. R. Carr, University of Illinois
1981	M. E. Dikeman, Kansas State University
1982	R. E. Morrow, University of Missouri
1983	D. J. Kesler, University of Illinois
1984	R. A. Easter, University of Illinois
1985	D. F. Parrett, University of Illinois
1986	J. G. Sebranek, Iowa State University
1987	D. R. Brink, University of Nebraska
1988	K. M. Irvin, The Ohio State University
1989	R. P. Lemenager, Purdue University
1990	B. R. Skaar, Iowa State University
1991	D. A. Nichols, Kansas State University
1992	M. A. Russell, Purdue University
1993	D. K. Combs, University of Wisconsin, Madison
1994	L. C. Martin, Kansas State University
1995	M. E. Benson, Michigan State University
1996	B. D. Banks, Michigan State University
1997	H. D. Tyler, Iowa State University
1998	C. R. Youngs, Iowa State University
1999	J. N. Spain, University of Missouri





### **AGRIBUSINESS AWARD**

- 1995 P. L. Houghton, Heartland Cattle Co., McCook, Nebraska
- 1996 J. A. Barmore, Vita Plus Corp., Madison, Wisconsin
- 1997 D. E. Dill, Dairy Strategies, Mendota Heights, MN
- 1998 C. M. Luhman, Land O'lakes Research Farm, Webster City, IA
- 1999 Not Given

## **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. 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





## PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION

- |      |  |
|------|--|
| 1998 | M. Bode, University of Missouri<br>D. Hasekamp, University of Missouri<br>J. Rumph, Michigan State University<br>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. Hoefler, Michigan State                                    |
| 1970-71 | W. E. Dinusson, North Dakota State                               |
| 1972    | J. F. Lasley, Missouri   |
| 1973    | U. S. Garrigus, Illinois   |
| 1974-75 | V. C. Speer, Iowa State  |
| 1976    | H. S. Teague, Ohio State   |
| 1977    | R. M. Luther, South Dakota State                                 |
| 1978    | B. N. Day, Missouri  |
| 1979-80 | D. R. Zimmerman, Nebraska  |
| 1981    | A. L. Pope, Wisconsin  |
| 1982    | R. D. Goodrich, Minnesota  |
| 1983    | E. R. Miller, Michigan State                                     |
| 1984    | W. R. Woods, Purdue  |
| 1985    | L. R. Corah, Kansas State  |
| 1986    | B. D. Moser, Missouri  |
| 1987    | S. E. Curtis, Illinois   |
| 1988    | R. G. 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. Mecker, National Pork Producers Council,<br>Des Moines, IA |
| 1997    | T. S. Stahly, 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
1998	J. K. Drackley, Illinois
1999	R. D. Shaver, Wisconsin

**FUTURE MEETINGS**

2001	March 19-21
2002	March 18-20
2003	March 17-19













## Room Assignments

ACTIVITY	ROOM
<b>Monday p.m.</b>	
Nonruminant Nutrition I	204FG
Nonruminant Nutrition II	204AB
Nonruminant Nutrition III	Exhibit Hall, Room 206
Ruminant Nutrition & Forages I	205IJ
Contemporary Issues	144
Reception	134
Quiz Bowl	144
<b>Tuesday a.m.</b>	
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	Exhibit Hall, Room 206
Environment & Livestock Production II	134
Environment & Livestock Production III	134
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
<b>Tuesday p.m.</b>	
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	Exhibit Hall, Room 206
<b>Wednesday a.m.</b>	
ADSA/ASAS Breakfast	134
Refreshments	Exhibit Hall, Room 206
Midwestern Section ASAS Business Meeting	134
Midwestern Section ADSA Business Meeting	204AB
Breeding & Genetics IV	205D





Environment & Livestock Production VII	Exhibit Hall, Room 206
Environment & Livestock Production VIII	204AB
Extension III	138
Extension IV	Exhibit Hall, Room 206
Growth, Development, Muscle Bio & Meat Science III	Exhibit Hall, Room 206
Nonruminant Nutrition VIII	204FG
Physiology III	Exhibit Hall, Room 206
Ruminant Nutrition & Forages VII	205IJ
Ruminant Nutrition & Forages VIII	205E

