

# Forty-second MEETING

Midwestern Sectional  
Scientific Sessions  
and  
Business Meeting

March 16–18, 2009



Polk County Convention Complex  
501 Grand Avenue  
Des Moines, IA 50309

PLEASE BRING THIS PROGRAM WITH YOU

### **NOTICE:**

Registration and housing forms can be found on the Midwest Meeting Website. You can register on line at: <http://www.adsa.asas.org/midwest/2009>  
You can print forms off the web site listed above. Information for faxing or mailing can be found on the appropriate form or you can call 217-356-9050 for a printed copy.

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### Midwest ADSA-ASAS Offers a Keynote Speaker

Speaker: Damian Mason

Title: Humor for the Heart of Agriculture

Damian Mason is a comedian with enthusiasm for the Agricultural Industry. He graduated from Purdue University with a degree in Agricultural Economics and has since studied comedy writing and improvisation at the prestigious Second City Training Center in Chicago.

Damian combines his farm background and knowledge, with a brilliant sense of comedic timing. The result is a funny, relevant, and uplifting presentation that resonates with today's Ag professional. His funny stories and witty observations connect with the HEART of Agriculture – its people!

Damian's Humor for the Heart of Agriculture is a REAL crowd pleaser.

# REGISTRATION

Convention Center, Lobby

Monday, March 16, 9:30 a.m. – 7:30 p.m.

Tuesday, March 17, 7:00 a.m. – 4:00 p.m.

Wednesday, March 18, 9:00 a.m. – 11:00 a.m.

	Before February 27	After February 27
ASAS/ADSA Member	\$110	\$160
Undergraduate Student	\$10	\$10
Graduate Student Member	\$20	\$30
Post Doctoral Fellow Member	\$20	\$30
ASAS/ADSA Fellow	Free	Free
Writing Workshop†	\$50	\$75
*Nonmember (ASAS Membership)	\$245	\$295
**Nonmember (ADSA Membership)	\$220	\$270
*Undergraduate Student Nonmember (ASAS)	\$10	\$10
**Undergraduate Student Nonmember (ADSA)	\$15	\$15
*Graduate Student Nonmember (ASAS)	\$40	\$50
**Graduate Student Nonmember (ADSA)	\$40	\$50
*Post Doctoral Fellow Nonmember (ASAS)	\$85	\$95
**Post Doctoral Fellow Nonmember (ADSA)	\$75	\$85

†Limited to 12 Graduate Student or Post Doctoral members of ASAS/ADSA MW

\*Includes Membership into ASAS

\*\*Includes Membership into ADSA®

**Cancellation Policy:** To be eligible for a 90% refund of meeting registration fees, requests must be received in writing before **February 27, 2009**. No refunds will be issued on ticketed events.

## IMPORTANT PHONE NUMBERS

Meeting Registration Desk: .....	515/242-2570
Renaissance Savery Hotel:.....	515/244-2151
Holiday Inn Downtown: .....	515/283-0151
Hotel Fort Des Moines:.....	515/243-1161
Embassy Suites: .....	515/244-1700
Marriott: .....	515/245-5500

Registration and housing forms can be  
found on the web.  
[www.adsa.asas.org/midwest/2009](http://www.adsa.asas.org/midwest/2009)

## 2009 e-Career Tool and the Job Resource Center

**NEW for 2009:** The ASAS Midwestern Section and ADSA Midwest Branch is pleased to begin using the new “E-Career Tool”. The new tool will facilitate communication between employers and potential employees prior to the 2009 ASAS/ADSA Midwest Meeting making it easier to arrange contact in Des Moines. The tool will be available February 1<sup>st</sup> to April 15<sup>th</sup> and will be located at the following address: [http://www.asas.org/ecareer/index.asp?id\\_meeting=5](http://www.asas.org/ecareer/index.asp?id_meeting=5)

**If you are an employer** that needs to fill a Graduate Student position, or a position, in academics, research, industry, etc., simply use the “Employer Entrance” tab and enter all relevant information. The tool is free to use and very user friendly. Also, take advantage of the “search employee” function to identify potential candidates and see where/when they will be presenting their work.

**If you are a potential employee** looking for a position in the aforementioned fields, simply use the “Employee Entrance” tab and enter relevant information, upload your CV, cover letter, or anything else you feel will help you get the position you are seeking. Again, this tool is very user friendly and free to use. You can also browse and search positions that have been posted by employers. Be sure to enter the time(s) of your oral or poster presentation(s) so potential employers can see your work.

**CONTINUING in 2009:** The traditional Job Resource Center will be located in the Exhibit Hall, Room 206 at the Polk County Convention Complex. Sign-up sheets for making “connections” and instructions for use of the Resource Center will be posted.

**Students, graduates and experienced professionals** are encouraged to post résumés at the Job Resource Center. Professionals from hundreds of companies, universities, and governmental agencies are represented each year at the Midwest Meeting. Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

**Employers** from industry academia and government are encouraged to post position announcements. Employers are asked to bring 25 to 50 copies of all position announcements.

Job descriptions and résumés can be posted at the Job Resource Center in Des Moines beginning at 12:00 p.m. on Monday, March 16, 2009.

# SCHEDULE OF EVENTS

## Monday, March 16

- 8:00 AM ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel
- 11:30 AM Graduate Student Competitive Research Papers, M.S. Oral Division, 142-144
- 12:30 PM Undergraduate Student Competitive Research Papers, Oral Division, 136-138
- 1:00 PM David H. Baker Amino Acid Symposium, 204FG
- 1:30 PM Graduate Student Competitive Research Papers, Ph.D. Oral Division, 146-148
- 4:30 PM Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
- 5:30 PM Reception, Convention Center Complex, Exhibit Hall, Room 206
- 6:45 PM Keynote Speaker, Damian Mason. "Humor for the Heart of Agriculture", Room 204FG
- 7:30 PM AQ - Quiz Bowl Finals, Room 204AB

## Tuesday, March 17, AM

- 6:30 AM Program Committee Meeting, Renaissance Savery Hotel
- 8:00 AM Animal Behavior, Housing, & Well-Being I, 146-148
- 8:00 AM Billy N. Day Symposium: Utilization of Technology to Enhance Pig Reproductive Performance, 142-144
- 8:00 AM Nonruminant Nutrition I: DDGS and Glycerol A, 204FG
- 8:00 AM Nonruminant Nutrition II: Energy and Amino Acids, 136-138
- 8:00 AM Ruminant Nutrition I, 205IJ
- 8:30 AM Ruminant Nutrition II: Mycotoxin Symposium, 204AB
- 9:00 AM Teaching, 134
- 10:30 AM Nonruminant Nutrition III: Environment and Health, 136-138
- 11:30 AM Box Lunch, Convention Center Complex, Exhibit Hall  
A box lunch will be served in the Exhibit Hall for those individuals who ordered and paid for it on the registration form. (Ticket will be with badge). There will be a limited number of box lunches available for purchase in the Exhibit Hall for those individuals who did not order a lunch in advance. The box lunches for sale will be on a first come basis.

## Tuesday, March 17, PM

- 1:00 PM Breeding and Genetics I, 134
- 1:00 PM Dairy Extension Symposium: Dairy Cattle Nutrition and Immunology, 146-148



- 1:00 PM Joint Swine Extension I and Animal Behavior, Housing, & Well Being II Symposium: Gestation Sow Housing: Current Understanding and Considerations, 142-144
- 1:00 PM Growth, Development, Muscle Biology, and Meat Science I Symposium: Advances to Control Variation in Meat Tenderness, 205IJ
- 1:00 PM Nonruminant Nutrition IV: DDGS and Glycerol B, 204FG
- 1:00 PM Nonruminant Nutrition V: Minerals and Vitamins, 136-138
- 1:00 PM Physiology: Reproductive Physiology, 140
- 1:00 PM Ruminant Nutrition III: By-product Utilization, 204AB
- 3:00 PM Nonruminant Nutrition VI: Other Ingredients, 136-138
- 4:30 PM Poster Presentations, Convention Center Complex, Exhibit Hall, Room 206
- 5:30 PM Reception, Convention Center Complex, Exhibit Hall, Room 206

**Wednesday, March 18, AM**

- 6:45 AM Breakfast, Business Meeting, Awards Program, Convention Center Complex, Exhibit Hall, Room 206
- 9:00 AM Breeding and Genetics II, 142-144
- 9:00 AM Beef/Small Ruminant Extension, 146-148
- 9:00 AM Swine Extension II, 140
- 9:00 AM Growth, Development, Muscle Biology and Meat Science II, 205IJ
- 9:00 AM Nonruminant Nutrition VII: Feeding and Management, 136-138
- 9:00 AM Ruminant Nutrition IV, 204AB
- 9:00 AM Special Symposium: North American Swine Energy System, 204FG
- 9:00 AM Writing a Scientific Paper for Publication Workshop, 134
- 12:15 PM ASAS/ADSA Midwest Board of Directors, Renaissance Savery Hotel

**Camera, Video Camera, and Cell Phone Policy**

Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Violators may be asked to leave the session/conference. Exceptions to this policy must be approved in advance by MW ASAS Secretary.

# Poster Schedule

*All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 PM until Noon on Wednesday. Authors are to be present on their assigned day from 4:30 PM to 6:00 PM. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections. Judging of competition posters will take place on Monday afternoon.*

## **Monday, March 16**

All authors present from 4:30 PM – 6:00 PM

**Graduate Student Competitive Research Papers, M.S.  
Graduate Student Competitive Research Papers, Ph.D.  
Undergraduate Student Competitive Research Papers  
Growth, Development, Muscle Biology, and Meat Science  
Nonruminant Nutrition - Session I  
Odor and Nutrient Management  
Ruminant Nutrition – Session I  
Teaching**

## **Tuesday, March 17**

All authors present from 4:30 PM – 6:00 PM

**Animal Behavior, Housing and Well Being  
Breeding and Genetics  
Swine Extension  
Nonruminant Nutrition - Session II  
Physiology  
Ruminant Nutrition – Session II**

## **A SPECIAL THANK YOU**

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2009 meeting to the following companies:

### **Outstanding Young Scientist Awards**

Extension Award - Land O'Lakes Purina Feed, LLC

Research Award - DSM Nutritional Products, Inc.

Teaching Award - Archer Daniels Midland Company

### **National Pork Board Swine Innovatin (Abstract) Awards**

Research – National Pork Board

Research – National Pork Board

Education – National Pork Board

### **Innovation in Dairy Research Award**

Land O'Lakes Purina Feed, LLC

### **Agribusiness Award**

BASF Plant Science

### **Student Competition Paper Awards**

Graduate Oral, M.S. - DeKalb Feeds, Inc.

Graduate Oral, Ph.D. - Akey

Graduate Poster, MS - Cargill Animal Nutrition

Graduate Poster, Ph.D. - Cargill Animal Nutrition

Undergraduate Oral - Kent Feeds, Inc.

Undergraduate Poster - ADSA ASAS MW Board

### **The Tim S. Stahly Outstanding Swine Nutrition Midwest Graduate Student Award**

The Tim S. Stahly Memorial and Tribute Fund

### **Academic Quadrathlon**

Intervet Schering Plough Animal Health

Iowa State University

### **Breakfast (Wednesday)**

Land O'Lakes Purina Feed, LLC

### **Cyber Café & Job Resource Center**

Diamond V Mills, Inc.

Feedstuffs Newspaper

### **Abstract Book**

Fort Dodge Animal Health

### **Program Book**

Kemin Industries

**Posters**

Zinpro

**David H. Baker Amino Acid Symposium**

David H. Baker Appreciation Club

**Billy N. Day Symposium**

Billy N. Day Appreciation Club

**Joint Swine Extension and Animal Behavior, Housing,  
& Well Being Symposium**

Pig Improvement Company, Inc. and American Society of Animal Science

**Ruminant Nutrition Symposium**

Fort Dodge Animal Health

**Program Sponsors**

**Nonruminant Nutrition III**

Alltech, Inc.

**Nonruminant Nutrition IV**

Danisco Animal Nutrition

**Nonruminant Nutrition V**

JBS United, Inc.

**General Meeting**

Agri-Nutrition Services, Inc.

Ajinomoto Heartland LLC

American Angus Association

Babcock Genetics, Inc.

BASF Corporation Animal Nutrition

DSM Nutritional Products, Inc.

Elanco Animal Health

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## 2009 Midwest Meeting Sponsors

### **Silver Level**

Ajinomoto Heartland LLC  
Akey  
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Fort Dodge Animal Health  
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Kent Feeds, Inc.  
Land O'Lakes Purina Feed, LLC  
National Pork Board  
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Pfizer Animal Health  
Pig Improvement Company, Inc.  
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### **Bronze Level**

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Luca USA Inc.  
Saf Agri/Lesaffre Feed Additives

# PREPARATION GUIDELINES FOR ORAL PRESENTATIONS — LCD

## Collection of PowerPoint Files Prior to Meeting

Each room will be equipped with a computer and an LCD projector. Again for 2009, in an effort to maximize efficiency onsite and to avoid possible technical issues, we will be collecting PowerPoint files for oral presentations only prior to the meeting. After all presentations have been collected, they will be distributed to the appropriate program chair on site prior to the start of the session. To ensure a smooth presentation, it is critical that you read and follow the instructions provided. Click the link provided below for detailed instructions for creating and submitting your presentations. <http://www.adsa.asas.org/midwest/2009/insppt.htm>

## Upload Process

Presentations must be submitted electronically through our upload site at:

<http://www.fass-abstracts.org/meetinginfo.asp?meetingcode=146>

This is the same application used to submit the meeting abstracts. Select the “Login and Manage Abstracts” link and be sure to use the same account login information that was created at the time of submission. If you do not recall this information, use the “forgot password” link on the login page. Once you are logged in, click the “add/manage documents” link for your abstract in the table to go to the upload page.

If you are an invited speaker **AND** you did not upload an abstract, please upload your presentation here:

[http://www.fass-abstracts.org/invited\\_papers/?meetingcode=146](http://www.fass-abstracts.org/invited_papers/?meetingcode=146)

## Upload Deadlines

The deadline for final presentations to be submitted is: March 9, 2009 11:59 PM, Central Daylight Savings Time.

By using the upload site, PPT files will be linked to the already submitted abstract. Editing will not be allowed on existing abstracts.

There is not a file size limit for uploading presentations, but please be aware that uploading large files will be hindered by connection speeds.

**All presentations must be uploaded in PowerPoint format on or before Monday, March 9, 2009 11:59 PM, Central Daylight Savings Time.**

## POSTER SESSIONS

All posters will be in the Convention Complex, Exhibit Hall, Room 206 from **Monday 1:00 PM until Wednesday, Noon**. See each session to find out when authors are to be present.

## POSTERS PRESENTED

Monday, March 16 – 4:30–6:00 PM

Tuesday, March 17 – 4:30–6:00 PM

# Monday, March 16

## SYMPOSIA AND ORAL SESSIONS

### Graduate Student Competitive Research Papers, M.S. Oral Division

Chair: Dari C. Brown, Land O'Lakes Purina Feed LLC,

Gray Summit, MO

142-144

Sponsored by: DeKalb Feeds, Inc.

- 11:30 AM 76 Use of crude glycerol, a biodiesel co-product, in diets for lactating sows. S. J. Schieck\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, B. J. Kerr<sup>3</sup>, S. K. Baidoo<sup>4</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, Morris, MN, <sup>3</sup>USDA-ARS, Ames, IA, <sup>4</sup>Southern Research and Outreach Center, Waseca, MN.
- 11:45 AM 77 Evaluation of prepartum alternative oilseed meal supplementation on beef cow and calf performance. F. D. Lochr\*<sup>1</sup>, C. L. Lochr, S. I. Paisley, T. L. Smith, and B. W. Hess, *University of Wyoming, Laramie.*
- 12:00 PM 78 Effect of progesterone (P) antagonist RU486 on uterine progesterone receptor (PGR) mRNA expression, embryonic development and ovarian function during early pregnancy in pigs. D. J. Mathew\*<sup>1</sup>, E. M. Sellner<sup>1</sup>, C. S. Okamura<sup>1</sup>, R. D. Geisert<sup>1</sup>, L. L. Anderson<sup>2</sup>, and M. C. Lucy<sup>1</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Iowa State University, Ames, IA.
- 12:15 PM 79 Efficacy of potassium bicarbonate for prevention of fatigue in market pigs. J. R. Danielson\*<sup>1</sup>, J. L. Reichert, J. A. Kane, and T. D. Crenshaw, *University of Wisconsin, Madison.*
- 12:30 PM 80 Factors affecting progeny profitability in Simmental-Angus steers harvested at optimum endpoint. A. L. Shreck\*<sup>1</sup>, C. O. Trejo<sup>1</sup>, J. W. Homm<sup>2</sup>, L. L. Berger<sup>1</sup>, and D. B. Faulkner<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>Elanco Animal Health, Greenfield, IN.
- 12:45 PM 81 Effect of maternal diet on fetal:maternal ratio of circulating amino acids, non-esterified fatty acids, blood urea nitrogen, and glucose concentrations in ewes. L. A. Lekatz\*<sup>1</sup>, G. Wu<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, J. S. Caton<sup>1</sup>, and K. A. Vonnahme<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Texas A&M University, College Station.
- 1:00 PM 82 Use of microarray to determine genes differentially expressed in muscle and subcutaneous fat of heifers never treated or considered chronically morbid after a 63-d preconditioning program. J. Johnson\*<sup>1</sup>, D. R. Stein, L. O. Burciaga-Robles, B. P. Holland, D. L. Step, U. DeSilva, and C. R. Krehbiel, *Oklahoma State University, Stillwater.*
- 1:15 PM Break.
- 1:30 PM 83 Efficacy of varying phytase levels and development of a P release curve. C. K. Jones\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, B. W. Ratliff<sup>2</sup>, N. L. Horn<sup>3</sup>, S. S. Dritz<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, and J. L. Nelsenn<sup>1</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Enzyvia, LLC, Sheridan, IN, <sup>3</sup>JBS United, Inc., Sheridan, IN.
- 1:45 PM 84 Effects of elevated levels of distiller's grains on performance and carcass characteristics in steers fed up to 70% distillers. S. W. Reader\*<sup>1</sup>, R. L. Atkinson<sup>1</sup>, P. M. Walker<sup>2</sup>, J. M. Carmack<sup>2</sup>, and B. R. Wiegand<sup>3</sup>, <sup>1</sup>Southern Illinois University, Carbondale, <sup>2</sup>Illinois State University, Normal, <sup>3</sup>University of Missouri, Columbia.

- 2:00 PM 85 **Vascular Endothelial Growth Factor (VEGF) mRNA isoforms are altered in bovine granulosa cells (GC) by circulating progesterone concentrations (P4) and may indicate follicle status and oocyte competence.** R. Slattery\*<sup>1</sup>, D. Clopton<sup>1</sup>, J. Wood<sup>1</sup>, R. Cushman<sup>2,1</sup>, and A. Cupp<sup>1</sup>, <sup>1</sup>UNL, Lincoln, NE, <sup>2</sup>USDA-MARC, Clay Center, NE.
- 2:15 PM 86 **Effects of subacute dietary nitrate on production and gene expression in Suffolk ewes.** R. R. Cockrum\*<sup>1</sup>, K. J. Austin<sup>1</sup>, P. A. Ludden<sup>1</sup>, J. F. Taylor<sup>2</sup>, S. C. Fahrenkrug<sup>3</sup>, J. R. Garbe<sup>3</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>University of Wyoming, Laramie, <sup>2</sup>University of Missouri, Columbia, <sup>3</sup>University of Minnesota, St. Paul.
- 2:30 PM 87 **Amino acid digestibility of corn distillers solubles-related co-products in growing pigs.** J. A. Soares\*<sup>1</sup>, H. H. Stein<sup>1</sup>, G. C. Shurson<sup>2</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>University of Minnesota, St. Paul.
- 2:45 PM 88 **Maintenance energy requirements of gestating beef cows and rumen temperature, plasma concentrations of IGF-I, glucose, thyroxine, and calf performance.** C. L. Bailey\*, M. J. Prado-Cooper, E. C. Wright, R. P. Wettemann, G. W. Horn, L. J. Spicer, and C. R. Krehbiel, *Oklahoma Agricultural Experiment Station, Stillwater, OK.*
- 3:00 PM **Break.**
- 3:15 PM 89 **Effect of gonadotropin treatment on estrus expression and ovulation in seasonally anestrous weaned sows.** R. Manjarin\* and R. Kirkwood, *Michigan State University, East Lansing.*
- 3:30 PM 90 **The nutritional value of expeller-pressed canola meal for grower-finisher pigs.** R. W. Seneviratne\*<sup>1</sup>, M. G. Young<sup>2</sup>, E. Beltranena<sup>1,3</sup>, L. A. Goonewardene<sup>1,3</sup>, R. W. Newkirk<sup>4</sup>, and R. T. Zijlstra<sup>1</sup>, <sup>1</sup>University of Alberta, Edmonton, Alberta, Canada, <sup>2</sup>Gowans Feed Consulting, Wainwright, Alberta, <sup>3</sup>Alberta Agriculture and Rural Development, Edmonton, Alberta, <sup>4</sup>Canadian International Grains Institute, Winnipeg, Manitoba, Canada.
- 3:45 PM 91 **Does administration of anabolic growth implants to finishing beef cattle influence carcass attributes of cattle genetically indexed for enhanced beef palatability?** J. C. Galbreath\*<sup>1</sup>, R. J. Maddock<sup>1</sup>, G. P. Lardy<sup>1</sup>, V. L. Anderson<sup>2</sup>, C. S. Schauer<sup>3</sup>, N. L. Hall<sup>1</sup>, and E. P. Berg<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Carrington Research Extension Center, North Dakota State University, Carrington, ND, <sup>3</sup>Hettinger Research Extension Center, North Dakota State University, Hettinger, ND.
- 4:00 PM 92 **Effects of a molasses coated cottonseed product on diet digestibility, feed intake, production, and milk fatty acid profile of high-producing dairy cattle.** C. R. Mullins\* and B. J. Bradford, *Kansas State University, Manhattan.*
- 4:15 PM 93 **Associations of placental efficiency and nutrient transporter expression in the pig.** T. A. Wilmoth\*, C. O. Lemley, J. M. Koch, and M. E. Wilson, *West Virginia University, Morgantown.*
- 4:30 PM 94 **(National Pork Board Research Award) Energy determination of corn co-products fed to finishing pigs and use of in vitro OM digestibility to predict in vivo ME.** P. V. Anderson\*<sup>1</sup>, B. J. Kerr<sup>2</sup>, and G. C. Shurson<sup>3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>USDA-ARS Swine Odor and Manure Management Research Unit, Ames, IA, <sup>3</sup>University of Minnesota, St. Paul.



**Undergraduate Student Competitive Research Papers, Oral Division**  
**Chair: James G. Linn, University of Minnesota, St. Paul**  
**136-138**

**Sponsored by: Kent Feeds, Inc.**

- 12:30 PM 305 **Relationship of growth rate and feed efficiency in Suffolk ram lambs.** J. L. Hayes<sup>\*1</sup>, A. B. Culham<sup>1</sup>, G. M. Hill<sup>1</sup>, E. C. Westover<sup>1</sup>, J. E. Link<sup>1</sup>, and M. E. Benson<sup>2</sup>, <sup>1</sup>*Michigan State University, East Lansing*, <sup>2</sup>*Washington State University, Pullman*.
- 12:45 PM 306 **Fatty acid profiles of and iodine value correlations between four carcass fat depots from pigs fed varied combinations of ractopamine and energy.** H. L. Evans<sup>\*1</sup>, R. B. Hinson<sup>1</sup>, B. R. Wiegand<sup>1</sup>, M. J. Ritter<sup>2</sup>, S. N. Carr<sup>2</sup>, K. S. Roberts<sup>1</sup>, and G. Allee<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*.
- 1:00 PM 307 **Microbial growth in refrigerated colostrum over 7 days.** M. Beyer<sup>\*</sup> and S. I. Kchoe, *University of Wisconsin, River Falls*.
- 1:15 PM 308 **Effects of sire by implant interactions on carcass traits in Hereford cattle.** J. A. Bishop<sup>\*</sup> and D. W. Moser, *Kansas State University, Manhattan*.
- 1:30 PM 309 **The nutritional efficacy of mare milk in neonatal pigs.** E. L. Wilsplotz<sup>\*</sup>, A. Willyard, A. Buckley, and N. L. Trotter, *Michigan State University, East Lansing*.
- 1:45 PM **Break.**
- 2:00 PM 310 **Effect of dietary conjugated linoleic acid and coconut oil on muscle lipid content in mice.** K. M. Kanosky<sup>\*</sup>, S. Ippagunta, and K. M. Barnes, *West Virginia University, Morgantown*.
- 2:15 PM 311 **Effects of nutritional plane and selenium supply during gestation on milk yield and composition in ewes.** L. J. Garbel<sup>\*1</sup>, A. M. Meyer<sup>1</sup>, J. J. Reed<sup>1</sup>, T. L. Neville<sup>1</sup>, J. D. Kirsch<sup>1</sup>, W. L. Keller<sup>1</sup>, R. M. Weigl<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, J. S. Luther<sup>1</sup>, D. A. Redmer<sup>1</sup>, J. S. Caton<sup>1</sup>, and K. A. Vonnahme<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID*.
- 2:30 PM 312 **Impact of time and temperature on tissue quality and diagnostic outcome in swine.** W. Holt<sup>\*1</sup>, J. Reiman<sup>1</sup>, L. Karriker<sup>1</sup>, J. Hanson<sup>2</sup>, L. Layman<sup>1</sup>, and A. Johnson<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames, Iowa*, <sup>2</sup>*Murphy Brown Inc., Rose Hill, NC*.
- 2:45 PM 313 **Lean gain in Suffolk ram lambs relative feed efficiency and cost.** E. C. Westover<sup>\*1</sup>, A. B. Culham<sup>1</sup>, G. M. Hill<sup>1</sup>, A. L. Bushman<sup>1</sup>, J. E. Link<sup>1</sup>, J. L. Hayes<sup>1</sup>, and M. E. Benson<sup>2</sup>, <sup>1</sup>*Michigan State University, E. Lansing*, <sup>2</sup>*Washington State University, Pullman*.
- 3:00 PM 314 **Measuring the compositional and instrumental firmness variations in fresh pork bellies.** K. A. Trusell<sup>\*</sup>, J. K. Apple, J. W. S. Yancey, T. M. Johnson, and R. J. Stackhouse, *University of Arkansas Division of Agriculture, Fayetteville*.
- 3:15 PM **Break.**
- 3:30 PM 315 **Determination of amino acids digestibility and calculated energy values for a high-protein sorghum DDGS in growing pigs.** H. L. Frobose<sup>\*</sup>, J. Y. Jacela, J. M. DeRouchey, S. S. Dritz, M. D. Tokach, J. L. Nelssen, and R. D. Goodband, *Kansas State University, Manhattan*.
- 3:45 PM 316 **Effects of nutritional plane and selenium supply during gestation on ewe colostrum quality, mammary gland growth, and lamb serum IgG.** S. I. Fry<sup>\*1</sup>, J. F. Thorson<sup>1</sup>, A. M. Meyer<sup>1</sup>, J. J. Reed<sup>1</sup>, T. L. Neville<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, J. S. Luther<sup>1</sup>, D. A. Redmer<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, C. J. Hammer<sup>1</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID*.

- 4:00 PM 317 Evaluation of lean growth and daily gain in two maternal lines of pigs. E. C. Mahan\*<sup>1</sup> and T. A. Rathje<sup>2</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Danbred North America, Columbus, NE.
- 4:15 PM 318 Effects of round bale feeding method on hay dry matter intake and eating behavior by beef cows. B. Wilson\*, L. A. Pacheco, N. A. Sproul, J. R. Jaeger, T. T. Marston, and K. C. Olson, *Kansas State University, Manhattan.*

**David H. Baker Amino Acid Symposium**  
**Chair: Gail Czarnecki-Maulden,**  
**Nestle Purina Research, St. Louis, MO**  
**204FG**

**Sponsored by: David H. Baker Appreciation Club**

- 1:00 PM Introduction.
- 1:05 PM 46 (Invited) Where is the next generation? R. A. Easter\*, *University of Illinois, Urbana.*
- 1:40 PM 47 (Invited) The origin of methyl groups and their function. J. T. Brosnan\*, *Memorial University of Newfoundland, St. Johns, Newfoundland, Canada.*
- 2:15 PM 48 Whole-body growth, carcass growth and primal mass as indices of lysine adequacy in high lean growth pigs. M. E. Johnston<sup>1</sup>, R. D. Boyd\*<sup>1</sup>, B. Fields<sup>3</sup>, C. Booher<sup>3</sup>, C. E. Fralick<sup>2</sup>, C. E. Zier-Rush<sup>1</sup>, and A. A. Sosnicki<sup>3</sup>, <sup>1</sup>The Hanor Company, Franklin, KY, <sup>2</sup>Swine Tek Research, Van Wert, OH, <sup>3</sup>PIC USA, Hendersonville, TN.
- 2:30 PM Break.
- 2:45 PM 49 (Invited) Regulation of gastrointestinal function: Motivation from the distal gut. K. A. Tappenden\*, *University of Illinois, Urbana.*
- 3:20 PM 50 The standardized ileal digestible isoleucine to lysine requirement ratio may not be greater than 50% in post-weaned piglets. J. van Milgen\*<sup>1,2</sup>, R. Barea<sup>1,2</sup>, L. Brossard<sup>1,2</sup>, N. Le Floc<sup>1,2</sup>, D. Melchior<sup>3</sup>, and Y. Primot<sup>3</sup>, <sup>1</sup>INRA, UMR1079, Saint-Gilles, France, <sup>2</sup>Agrocampus Ouest, UMR1079, Rennes, France, <sup>3</sup>AJINOMOTO EUROLYSINE S.A.S., Paris, France.
- 3:35 PM 51 The evaluation of feeding lactating sows on grams of lysine compared to percent of lysine in the diet. L. Greiner\*<sup>1</sup>, J. Soto<sup>1</sup>, J. Connor<sup>1</sup>, G. Allee<sup>2</sup>, J. Usry<sup>3</sup>, and N. Williams<sup>4</sup>, <sup>1</sup>Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>University of Missouri, Columbia, <sup>3</sup>Ajinomoto Heartland LLC, Chicago, IL, <sup>4</sup>PIC, Hendersonville, TN.
- 3:50 PM 52 (Invited) Practical and theoretical evaluations of amino acid-related research for use in commercial swine production. M. Edmonds\*, *Kent Feeds, Inc., Muscatine, IA.*
- 4:25 PM Concluding Remarks.

**Graduate Student Competitive Research Papers, Ph.D. Oral Division**  
**Chair: Marc L. Bauer, North Dakota State University, Fargo**  
**146-148**

**Sponsored by: Akey**

- 1:30 PM 95 Effects of nutritional plane and selenium supply on intestinal mass and mRNA expression of angiogenic factors and their receptors in the ewe and neonatal lamb. A. M. Meyer\*<sup>1</sup>, T. L. Neville<sup>1</sup>, J. J. Reed<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.

- 1:45 PM 96 **Effect of dietary arginine supplementation to sows on litter size, fetal weight and myogenesis at d 75 of gestation.** J. Bérard\*<sup>1,2</sup>, M. Kreuzer<sup>2</sup>, and G. Bee<sup>1</sup>, <sup>1</sup>*Agrroscope Liebefeld Posieux, Posieux, Fribourg, Switzerland*, <sup>2</sup>*Department of Agricultural and Food Science, Zurich, Zurich, Switzerland*.
- 2:00 PM 97 **Sequence diversity in shrimp species and how to exploit it.** D. M. Gorbach\*, Z.-L. Hu, Z.-Q. Du, and M. F. Rothschild, *Iowa State University, Ames*.
- 2:15 PM 98 **Effects of in vitro insulin and 2,4-thiazolidinedione on the function of neutrophils harvested from blood of cows in different physiological states.** X. S. Revelo\* and M. R. Waldron, *University of Missouri, Columbia*.
- 2:30 PM 99 **The effect of supplementing dried distillers grains to steers grazing cool season meadow.** W. A. Griffin\*<sup>1</sup>, B. L. Nettleman<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, G. E. Erickson<sup>1</sup>, L. A. Stalker<sup>2</sup>, J. A. Musgrave<sup>2</sup>, and R. N. Funston<sup>2</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*West Central Research and Extension Center, North Platte, NE*.
- 2:45 PM **Break.**
- 3:00 PM 100 **Effect of season, transport length, deck location, and lairage length on pork quality and blood cortisol concentration.** D. J. Newman\*<sup>1</sup>, M. H. Ryan<sup>2</sup>, and C. C. Carr<sup>3</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*Farmland Foods, Wichita, KS*, <sup>3</sup>*University of Florida, Gainesville*.
- 3:15 PM 101 **Effects of mannan oligosaccharide on immune response and growth performance in weaned pigs experimentally infected with PRRS virus.** M. T. Che\*<sup>1</sup>, R. W. Johnson<sup>1</sup>, K. W. Kelley<sup>1</sup>, W. G. Van Alstine<sup>2</sup>, K. A. Dawson<sup>3</sup>, C. A. Moran<sup>3</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Purdue University, West Lafayette, IN*, <sup>3</sup>*Alltech North American Bioscience Center, Nicholasville, KY*.
- 3:30 PM 102 **Effects of growing diet composition on abundance of peroxisome proliferator-activated receptor gamma-2 in beef cattle adipose tissue.** J. S. Jennings\*, J. A. Clapper, A. D. Weaver, and A. E. Wertz-Lutz, *South Dakota State University, Brookings*.
- 3:45 PM 103 **Feedlot performance and carcass characteristics of steers and heifers whose dams were nutrient restricted from early to mid-gestation.** P. L. Price\*, V. Nayigihugu, M. Du, W. J. Means, S. I. Paisley, and B. W. Hess, *University of Wyoming, Laramie*.
- 4:00 PM 104 **Effect of selection for residual feed intake on feeding behavior in pigs.** J. M. Young\*, W. Cai, and J. C. M. Dekkers, *Iowa State University, Ames*.

## POSTER PRESENTATIONS

All posters will be in the Exhibit Hall (Room 206) and will be in place from Monday at 1:00 PM until Noon on Wednesday. Authors are to be present on their assigned day from 4:30 PM to 6:00 PM. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections (Breeding and Genetics, BG; Growth, Development, Muscle Biology, and Meat Science, GDM; Nonruminant Nutrition, NN; Physiology, PHY; Ruminant Nutrition, RN; Teaching, T). Judging of competition posters will take place on Monday afternoon.

### Graduate Student Competitive Research Papers, M.S. Poster Division

**Chair: Leo Timms, Iowa State University, Ames**  
**Sponsored by: Cargill Animal Nutrition**

- 105 GDM **The effect of initial market grade on carcass ultrasound characteristics of feeder goats.** B. Galbreath\*<sup>1</sup>, T. Burkes<sup>2</sup>, R. Miculinich<sup>1</sup>, T. Platt<sup>1</sup>, and T. Wistuba<sup>1</sup>, <sup>1</sup>Morehead State University, Morehead, KY, <sup>2</sup>Kentucky Department of Agriculture, Frankfort, KY.
- 106 BG **Effects of high-sulfur water and clinoptilolite on growth performance and gene expression of steers fed forage-based diets.** K. L. Kessler\*<sup>1</sup>, K. C. Olson<sup>2</sup>, C. L. Wright<sup>2</sup>, K. J. Austin<sup>1</sup>, P. S. Johnson<sup>2</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>University of Wyoming, Laramie, <sup>2</sup>South Dakota State University, Brookings.
- 107 GDM **Working chute behavior of feedlot cattle can be an indication of cattle temperament and beef carcass composition and quality.** N. L. Hall\*, V. L. Anderson, K. R. Carlin, J. C. Galbreath, and E. P. Berg, *North Dakota State University, Fargo.*
- 108 GDM **Validation of a rapid analytical technique to predict oxidation capacity of fresh beef.** L. Senaratne\*, C. Calkins, T. Carr, and A. S. de Mello Jr., *University of Nebraska, Lincoln.*
- 109 NN **Effects of low-solubles distiller's dried grains (LS-DDG) in diets for growing-finishing pigs: Carcass characteristics and pork fat quality.** R. B. Amaral\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, J. E. Anderson<sup>3</sup>, S. K. Baidoo<sup>4</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, Morris, <sup>3</sup>University of Minnesota, Morris, <sup>4</sup>Southern Research and Outreach Center, Waseca.
- 110 NN **Effects of crude glycerol and ractopamine HCl on growth performance, carcass characteristics, and loin quality of finishing pigs.** A. W. Duttlinger\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. L. Nelssen<sup>1</sup>, R. D. Goodband<sup>1</sup>, T. A. Houser<sup>1</sup>, K. J. Prusa<sup>2</sup>, and L. Huskey<sup>3</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>JBS Swift & Company, Greeley, CO.
- 111 RN **Effects of distillers grain supplementation on dystocia and beef cow performance.** J. M. Carmack\*<sup>1</sup>, P. M. Walker<sup>1</sup>, R. L. Atkinson<sup>2</sup>, K. L. Jones<sup>2</sup>, and S. W. Reader<sup>2</sup>, <sup>1</sup>Illinois State University, Normal, <sup>2</sup>Southern Illinois University, Carbondale.
- 112 RN **Effects of crude glycerin on feedlot performance and carcass characteristics of finishing wether lambs.** P. Gunn\*<sup>1</sup>, M. Neary<sup>1</sup>, R. Lemenager<sup>1</sup>, and S. Lake<sup>2</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>University of Wyoming, Laramie.
- 113 RN **High moisture distillers grains can be successfully stored during summer.** A. R. Hanson\*, P. M. Walker, and J. M. Carmack, *Illinois State University, Normal.*
- 114 RN **Feeding value of wet distillers grains for lactating dairy cows when co-ensiled with corn silage or haycrop silage.** N. S. Schmelz\*, S. L. Lake, R. P. Lemenager, D. Buckmaster, M. M. Schutz, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- 115 RN **Effect of site of infusion of *Lactobacillus acidophilus* and *Propionibacterium* on dry matter intake, milk production, and milk components in lactating dairy cows.** K. S. Thompson\*, N. B. Litherland, S. E. Gilliland, L. O. Burciaga-Robles, and C. R. Krehbiel, *Oklahoma State University, Stillwater.*

## **Graduate Student Competitive Research Papers,**

### **Ph.D. Poster Division**

**Chair: Leo Timms, Iowa State University, Ames**

**Sponsored by: Cargill Animal Nutrition**

- 116 PHY **Determination of the contributions of cytochrome P450 2C (CYP2C) and 3A (CYP3A) to the hepatic catabolism of progesterone.** C. O. Lemley\* and M. E. Wilson, *West Virginia University, Morgantown.*

## Undergraduate Student Competitive Research Papers, Poster Division

**Chair: James G. Linn, University of Minnesota, St. Paul**  
**Sponsored by: ADSA ASAS MW Board**

- 319 BG Feed efficiency, temperament, ultrasound measurements, and growth in developing Angus heifers. B. L. Winslow\*, K. A. Gray, M. H. Poore, C. S. Whisnant, and J. P. Cassidy, *North Carolina State University, Raleigh.*
- 320 GDM Postmortem degradation of desmin in specific muscles from the beef round. J. M. Binning\*<sup>2</sup>, M. J. Anderson<sup>1</sup>, S. M. Lonergan<sup>1</sup>, and E. Huff-Lonergan<sup>1</sup>, *Iowa State University, Ames, <sup>2</sup>Simpson College, Indianola, IA.*
- 321 PHY Influence of pre-cyropreservation pH and temperature on boar semen quality. N. E. Tharp\*<sup>1</sup>, P. Purdy<sup>2</sup>, H. Blackburn<sup>2</sup>, S. Spiller<sup>2</sup>, and T. S. Stewart<sup>1</sup>, *<sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>USDA-ARS-NCGRP, National Animal Germplasm Program, Fort Collins, CO.*
- 322 NN Dietary additions of flaxseed compromised skeletal growth in young pigs. E. J. Ince\*, B. T. Kook, D. K. Schneider, and T. D. Crenshaw, *University of Wisconsin, Madison.*
- 323 NN Evaluation of fermented soybean meal in diets fed to weanling pigs. O. J. Rojas\*<sup>2</sup>, B. G. Kim<sup>1</sup>, and H. H. Stein<sup>1</sup>, *<sup>1</sup>National University of Colombia, Bogota, Colombia, <sup>2</sup>University of Illinois, Urbana.*
- 324 NN Effect of feeding yeast culture in the diets of late gestation and lactating sows and gilts on sow and litter performance. C. Stangohr\*<sup>1</sup>, T. Kellner<sup>2</sup>, G. Fitzner<sup>3</sup>, J. Sonderman<sup>4</sup>, and C. Hostetler<sup>1</sup>, *<sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>University of Nebraska, Lincoln, <sup>3</sup>Diamond V, Cedar Rapids, IA, <sup>4</sup>Danbred North America, Columbus, NE.*
- 325 RN Dietary inclusion of crude glycerol in a growing-finishing meat goat system. K. S. Roberts\*<sup>1</sup>, B. R. Wiegand<sup>1</sup>, C. Clifford-Rathert<sup>2</sup>, M. S. Kerley<sup>1</sup>, C. K. Cave<sup>2</sup>, and A. N. Stewart<sup>2</sup>, *<sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Lincoln University, Jefferson City, MO.*
- 326 T Comparison of leadership traits among animal science majors. C. M. Stephenson\*, K. D. Rubenthaler, S. A. Mark, A. K. Leimer, V. A. Koperski, D. R. Brink, and L. D. Moody, *University of Nebraska-Lincoln, Lincoln.*

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

**Chair: Tara McDaneld, USDA-ARS, Clay Center, NE**  
**Sponsored by: Zinpro**

- 121 Effects of DDGS on sow carcass fat quality. A. N. Gipe\*, T. A. Houser, J. M. DeRouche, B. L. Goehring, S. L. Hillyard, A. W. Duttlinger, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 122 Effects of distillers dried grains with solubles on carcass characteristics and meat quality traits. J. L. Leupp\*<sup>1</sup>, G. P. Lardy<sup>1</sup>, R. J. Maddock<sup>1</sup>, M. L. Bauer<sup>1</sup>, K. Karges<sup>2</sup>, M. L. Gibson<sup>2</sup>, and J. S. Caton<sup>1</sup>, *<sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Dakota Gold Research Association, Sioux Falls, SD.*
- 123 Mineral content of m. *Teres major* and m. *Infraspinatus* from steers fed wet distillers grains plus solubles and vitamin E. A. S. de Mello Jr.\*<sup>1</sup>, L. S. Senaratne, K. Watanabe, J. A. Driskell, M. I. Schepf, F. L. Hamouz, and C. R. Calkins, *University of Nebraska, Lincoln.*
- 124 Effect of birth weight on growth performance, tissue accretion, and carcass composition of barrows to 145 kg body weight. B. A. Peterson\*<sup>1</sup>, M. Ellis<sup>1</sup>, G. Hollis<sup>1</sup>, J. Killefer<sup>1</sup>, F. K. McKeith<sup>1</sup>, C. M. Peterson<sup>1</sup>, C. L. Puls<sup>1</sup>, N. Williams<sup>2</sup>, and B. F. Wolter<sup>3</sup>, *<sup>1</sup>University of Illinois, Urbana, <sup>2</sup>PIC USA, Hendersonville, TN, <sup>3</sup>The Maschhoffs, Carlyle, IL.*

- 125 **Effects of birth weight and weaning weight on pig growth performance, tissue accretion, carcass characteristics, and meat quality.** B. A. Peterson<sup>\*1</sup>, M. Ellis<sup>1</sup>, G. Hollis<sup>1</sup>, J. Killefer<sup>1</sup>, F. K. McKeith<sup>1</sup>, C. M. Peterson<sup>1</sup>, C. L. Puls<sup>1</sup>, N. Williams<sup>2</sup>, and B. F. Wolter<sup>3</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*PIC USA, Hendersonville, TN*, <sup>3</sup>*The Maschhoff, Carlyle, IL*.
- 107 **Working chute behavior of feedlot cattle can be an indication of cattle temperament and beef carcass composition and quality.** N. L. Hall<sup>\*</sup>, V. L. Anderson, K. R. Carlin, J. C. Galbreath, and E. P. Berg, *North Dakota State University, Fargo*.
- 126 **Effects of maternal nutritional plane and selenium supply on carcass composition of offspring.** E. Harris<sup>\*</sup>, J. Galbreath, J. Caton, P. Berg, E. Berg, K. Vonnahme, D. Redmer, L. Reynolds, and K. Carlin, *North Dakota State University, Fargo*.
- 127 **Obesity alters proteoglycan mRNA abundance in the subcutaneous fat depot of the Ossabaw Miniature swine.** A. Adedokun<sup>\*1</sup>, O. Adeola<sup>1</sup>, M. Sturek<sup>2</sup>, and K. Ajuwon<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*Indiana University-Purdue University, Indianapolis*.
- 105 **The effect of initial market grade on carcass ultrasound characteristics of feeder goats.** B. Galbreath<sup>\*1</sup>, T. Burkes<sup>2</sup>, R. Miculnich<sup>1</sup>, T. Platt<sup>1</sup>, and T. Wistuba<sup>1</sup>, <sup>1</sup>*Morehead State University, Morehead, KY*, <sup>2</sup>*Kentucky Department of Agriculture, Frankfort, KY*.
- 128 **Flavor of beef value cuts from cattle fed wet distillers grains plus solubles and vitamin E.** K. Watanabe<sup>\*</sup>, M. I. Schnepf, A. S. de Mello Jr., J. A. Driskell, and C. R. Calkins, *University of Nebraska, Lincoln*.
- 129 **Protein nitrosylation in postmortem beef longissimus dorsi and psoas major muscles.** W. Zhang<sup>\*</sup>, S. Lonergan, and E. Huff-Lonergan, *Iowa State University, Ames*.
- 108 **Validation of a rapid analytical technique to predict oxidation capacity of fresh beef.** L. Senaratne<sup>\*</sup>, C. Calkins, T. Carr, and A. S. de Mello Jr., *University of Nebraska, Lincoln*.
- 130 **Microbial translocation and tenderness of needle-free and needle injection enhancement of beef strip loins.** A. N. Sutterfield<sup>1</sup>, B. A. Crow<sup>1</sup>, M. E. Dikeman<sup>\*1</sup>, R. K. Phebus<sup>1</sup>, J. A. Grobbel<sup>2</sup>, and L. C. Hollis<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Michigan State University, East Lansing*.
- 320 **Postmortem degradation of desmin in specific muscles from the beef round.** J. M. Binning<sup>\*2</sup>, M. J. Anderson<sup>1</sup>, S. M. Lonergan<sup>1</sup>, and E. Huff-Lonergan<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Simpson College, Indianola, IA*.
- 131 **Restaurant patrons' perceptions of North Dakota and guaranteed tender labeling relative to price paid and palatability.** A. N. Lepper<sup>\*</sup>, R. J. Maddock, and E. P. Berg, *North Dakota State University, Fargo*.
- 132 **Optimizing beef cuts: Comparison of sensorial attributes and objective tenderness of m. *Obliquus abdominis* and m. *Splenius*.** C. R. Calkins, A. S. de Mello Jr.<sup>\*</sup>, and L. S. Senaratne, *University of Nebraska, Lincoln*.
- 133 **Internal color and tenderness of the infraspinatus are affected by cooking method and degree of doneness.** M. D. Wharton<sup>\*</sup>, J. K. Apple, J. W. S. Yancey, J. T. Sawyer, and M. S. Lee, *University of Arkansas Division of Agriculture, Fayetteville*.
- 134 **Internal color and tenderness of the semimembranosus are affected by cooking method and degree of doneness.** M. D. Wharton<sup>\*</sup>, J. K. Apple, J. W. S. Yancey, J. T. Sawyer, and M. S. Lee, *University of Arkansas Division of Agriculture, Fayetteville*.

## Nonruminant Nutrition - Posters Session I Ingredients

**Sponsored by: Zinpro**

- 201 **Energy and nitrogen balance for pigs receiving mixed-species meat and bone meal in corn-soybean meal based diet.** O. A. Olukosi<sup>\*</sup> and O. Adeola, *Purdue University, West Lafayette, IN*.

- 202 **Effect of Fresta F Concentrate on performance of weanling pigs fed in a commercial environment.** K. Purser\*<sup>1</sup>, T. Weeden<sup>2</sup>, C. Hankins<sup>2</sup>, and K. Wendler<sup>1</sup>, <sup>1</sup>*Delacon Phytogetic Feed Additives, Steyregg, Austria*, <sup>2</sup>*Land O'Lakes Purina Feed, St. Paul, MN.*
- 203 **Effects of PepSoyGen (PSG) and Dried Porcine Solubles 50 (DPS 50) on nursery pig performance.** C. K. Jones\*, J. M. DeRouchey, J. L. Nelssen, M. D. Tokach, S. S. Dritz, and R. D. Goodband, *Kansas State University, Manhattan.*
- 204 **Apparent and standardized ileal digestibility values for amino acids in a yeast-derived protein source (NuPro®) for 3- to 4-wk-old pigs.** S. Moch<sup>1</sup>, P. Groenewegen\*<sup>2</sup>, and R. O. Ball<sup>1</sup>, <sup>1</sup>*University of Alberta, Edmonton, Alberta, Canada*, <sup>2</sup>*Alltech Inc., Nicholasville, KY.*
- 205 **Effect of spray-dried egg on growth performance of nursery pigs.** M. Song\*<sup>1</sup>, B. G. Harmon<sup>2</sup>, J. A. Soares<sup>1</sup>, M. T. Che<sup>1</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Railsplitter Feed Technology, Wildwood, MO.*
- 206 **Evaluation of crude glycerol as a feed ingredient for nursery pigs.** M. Shields\*, E. van Heugten, J. Odle, and C. Stark, *North Carolina State University, Raleigh.*
- 207 **The effects of extrusion and inclusion of dried distillers grains on amino acid ileal digestibility in swine.** G. A. Apgar\*<sup>1</sup>, P. M. Walker<sup>2</sup>, and R. L. Atkinson<sup>1</sup>, <sup>1</sup>*Southern Illinois University, Carbondale*, <sup>2</sup>*Illinois State University, Normal.*
- 208 **Metabolizable energy content of feed-grade glycerin for growing pigs and its effect on growth performance, carcass characteristics and pork quality traits.** O. M. Mendoza\*<sup>1</sup>, M. Ellis<sup>1</sup>, F. K. McKeith<sup>1</sup>, and A. M. Gaines<sup>2</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschhoff's, Carlyle, IL.*
- 209 **Effect of dietary level of distillers dried grains with solubles (DDGS) and of Paylean on the growth performance, carcass characteristics, and meat quality parameters of finishing pigs.** C. L. Puls\*<sup>1</sup>, M. Ellis<sup>1</sup>, B. A. Peterson<sup>1</sup>, F. K. McKeith<sup>1</sup>, J. Killefer<sup>1</sup>, A. M. Gaines<sup>2</sup>, B. F. Wolter<sup>2</sup>, M. J. Ritter<sup>3</sup>, and S. N. Carr<sup>3</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*The Maschhoff's, Carlyle, IL*, <sup>3</sup>*Elanco Animal Health, Greenfield, IN.*
- 210 **In vitro evaluation of the fermentation characteristics in the pig intestines of hullless barleys differing in  $\beta$ -glucan content.** R. Jha<sup>1,2</sup>, J. Bindelle<sup>1,3</sup>, B. Rossnagel<sup>2</sup>, A. Van Kessel<sup>2</sup>, and P. Leterme\*<sup>1</sup>, <sup>1</sup>*Prairie Swine Centre Inc., Saskatoon, SK, Canada*, <sup>2</sup>*University of Saskatchewan, Saskatoon, SK, Canada*, <sup>3</sup>*Faculté des Sciences agronomiques, Gembloux, Belgium.*
- 211 **Effects of fat sources on growth performance, blood composition and fatty acid digestibility in weaning pigs.** J. H. Lee\*<sup>1</sup>, J. H. Cho<sup>1</sup>, Y. J. Chen<sup>1</sup>, J. D. Hancock<sup>2</sup>, J. H. Lee<sup>3</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>*Dankook University, Cheonan, Korea*, <sup>2</sup>*Kansas State University, Manhattan*, <sup>3</sup>*Jinju National University, Gyeongnam, Korea.*
- 212 **Effects of American and Chinese DDGS on meat quality and amino acid content of pork.** H. D. Jang\*<sup>1</sup>, J. W. Hong<sup>2</sup>, J. H. Lee<sup>2</sup>, W. S. Lee<sup>2</sup>, C. Y. Lee<sup>3</sup>, I. B. Chung<sup>4</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>*Dankook University, Cheonan, Korea*, <sup>2</sup>*Institute of Animal Science, DAESANG Farmsco Co., Ltd, Korea*, <sup>3</sup>*Jinju National University, Korea*, <sup>4</sup>*National Institute of Animal Science, Korea.*
- 213 **Validation of control diets for lactose and fish meal replacement studies in nursery pigs.** R. C. Sulabo\*, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 214 **Comparison between the total fecal collection and indigestible marker methods to determine the digestibility of canola meals in growing pigs.** C. A. Montoya\* and P. Leterme, *Prairie Swine Centre Inc., Saskatoon, SK, Canada.*
- 215 **Amino acid and energy digestibility of high-protein corn distillers dried grains in pigs.** J. J. Jacela\*, H. L. Frobose, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 216 **Effect of dam parity on growth performance and immune response of weaned pigs.** E. E. Carney\*, H. Tran, J. W. Bundy, R. Moreno, D. E. Reese, P. S. Miller, and T. E. Burkey, *University of Nebraska, Lincoln.*

- 110 **Effects of crude glycerol and ractopamine HCl on growth performance, carcass characteristics, and loin quality of finishing pigs.** A. W. Duttlinger\*<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. L. Nelssen<sup>1</sup>, R. D. Goodband<sup>1</sup>, T. A. Houser<sup>1</sup>, K. J. Prusa<sup>2</sup>, and L. Huskey<sup>3</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Iowa State University, Ames*, <sup>3</sup>*JBS Swift & Company, Greeley, CO*.
- 109 **Effects of low-solubles distiller's dried grains (LS-DDG) in diets for growing-finishing pigs: Carcass characteristics and pork fat quality.** R. B. Amaral\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, J. E. Anderson<sup>3</sup>, S. K. Baidoo<sup>4</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*West Central Research and Outreach Center, Morris*, <sup>3</sup>*University of Minnesota, Morris*, <sup>4</sup>*Southern Research and Outreach Center, Waseca*.
- 322 **Dietary additions of flaxseed compromised skeletal growth in young pigs.** E. J. Ince\*<sup>1</sup>, B. T. Kook, D. K. Schneider, and T. D. Crenshaw, *University of Wisconsin, Madison*.
- 323 **Evaluation of fermented soybean meal in diets fed to weaning pigs.** O. J. Rojas\*<sup>2</sup>, B. G. Kim<sup>1</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*National University of Colombia, Bogota, Colombia*, <sup>2</sup>*University of Illinois, Urbana*.

## **Odor and Nutrient Management Posters**

### **Sponsored by: Zinpro**

- 233 **Nutrient balance and recoverable nitrogen and phosphorus of a commercial feedlot.** S. Q. Jones\*, J. M. DeRouchey, and J. M. Ham, *Kansas State University, Manhattan*.
- 234 **On-farm evaluation of a combination of treatments to reduce gaseous emissions from swine facilities.** A. Rojo\*, B. A. Peterson, M. Ellis, T. Funk, Y. Zhang, S. Jerez, Y. Su, and M. Robert, *University of Illinois, Urbana*.

## **Ruminant Nutrition - Posters Session I**

### **Sponsored by: Zinpro**

- 112 **Effects of crude glycerol on feedlot performance and carcass characteristics of finishing wether lambs.** P. Gunn\*<sup>1</sup>, M. Neary<sup>1</sup>, R. Lemenager<sup>1</sup>, and S. Lake<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*University of Wyoming, Laramie*.
- 325 **Dietary inclusion of crude glycerol in a growing-finishing meat goat system.** K. S. Roberts\*<sup>1</sup>, B. R. Wiegand<sup>1</sup>, C. Clifford-Rathert<sup>2</sup>, M. S. Kerley<sup>1</sup>, C. K. Cave<sup>2</sup>, and A. N. Stewart<sup>2</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Lincoln University, Jefferson City, MO*.
- 279 **Effects of supplemental organic cobalt on nutrient digestion and nitrogen balance in lambs fed forage-based diets.** E. J. Scholljegerdes\*<sup>1</sup>, W. J. Hill<sup>2</sup>, and H. T. Purvis<sup>2</sup>, <sup>1</sup>*USDA-ARS, Northern Great Plains Research Laboratory, Mandan, ND*, <sup>2</sup>*Ralco Nutrition Inc., Marshall, MN*.
- 280 **Effects of nutritional plane and selenium supply during gestation on ewe performance, body composition, and offspring body weight.** A. M. Meyer\*<sup>1</sup>, J. J. Reed<sup>1</sup>, D. J. Newman<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID*.
- 281 **Conception rates of beef cows fed a supplement with rumen-protected fat.** P. Moriel\*<sup>1</sup>, E. Pegorer Goncalves<sup>1</sup>, V. Nayjigihugu<sup>1</sup>, G. Aines<sup>2</sup>, E. Block<sup>2</sup>, and B. Hess<sup>1</sup>, <sup>1</sup>*University of Wyoming, Laramie*, <sup>2</sup>*ARM & HAMMER Animal Nutrition, Division of Church & Dwight Co., Inc., US*.
- 111 **Effects of distillers grain supplementation on dystocia and beef cow performance.** J. M. Carmack\*<sup>1</sup>, P. M. Walker<sup>1</sup>, R. L. Atkinson<sup>2</sup>, K. L. Jones<sup>2</sup>, and S. W. Reader<sup>2</sup>, <sup>1</sup>*Illinois State University, Normal*, <sup>2</sup>*Southern Illinois University, Carbondale*.
- 282 **Prepartal provision of wheat grain facilitates metabolic transition in preparturient heifers.** F. Ehsanbakhsh<sup>1</sup>, H. Amanlou<sup>1</sup>, D. Zahmatkesh<sup>1</sup>, and A. Nikkhah\*<sup>1,2</sup>, <sup>1</sup>*Zanjan University, Zanjan, Iran*, <sup>2</sup>*University of Illinois, Urbana*.



- 283 Evaluation of a diet containing pelleted high oil canola meal for lactating dairy cows. D. M. Harris<sup>1</sup>, M. E. Meyer<sup>\*1</sup>, H. A. Maiga<sup>1</sup>, and C. Dahlen<sup>2</sup>, <sup>1</sup>University of Minnesota, Crookston, <sup>2</sup>Northwest Research and Outreach Center, Crookston, MN.
- 114 Feeding value of wet distillers grains for lactating dairy cows when co-ensiled with corn silage or haycrop silage. N. S. Schmelz<sup>\*</sup>, S. L. Lake, R. P. Lemenager, D. Buckmaster, M. M. Schutz, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- 284 Effect of supplementing a carbohydrate derivative on lactating cows in a grazing system. J. Marin-Guzman<sup>\*1</sup>, J. M. Sanchez<sup>2</sup>, C. M. Luhman<sup>1</sup>, K. Sanabria<sup>3</sup>, and R. Castro<sup>3</sup>, <sup>1</sup>Land O'Lakes Purina Feed, Shoreview, MN, <sup>2</sup>Centro de Investigacion en Nutricion Animal y Escuela de Zootecnia, Universidad de Costa Rica, San Jose, Costa Rica, <sup>3</sup>Cooperativa de Productores de leche Dos Pinos, Alajuela, Costa Rica.
- 115 Effect of site of infusion of *Lactobacillus acidophilus* and *Propionibacterium* on dry matter intake, milk production, and milk components in lactating dairy cows. K. S. Thompson<sup>\*</sup>, N. B. Litherland, S. E. Gilliland, L. O. Burciaga-Robles, and C. R. Krehbiel, *Oklahoma State University, Stillwater.*
- 285 Effect of physical form of flaxseed on digestibility of lactation diets fed to Holstein steers. N. R. Bork<sup>\*1</sup>, J. W. Schroeder<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, G. P. Lardy<sup>1</sup>, M. L. Bauer<sup>1</sup>, and E. J. Scholljegerdes<sup>2</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>North Great Plains Research Laboratory, ARS, Mandan, ND.
- 286 Utilization of leaf litter as a potential feed source. J. K. Smith<sup>\*1</sup>, J. Neel<sup>2</sup>, and E. E. D. Felton<sup>1</sup>, <sup>1</sup>West Virginia University, Morgantown, <sup>2</sup>Appalachian Farming Systems Research Center, Beaver, WV.
- 113 High moisture distillers grains can be successfully stored during summer. A. R. Hanson<sup>\*</sup>, P. M. Walker, and J. M. Carmack, *Illinois State University, Normal.*

## Teaching Posters Sponsored by: Zinpro

- 304 Assessment of Southern Illinois University Carbondale's animal science students' learning styles. J. M. Douglas<sup>\*</sup>, R. L. Atkinson, G. A. Apgar, T. A. Winters, and K. L. Jones, *Southern Illinois University, Carbondale.*
- 326 Comparison of leadership traits among animal science majors. C. M. Stephenson<sup>\*</sup>, K. D. Rubenthaler, S. A. Mark, A. K. Leimer, V. A. Koperski, D. R. Brink, and L. D. Moody, *University of Nebraska-Lincoln, Lincoln.*

# Tuesday, March 17

## SYMPOSIA AND ORAL SESSIONS

### Animal Behavior, Housing, & Well-Being I

**Co-Chairs: Janeen L. Salak-Johnson, University of Illinois, Urbana,  
and Ernest Minton, Kansas State University, Manhattan**

**146-148**

- 8:00 AM 6 Use of OmniGen-AF to reduce mammary E. coli infection and to augment mucosal immunity in a murine model of bovine mastitis. A. Rowson<sup>\*1</sup>, S. B. Puntenny<sup>1</sup>, E. Aalseth<sup>2</sup>, Y. Q. Wang<sup>1</sup>, and N. E. Forsberg<sup>1</sup>, <sup>1</sup>OmniGen Research, Corvallis, OR, <sup>2</sup>Dairy Consulting, Lake Stevens, WA.
- 8:15 AM 7 Effects of diet source and timing of porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (Mpp) vaccines on post-weaning nursery pig performance. E. M. Kane<sup>\*</sup>, M. L. Potter, J. R. Bergstrom, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*

- 8:30 AM 8 **Effects of porcine circovirus type 2 and *Mycoplasma hyopneumoniae* vaccines on nursery pig performance.** M. L. Potter\*, A. W. Duttlinger, J. R. Bergstrom, S. S. Dritz, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, and J. L. Nelsens, *Kansas State University, Manhattan.*
- 8:45 AM 9 **The effect of supplementing dry feed with a nutritional gel additive at the time of vaccination on nursery pig behavior.** J. Kline\*<sup>1</sup>, A. Johnson<sup>1</sup>, R. Witte<sup>1</sup>, L. Sadler<sup>1</sup>, B. de Rodas<sup>2</sup>, D. Brown<sup>2</sup>, L. Layman<sup>1</sup>, W. Holt<sup>1</sup>, L. Karriker<sup>1</sup>, and K. Stalder<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Land O Lakes Purina Feed, Gray Summit, MO.*
- 9:00 AM 10 **Evaluation of a pre-molt calcium and low-energy diet molting program: effects on behavior.** E. R. Dickey, K. Bregendahl, and A. K. Johnson\*, *Iowa State University, Ames.*
- 9:15 AM 11 **Piglet mortality in an outdoor farrowing hut: What behaviors contribute to their demise over the first 72-h?** J. Garvey<sup>1</sup>, J. J. McGlone<sup>2</sup>, K. J. Stalder<sup>1</sup>, L. J. Sadler\*<sup>1</sup>, and A. K. Johnson<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Texas Tech University, Lubbock, TX.*
- 9:30 AM 12 **Analysis of the agreement between locomotion score and culling due to lameness among culled sows in commercial farms.** Y. Sasaki<sup>1</sup>, S. S. Anil\*<sup>2</sup>, L. Anil<sup>2</sup>, J. Deen<sup>2</sup>, M. E. Wilson<sup>3</sup>, and T.L. Ward<sup>3</sup>, <sup>1</sup>*Meiji University, Kanagawa, Japan 214-8571,* <sup>2</sup>*University of Minnesota, St. Paul,* <sup>3</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 9:45 AM **Break.**
- 10:00 AM 13 **Drinker to nursery pig ratio: Effects on behavior.** C. Jackson<sup>1</sup>, K. Stalder<sup>1</sup>, L. Sadler<sup>1</sup>, R. Edler<sup>2</sup>, J. Holck<sup>2</sup>, P. DuBois<sup>3</sup>, L. Karriker<sup>1</sup>, and A. Johnson\*<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames,* <sup>2</sup>*Boehringer Ingelheim Vetmedica, Ames, IA,* <sup>3</sup>*Cargill Pork, Wichita, KS.*
- 10:15 AM 14 **Effects of moving market weight pigs in different group sizes during loading on stress responses and transport losses at the packing plant.** N. L. Berry\*<sup>1</sup>, M. Ritter<sup>2</sup>, E. Brunton<sup>1</sup>, W. Stremsterfer<sup>1</sup>, B. Hoag<sup>1</sup>, J. Wolfe<sup>1</sup>, N. Fitzgerald<sup>1</sup>, M. Porth<sup>1</sup>, D. Delaney<sup>1</sup>, and T. Weldon<sup>1</sup>, <sup>1</sup>*Cargill, Inc., Coralville, IA,* <sup>2</sup>*Elanco Animal Health, Greenfield, IN.*
- 10:30 AM 15 **Variation in temperature within trucks transporting pigs during two seasons in two locations.** S. Hayne\*<sup>1</sup>, T. Samarakone<sup>1</sup>, T. Crowe<sup>2</sup>, S. Torrey<sup>3</sup>, R. Bergeron<sup>4</sup>, T. Widowski<sup>4</sup>, N. Lewis<sup>5</sup>, C. Dewey<sup>4</sup>, L. Faucitano<sup>3</sup>, and H. Gonyou<sup>1,2</sup>, <sup>1</sup>*Prairie Swine Centre, Saskatoon, SK, Canada,* <sup>2</sup>*University of Saskatchewan, Saskatoon, SK,* <sup>3</sup>*Agriculture and Agri-Food Canada, Sherbrooke, QC,* <sup>4</sup>*University of Guelph, Guelph, ON,* <sup>5</sup>*University of Manitoba, Winnipeg, MB.*
- 10:45 AM 16 **Analysis of stress associated with a newly designed mechanical restraint for pigs.** L. Anil<sup>1</sup>, S. S. Anil<sup>1</sup>, J. Deen\*<sup>1</sup>, M. E. Wilson<sup>2</sup>, and T. L. Ward<sup>2</sup>, <sup>1</sup>*University of Minnesota, St. Paul,* <sup>2</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 11:00 AM 17 **The effect of housing facilities on steer behavior and temperament during the winter.** R. Baker\*, A. Johnson, L. Sadler, K. Stalder, and M. Honeyman, *Iowa State University, Ames.*
- 11:15 AM 18 **Effects of Korral Kools running time on core body temperature of dairy cows in a desert environment.** X. Ortiz\*<sup>1</sup>, J. Smith<sup>1</sup>, B. Bradford<sup>1</sup>, J. Harner<sup>1</sup>, and A. Oddy<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan,* <sup>2</sup>*NADA Al-Othman, Al Ahsa, Saudi Arabia.*
- 11:30 AM 19 **Effects of Korral Kools running time on core body temperatures of multiparous cows and primiparous cows in a desert environment.** X. Ortiz\*<sup>1</sup>, J. Smith<sup>1</sup>, B. Bradford<sup>1</sup>, J. Harner<sup>1</sup>, and A. Oddy<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan,* <sup>2</sup>*NADA Al-Othman, Al Ahsa, Saudi Arabia.*

- 11:45 AM 20 **CAST issue paper: Sow welfare in individual gestation accomodation.** S. E. Curtis\*<sup>1</sup>, R. B. Baker<sup>2</sup>, M. J. Estienne<sup>3</sup>, P. B. Lynch<sup>4</sup>, J. J. McGlone<sup>5</sup>, and B. K. Pedersen<sup>6</sup>, <sup>1</sup>*University of Illinos, Urbana*, <sup>2</sup>*Iowa State University, Ames*, <sup>3</sup>*Virginia Polytechnic and State University, Blacksburg*, <sup>4</sup>*Moorepark Research Centre, Ireland*, <sup>5</sup>*Texas Tech University, Lubbock*, <sup>6</sup>*Danish Farm Design, A/S*.

## Billy N. Day Symposium

### Utilization of Technology to Enhance Pig Reproductive Performance

**Chair: Rodney D. Geisert, University of Missouri, Columbia**

**142-144**

**Sponsored by: Billy N. Day Appreciation Club**

- 8:00 AM Welcome.
- 8:10 AM 21 **(Invited) Current practices for evaluating boar semen: their usefulness and limitations.** D. G. Levis\*, *University of Nebraska, Concord*.
- 8:30 AM 22 **(Invited) Fourier harmonics to determine the relationship between sperm nuclear shape and boar fertility.** J. J. Parrish\*, *University of Wisconsin, Madison*.
- 9:10 AM 23 **(Invited) Use of embryo transfer to preserve pig genetics.** S. L. Terlouw\*, B. A. Didion, and J. R. Dobrinsky, *Minitube of America, Verona, WI*.
- 9:30 AM Discussion.
- 9:45 AM Break.
- 10:00 AM 24 **(Invited) Basic studies in reproduction laid the foundation for genetic modification of swine: Where do we go next?** R. S. Prather\*<sup>1,2</sup>, J. Zhao<sup>2</sup>, J. J. Whyte<sup>3</sup>, Y. Hao<sup>1</sup>, and C. N. Murphy<sup>1,2</sup>, <sup>1</sup>*Division of Animal Science, Columbia, MO*, <sup>2</sup>*National Swine Resource and Research Center, Columbia, MO*, <sup>3</sup>*University of Missouri, Columbia*.
- 10:40 AM 25 **(Invited) Viral-mediated transduction of livestock physiology.** R. V. Anthony\*, J. D. Cantlon, S. H. Purcell, and C. M. Clay, *Colorado State University, Fort Collins*.
- 11:20 AM 26 **(Invited) Utilization of genomic chip technology for improvement of reproduction in swine.** A. C. Clutter\*, *Newsham Choice Genetics, St Louis, MO*.
- 11:40 AM **Wrap-up and Discussion.**

## Nonruminant Nutrition I

### DDGS and Glycerol A

**Co-Chairs: Brent Ratliff, Enzyvia LLC, Sheridan, IN, and Eduardo**

**Beltranena, Alberta Agriculture and Rural Development, Edmonton**

**204FG**

- 8:00 AM 135 **Effect of DDGS source on growth performance and carcass characteristics of growing-finishing pigs.** A. J. Drescher\*<sup>1</sup>, S. K. Baidoo<sup>2</sup>, L. J. Johnston<sup>3</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*Southern Research and Outreach Center, Waseca, MN*, <sup>3</sup>*West Central Research and Outreach Center, Morris, MN*.
- 8:15 AM 136 **Effects of distillers dried grains with solubles and high-protein distillers dried grains on growth performance and organ weights of growing and finishing pigs.** N. A. Gutierrez\*, D. Y. Kil, B. G. Kim, and H. H. Stein, *University of Illinois, Urbana*.

- 8:30 AM 137 **Effects of low-solubles distiller's dried grains (LS-DDG) in diets for growing-finishing pigs: Energy content and pig growth performance.** R. B. Amaral\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, J. E. Anderson<sup>3</sup>, S. K. Baidoo<sup>4</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, Morris, <sup>3</sup>University of Minnesota, Morris, <sup>4</sup>Southern Research and Outreach Center, Waseca.
- 8:45 AM 138 **Corn distillers dried grains with solubles (DDGS) in diets for growing-finishing pigs – a cooperative study.** G. L. Cromwell\*, M. J. Azain, O. Adcola, S. D. Carter, T. D. Crenshaw, S. W. Kim, D. C. Mahan, P. S. Miller, and M. C. Shannon, NCCC-42 Committee on Swine Nutrition.
- 9:00 AM 139 **Using high protein distillers dried grains (HP-DDG) to replace soybean meal in diets for finishing pigs.** R. B. Hinson\*<sup>1</sup>, G. D. Gerlemann<sup>1</sup>, L. Ma<sup>1</sup>, L. Prewitt<sup>2</sup>, and G. L. Allee<sup>1</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>Agrecco, Chesterfield, MO.
- 9:15 AM 140 **Energy concentration and amino acid digestibility in a novel source of high-protein distillers dried grain fed to pigs.** B. G. Kim\*, G. I. Petersen, and H. H. Stein, University of Illinois, Urbana.
- 9:30 AM 87 **Amino acid digestibility of corn distillers solubles-related co-products in growing pigs.** J. A. Soares\*<sup>1</sup>, H. H. Stein<sup>1</sup>, G. C. Shurson<sup>2</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>University of Minnesota, St. Paul.
- 9:45 AM 141 **Influence of rapid introduction and removal of dietary corn distillers dried grains with solubles (DDGS) on pig performance and carcass characteristics.** A. M. Hilbrands\*<sup>1</sup>, L. J. Johnston<sup>1</sup>, G. C. Shurson<sup>2</sup>, and I. Kim<sup>2</sup>, <sup>1</sup>University of Minnesota, West Central Research and Outreach Center, Morris, <sup>2</sup>University of Minnesota, St. Paul.
- 10:00 AM **Break.**
- 10:30 AM 142 **(Invited) Ethanol corn co-product assessment opportunities and challenges in the swine industry.** B. J. Kerr\*<sup>1</sup>, P. V. Anderson<sup>2</sup>, and G. C. Shurson<sup>3</sup>, <sup>1</sup>USDA-ARS-NSTL, Ames, IA, <sup>2</sup>Iowa State University, Ames, <sup>3</sup>University of Minnesota, St. Paul.
- 11:00 AM 143 **Evaluation of distillers dried grains with solubles withdrawal programs on grow-finish pig growth performance and carcass quality.** J. G. Stevens\*, A. P. Schinckel, M. A. Latour, D. Kelly, B. Legan, and B. T. Richert, Purdue University, West Lafayette, IN.
- 11:15 AM 144 **Inclusion of fat in sow lactation diets containing dry distillers grain with solubles.** L. Greiner<sup>1</sup>, J. Soto\*<sup>1</sup>, G. Allee<sup>2</sup>, and J. Connor<sup>3</sup>, <sup>1</sup>Innovative Swine Solutions, LLC, Carthage, IL, <sup>2</sup>University of Missouri, Columbia, <sup>3</sup>Professional Swine Management, LLC, Carthage, IL.
- 11:30 AM 145 **Digestibility of dietary fiber in distillers co-products fed to growing pigs.** P. E. Urriola\*<sup>1</sup>, G. C. Shurson<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>University of Minnesota, St. Paul.
- 11:45 AM 146 **Effects of commercial enzymes in diets containing dried distillers' grains with solubles (DDGS) on nursery pig performance.** C. K. Jones\*, J. R. Bergstrom, M. D. Tokach, J. M. DeRouchey, J. L. Nelssen, S. S. Dritz, and R. D. Goodband, Kansas State University, Manhattan.

## **Nonruminant Nutrition II Energy and Amino Acids**

**Co-Chairs: Chad Halstad, Swine Nutrition Services, Truman, MN,  
and Joel DeRouchey, Kansas State University, Manhattan**

**136-138**

- 8:00 AM 147 **Amino acid fortified diets for weanling pigs replacing the use of fish meal and whey protein.** S. W. Kim\*<sup>1</sup>, C. M. Ballou<sup>1</sup>, B. J. Min<sup>1</sup>, and R. L. Payne<sup>2</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Evonik-Degussa Corp., Kennesaw, GA.

- 8:15 AM 148 **Determining the optimum dietary tryptophan to lysine ratio in growing pigs fed diets formulated with higher levels of the other essential amino acids.** A. D. Quant\*<sup>1</sup>, M. D. Lindemann<sup>1</sup>, G. L. Cromwell<sup>1</sup>, B. J. Kerr<sup>2</sup>, and R. L. Payne<sup>3</sup>, <sup>1</sup>*University of Kentucky, Lexington*, <sup>2</sup>*USDA, Ames, IA*, <sup>3</sup>*Evonik-Degussa Corporation, Kennesaw, GA*.
- 8:30 AM 149 **The use of crystalline amino acids in sow lactation diets.** G. L. Allee\*<sup>1</sup>, L. Greiner<sup>2</sup>, J. L. Usry<sup>3</sup>, and N. Williams<sup>4</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Innovative Swine Solutions, Carthage, IL*, <sup>3</sup>*Ajinomoto Heartland, LLC, Chicago, IL*, <sup>4</sup>*Pig Improvement Company, Hendersonville, TN*.
- 8:45 AM 150 **The standardized ileal digestible valine to lysine requirement ratio is at least 70% in post-weaned piglets.** J. van Milgen\*<sup>1,2</sup>, R. Barea<sup>1,2</sup>, L. Brossard<sup>1,2</sup>, N. Le Floc'h<sup>1,2</sup>, D. Melchior<sup>3</sup>, and Y. Primot<sup>3</sup>, <sup>1</sup>*INRA, UMR1079, Saint-Gilles, France*, <sup>2</sup>*Agrocampus Ouest, UMR1079, Rennes, France*, <sup>3</sup>*AJINOMOTO EUROLYSINE S.A.S., Paris, France*.
- 9:00 AM 151 **Bioefficacy of liquid methionine hydroxy analogue (MHA-FA) compared to DL-methionine based on growth response maximum in pigs.** R. D. Boyd\*<sup>1</sup>, M. E. Johnston<sup>1</sup>, and C. E. Fralick<sup>2</sup>, <sup>1</sup>*The Hanor Company, Inc., Franklin, KY*, <sup>2</sup>*Swine Tek Research, Van Wert, OH*.
- 9:15 AM 152 **Growth performance of 20-to 50-kilogram pigs fed low crude protein diets supplemented with L-Histidine, L-Cystine, and Glycine.** S. Powell\*<sup>1</sup>, J. Greely<sup>1</sup>, T. Bidner<sup>1</sup>, L. Southern<sup>1</sup>, and R. Payne<sup>2</sup>, <sup>1</sup>*LSU Agricultural Center, Baton Rouge, LA*, <sup>2</sup>*Evonik-Degussa Corp., Kennesaw, GA*.
- 9:30 AM 153 **Growth performance of 20-to 50-kilogram pigs fed low crude protein diets supplemented with Glycine and L-Arginine.** S. Powell\*<sup>1</sup>, T. Bidner<sup>1</sup>, L. Southern<sup>1</sup>, and R. Payne<sup>2</sup>, <sup>1</sup>*LSU Agricultural Center, Baton Rouge, LA*, <sup>2</sup>*Evonik-Degussa Corp., Kennesaw, GA*.
- 9:45 AM 154 **Impact of dietary energy level and ractopamine on growth performance, carcass characteristics, and meat quality of finishing pigs.** R. B. Hinson\*<sup>1</sup>, B. R. Wiegand<sup>1</sup>, M. J. Ritter<sup>2</sup>, S. N. Carr<sup>2</sup>, and G. L. Allee<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*.
- 10:00 AM 155 **Effects of increasing standardized ileal digestible lysine to metabolizable energy ratio on performance of 55 to 80 kg gilts in a commercial finishing environment.** N. W. Shelton\*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelsens, and J. M. DeRouchey, *Kansas State University, Manhattan*.
- 10:15 AM 156 **Evaluation of the prediction of the net energy content of canola meal and full-fat canola seeds in growing pigs.** C. A. Montoya\*, K. Neufeld, P. Kish, and P. Leterme, *Prairie Swine Centre Inc., Saskatoon, SK, Canada*.

## Ruminant Nutrition I

### Chair: Alfred Miron, Land O'Lakes/Purina Feeds, Sioux Falls, SD 2051J

- 8:00 AM 245 **Performance and carcass characteristics of stocker cattle grazing dormant native range.** E. D. Sharman\*, P. A. Lancaster, G. G. Hilton, C. R. Krehbiel, H. T. Purvis, and G. W. Horn, *Oklahoma Agricultural Experiment Station, Stillwater, OK*.
- 8:15 AM 246 **Effects of corn- vs. glycerol-based creep rations on calf and cow performance.** M. L. Van Emon\*<sup>1</sup>, R. P. Lemenager<sup>1</sup>, M. C. Claeys<sup>1</sup>, and S. L. Lake<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*University of Wyoming, Laramie*.
- 8:30 AM 247 **Effects of starch versus fiber-based supplements on adipose tissue gene expression of stocker cattle grazing dormant native range.** P. A. Lancaster\*, E. D. Sharman, G. W. Horn, C. R. Krehbiel, D. R. Stein, and U. DeSilva, *Oklahoma Agricultural Experiment Station, Stillwater, OK*.

- 8:45 AM 248 **Effect of length of time between maternal separation and shipping on feedlot performance and carcass merit of ranch-direct beef calves weaned during the fall.** J. W. Bolte\*<sup>1</sup>, J. R. Jaeger<sup>1</sup>, T. B. Schmidt<sup>2</sup>, D. U. Thomson<sup>1</sup>, B. J. White<sup>1</sup>, R. L. Larson<sup>1</sup>, L. A. Pacheco<sup>1</sup>, N. A. Sproul<sup>1</sup>, M. D. Thomas<sup>1</sup>, and K. C. Olson<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Mississippi State University, Starkville*.
- 9:00 AM 249 **The effects of source of energy on performance, ultrasonic, and carcass characteristics of early-weaned steers.** K. M. Retallick\*, D. B. Faulkner, T. G. Nash, and D. W. Shike, *University of Illinois, Urbana*.
- 9:15 AM 250 **The effects of replacing corn with soybean hulls on performance and carcass characteristics of feedlot steers.** M. H. Ramos\*, M. Kerley, Y. Liang, and S. J. Harris, *University of Missouri, Columbia*.
- 9:30 AM **Break.**
- 9:45 AM 251 **Timing of Optaflexx inclusion in feedlot diets on performance and carcass characteristics of beef steers.** J. M. Kelzer\*<sup>1</sup>, C. R. Dahlen<sup>2</sup>, G. I. Crawford<sup>3</sup>, and A. DiCostanzo<sup>1</sup>, <sup>1</sup>*University of Minnesota, St. Paul*, <sup>2</sup>*Northwest Research and Outreach Center, University of Minnesota, Crookston, MN*, <sup>3</sup>*Extension Regional Center, University of Minnesota, Hutchinson, MN*.
- 10:00 AM 252 **Comparison of Revalor XS, a new single dose implant, to a Revalor IS and Revalor S implant strategy in finishing steers.** C. A. Nichols\*<sup>1</sup>, G. E. Erickson<sup>1</sup>, J. T. Vasconcelos<sup>1</sup>, M. N. Streeter<sup>2</sup>, B. D. Dicke<sup>3</sup>, D. J. Jordan<sup>3</sup>, R. J. Cooper<sup>3</sup>, T. L. Scott<sup>3</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*Intervet/Shering-Plough, Inc., Millsboro, DE*, <sup>3</sup>*Cattlemens Nutrition Services, Lincoln, NE*.
- 10:15 AM 253 **Evaluation of component TE-IS with Tylan followed by component TE-S with Tylan vs. a single component TE-200 with Tylan or a single Revalor XS implant in beef finishing steers.** C. A. Nichols\*<sup>1</sup>, J. T. Vasconcelos<sup>2</sup>, G. E. Erickson<sup>1</sup>, S. A. Furman<sup>2</sup>, J. J. Sindt<sup>3</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*University of Nebraska Panhandle Research and Extension Center, Scottsbluff*, <sup>3</sup>*VetLife, Inc., West Des Moines, IA*.
- 10:30 AM 80 **Factors affecting progeny profitability in Simmental-Angus steers harvested at optimum endpoint.** A. L. Shreck\*<sup>1</sup>, C. O. Trejo<sup>1</sup>, J. W. Homm<sup>2</sup>, L. L. Berger<sup>1</sup>, and D. B. Faulkner<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*.
- 10:45 AM 254 **Residual feed intake, phenotype, and fertility in yearling beef females.** K. S. Shaffer\*, W. R. Wagner, J. E. Warren, and E. E. D. Felton, *West Virginia University, Morgantown*.
- 11:00 AM 318 **Effects of round bale feeding method on hay dry matter intake and eating behavior by beef cows.** B. Wilson\*, L. A. Pacheco, N. A. Sproul, J. R. Jaeger, T. T. Marston, and K. C. Olson, *Kansas State University, Manhattan*.

## **Ruminant Nutrition II Mycotoxin Symposium**

**Chair: Alvaro Garcia, South Dakota State University, Brookings  
204AB**

**Sponsored by: Fort Dodge Animal Health**

- 8:30 AM 255 **(Invited) Challenges in understanding mycotoxin related research: Real world applications.** D. E. Duarte\*<sup>1</sup> and G. Pena<sup>2</sup>, <sup>1</sup>*Novus International Inc., St. Louis, MO*, <sup>2</sup>*Utah State University, Logan*.
- 9:15 AM 256 **(Invited) Performance, metabolism and immunity in livestock fed diets contaminated with *Fusarium* mycotoxins.** T. K. Smith\*, *University of Guelph, Guelph, Ontario, Canada*.
- 10:00 AM **Break.**

- 10:15 AM 257 (Invited) Mycotoxin effects and their prevention in cattle. L. W. Whitlow\*, North Carolina State University, Raleigh.
- 11:00 AM 258 (Invited) Question for the ethanol industry: What are you doing about mycotoxins? M. L. Gibson\*, K. Karges, M. L. Giesemann, M. K. Frederking, and S. E. Van Hulzen, POET Nutrition, Sioux Falls, SD.

## Teaching

**Chair: Kelly Bruns, South Dakota State University, Brookings**

**134**

- 9:00 AM 301 Details of a NSF supported research education for undergraduates (REU) training program for recruiting and training future graduate students. J. Rice\*, K. Saunders, and M. Rothschild, Iowa State University, Ames.
- 9:15 AM 302 Clicker technology for introductory animal science courses. G. M. Hill\* and J. E. Link, Michigan State University, East Lansing.
- 9:30 AM 303 Integrating a food defense educational program across an animal science curriculum. C. L. Lorenzen\*, M. K. Hendrickson, A. D. Clarke, M. C. Shannon, R. M. Torres, R. L. Weaver, and K. L. Savage-Clarke, University of Missouri, Columbia.

## Nonruminant Nutrition III Environment and Health

**Co-Chairs: Jason W. Frank, University of Arkansas, Fayetteville, and  
Joel Spencer, JBS United, Sheridan, IN**

**136-138**

**Sponsored by: Alltech, Inc.**

- 10:30 AM 157 Efficacy of different porcine circovirus vaccination regimens on pig performance. B. E. Bass\*<sup>1</sup>, J. W. Frank<sup>1</sup>, Z. B. Johnson<sup>1</sup>, C. V. Maxwell<sup>1</sup>, and P. R. Dubois<sup>2</sup>, <sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>Cargill Pork, Wichita, KS.
- 10:45 AM 101 Effects of mannan oligosaccharide on immune response and growth performance in weaned pigs experimentally infected with PRRS virus. M. T. Che\*<sup>1</sup>, R. W. Johnson<sup>1</sup>, K. W. Kelley<sup>1</sup>, W. G. Van Alstine<sup>2</sup>, K. A. Dawson<sup>3</sup>, C. A. Moran<sup>3</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>Purdue University, West Lafayette, IN, <sup>3</sup>Alltech North American Bioscience Center, Nicholasville, KY.
- 11:00 AM 158 Eicosapentaenoic and docosahexaenoic acid modulate the inflammatory response in porcine cartilage explants. C. I. Robison and M. W. Orth\*, Michigan State University, East Lansing.
- 11:15 AM 159 Effect of dam parity on litter performance and passive immunity. E. E. Carney\*, H. Tran, J. W. Bundy, R. Moreno, M. W. Anderson, J. M. Perkins, D. E. Reese, P. S. Miller, and T. E. Burkey, University of Nebraska, Lincoln.
- 11:30 AM 160 Growth performance of pigs farrowed in indoor versus outdoor management systems and weaned into an indoor, off-site nursery. E. Davis\*<sup>1</sup>, C. V. Maxwell<sup>2</sup>, J. D. Spencer<sup>3</sup>, R. L. Moser<sup>3</sup>, J. Rehberger<sup>1</sup>, and T. Rehberger<sup>1</sup>, <sup>1</sup>Agtech Products, Inc., Waukesha, WI, <sup>2</sup>University of Arkansas, Fayetteville, <sup>3</sup>JBS United, Inc., Sheridan, IN.
- 11:45 AM 161 The use of ractopamine to enhance the environmental sustainability of pork production. K. A. Ross\*<sup>1,2</sup>, A. D. Beaulieu<sup>1</sup>, J. Merrill<sup>3</sup>, G. Vessie<sup>3</sup>, and J. F. Patience<sup>1,4</sup>, <sup>1</sup>Prairie Swine Centre Inc., Saskatoon, SK, Canada, <sup>2</sup>University of Saskatchewan, Saskatoon, SK, Canada, <sup>3</sup>Elanco Animal Health, Guelph, ON, Canada, <sup>4</sup>Iowa State University, Ames.

- 12:00 PM 162 **Effects of EcoCare® Feed on the mass balance of N and P during the swine finishing phase.** T. Walraven\*<sup>1</sup>, S. D. Carter<sup>1</sup>, M. Lachmann<sup>1</sup>, J. Bundy<sup>1</sup>, J. Jarrett<sup>1</sup>, and B. De Rodas<sup>2</sup>, <sup>1</sup>*Oklahoma State University, Stillwater*, <sup>2</sup>*Land O'Lakes Purina Feed, Gray Summit, MO*.

## Breeding and Genetics I

**Chair: Douglas Newcom, Newsham Choice Genetics,  
Chesterfield, MO**

**134**

- 1:00 PM 27 **Impact of gilts' body composition and body structure on reproductive performance.** M. Nikkilä\*<sup>1</sup>, K. Stalder<sup>1</sup>, B. Mote<sup>2</sup>, J. Lampe<sup>3</sup>, B. Thorn<sup>4</sup>, M. Rothschild<sup>1</sup>, A. Johnson<sup>1</sup>, L. Karkker<sup>1</sup>, and T. Serenius<sup>5</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Fast Genetics, Saskatchewan, Canada*, <sup>3</sup>*Swine Graphics Enterprises, Webster City, IA*, <sup>4</sup>*Newsham Choice Genetics, West Des Moines, IA*, <sup>5</sup>*FABA Breeding, Vantaa, Finland*.
- 1:15 PM 28 **Estimates of variance components and genetic correlations between swine estrus traits.** M. T. Knauer\*<sup>1</sup>, M. T. See<sup>1</sup>, J. P. Cassidy<sup>1</sup>, and D. W. Newcom<sup>2</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Newsham Choice Genetics, West Des Moines, IA*.
- 1:30 PM 29 **Estimates of variance components and genetic correlations between swine structural conformation traits.** M. T. Knauer\*<sup>1</sup>, M. T. See<sup>1</sup>, J. P. Cassidy<sup>1</sup>, and D. W. Newcom<sup>2</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Newsham Choice Genetics, West Des Moines, IA*.
- 1:45 PM 30 **Longitudinal analysis of body weight and feed intake in selection lines for residual feed intake in pigs.** W. Cai\*<sup>1</sup>, H. Wu<sup>2</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Iowa State University, Ames*.
- 2:00 PM 31 **(National Pork Board Research Award) Growth and efficiency of pigs selected for residual feed intake on restricted and ad libitum diets.** N. Boddicker\*<sup>1</sup>, N. Gabler<sup>1</sup>, M. Spurlock<sup>1</sup>, and J. C. M. Dekkers<sup>1</sup>, *Iowa State University, Ames*.
- 2:15 PM 104 **Effect of selection for residual feed intake on feeding behavior in pigs.** J. M. Young\*<sup>1</sup>, W. Cai<sup>1</sup>, and J. C. M. Dekkers<sup>1</sup>, *Iowa State University, Ames*.
- 2:30 PM 32 **Identification of genetic markers associated with fatness and leg weakness traits in the pig.** B. Fan\*<sup>1</sup>, S. K. Onteru<sup>1</sup>, M. T. Nikkilä<sup>1</sup>, K. J. Stalder<sup>1</sup>, and M. F. Rothschild<sup>1</sup>, *Iowa State University, Ames*.
- 2:45 PM 33 **Using computed tomography as a selection tool for carcass-meat quality and robustness.** B. Holm\*<sup>1,2</sup>, D. Olsen<sup>1</sup>, and J. Kongsro<sup>1</sup>, <sup>1</sup>*Norsvin, Hamar, Norway*, <sup>2</sup>*Norsvin USA, Harmony, MN*.
- 3:00 PM 34 **Genetic parameters of heat stress tolerance in sows.** S. Bloemhof\*<sup>1,2</sup>, E. Knol<sup>1</sup>, and I. Misztal<sup>3</sup>, <sup>1</sup>*Institute for Pig Genetics, Beuningen, The Netherlands*, <sup>2</sup>*Animal Breeding and Genomics Centre, Wageningen, The Netherlands*, <sup>3</sup>*University of Georgia, Athens*.

## Dairy Extension Symposium

### Dairy Cattle Nutrition and Immunology

**Chair: David Fischer, University of Illinois, Edwardsville**

**146-148**

- 1:00 PM (Invited) **Overview of ruminant immune function.** M. Foote, *Cornell University, Ithaca, NY*.
- 1:45 PM (Invited) **Role of immune suppression in retained placenta and uterine health of dairy cattle.** J. Goff, *Iowa State University, Ames*.
- 2:30 PM **Break.**



- 2:45 PM (Invited) Nutritional effect on immune function in transition dairy cows. M. Waldron, *University of Missouri, Columbia.*
- 3:30 PM (Invited) Immune function and effects on somatic cell counts and milk quality. G. Pighetti, *University of Tennessee, Knoxville.*
- 4:15 PM Discussion.

## **Joint Swine Extension I and Animal Behavior, Housing, & Well Being II Symposium**

### **Gestation Sow Housing: Current Understanding and Considerations** **Co-Chairs: Mark Whitney, University of Minnesota, Mankato, and** **Janeen L. Salak-Johnson, University of Illinois, Urbana** **142-144**

#### **Sponsored by: Pig Improvement Company, Inc.** **and American Society of Animal Science**

- 1:00 PM 61 (Invited) Introduction to the sow gestation housing issue. M. H. Whitney\*, *University of Minnesota Extension, Mankato, MN.*
- 1:20 PM 62 (Invited) Current knowledge and understanding regarding sow welfare. J. L. Salak-Johnson\*, *University of Illinois, Urbana.*
- 2:00 PM 63 (Invited) Genetic considerations for different sow housing options. R. O. Bates\*, *Michigan State University, East Lansing.*
- 2:30 PM **Break.**
- 2:45 PM 64 (Invited) Feeding, labor, and management considerations with different sow gestation housing systems. D. G. Levis\*, *University of Nebraska, Lincoln.*
- 3:25 PM 65 (Invited) Experiences with pen gestation sow housing from an American pork production system. R. W. Ivey\*, *Maxwell Foods, LLC, Goldsboro, NC.*
- 4:05 PM 66 (Invited) Group housing systems for gestating sows: The European perspective. B. K. Pedersen\*, *Danish Farm Design A/S, Forskerparken 10, DK-5230 Odense M.*

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

### **Advances to Control Variation in Meat Tenderness** **Chair: Dan Nonneman, USDA-ARS, Clay Center, NE** **205IJ**

- 1:00 PM (Invited) Hyperspectral imaging as a way to predict beef tenderness. C. Calkins, *University of Nebraska, Lincoln.*
- 1:45 PM (Invited) Controlling variation in tenderness. S. Shackelford, *USDA/ARS - USMARC, Clay Center, NE.*
- 2:30 PM **Break.**
- 2:45 PM (Invited) Validation of commercial genetic markers. M. Dikeman, *Kansas State University, Manhattan.*
- 3:30 PM (Invited) The bovine SNP chip and whole genome association for beef quality. R. Schnabel, *University of Missouri, Columbia.*

## Nonruminant Nutrition IV DDGS and Glycerol B

Co-Chairs: R.T. Zijlstra, University of Alberta, Edmonton, and  
Russell Fent, Ralco Nutrition Inc., Marshall, MN  
204FG

### Sponsored by: Danisco Animal Nutrition

- 1:00 PM 163 Effects of high levels of distillers dried grains with solubles (DDGS) and enzymes on growth performance and carcass traits of grow-finish pigs. J. J. Jacela\*<sup>1</sup>, S. S. Dritz<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. L. Nelssen<sup>1</sup>, and K. J. Prusa<sup>2</sup>, <sup>1</sup>Kansas State University, Manhattan, <sup>2</sup>Iowa State University, Ames.
- 1:15 PM 164 Effect of phytase and xylanase supplementation or particle size on nutrient digestibility of diets containing distillers dried grains with solubles (DDGS) co-fermented from wheat and corn in cannulated grower pigs. J. Yanez\*<sup>1,2</sup>, E. Beltranena<sup>3</sup>, and R. T. Zijlstra<sup>1</sup>, <sup>1</sup>University of Alberta, Edmonton, Alberta, Canada, <sup>2</sup>Universidad Autónoma de Baja California, Mexicali, México, <sup>3</sup>Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada.
- 1:30 PM 165 Effects of pelleting diets containing distillers dried grain with solubles on growth performance and nutrient digestibility in nursery pigs. Z. P. Zhu\*<sup>1,2</sup>, R. B. Hinson<sup>1</sup>, L. Ma<sup>1</sup>, and G. L. Allee<sup>1</sup>, <sup>1</sup>University of Missouri, Columbia, <sup>2</sup>China Agricultural University, Beijing, P. R. China.
- 1:45 PM 166 Effect of single- or twin-screw extrusion on energy and amino acid digestibility of wheat or corn distillers dried grain and solubles (DDGS) for growing pigs. E. Beltranena\*<sup>1,2</sup>, J. Sánchez Torres<sup>3</sup>, L. Goonewardene<sup>1,2</sup>, X. Meng<sup>1</sup>, and R. T. Zijlstra<sup>2</sup>, <sup>1</sup>Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada, <sup>2</sup>University of Alberta, Edmonton, Alberta, Canada, <sup>3</sup>Universidad Autónoma de Baja California, Mexicali, Baja California, México.
- 2:00 PM 167 Biofuel co-products in swine diets: Combining DDGS and glycerol. P. J. Lammers\*<sup>1</sup>, M. S. Honeyman<sup>1</sup>, and B. J. Kerr<sup>2</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>USDA-ARS NSRIC, Ames, IA.
- 2:15 PM 168 Evaluation of crude glycerol, a biodiesel co-product, in growing pig diets to support growth and improve pork quality. S. J. Schieck\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, G. C. Shurson<sup>1</sup>, and B. J. Kerr<sup>3</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, Morris, MN, <sup>3</sup>USDA-ARS, Ames, IA.
- 2:30 PM 169 Evaluation of crude glycerol to replace lactose in phase 1 nursery diets for pigs. M. Shields\*, E. van Heugten, J. Odle, and C. Stark, North Carolina State University, Raleigh.
- 2:45 PM 76 Use of crude glycerol, a biodiesel co-product, in diets for lactating sows. S. J. Schieck\*<sup>1</sup>, L. J. Johnston<sup>2</sup>, B. J. Kerr<sup>3</sup>, S. K. Baidoo<sup>4</sup>, and G. C. Shurson<sup>1</sup>, <sup>1</sup>University of Minnesota, St. Paul, <sup>2</sup>West Central Research and Outreach Center, Morris, MN, <sup>3</sup>USDA-ARS, Ames, IA, <sup>4</sup>Southern Research and Outreach Center, Waseca, MN.
- 3:00 PM 94 (National Pork Board Research Award) Energy determination of corn co-products fed to finishing pigs and use of in vitro OM digestibility to predict in vivo ME. P. V. Anderson\*<sup>1</sup>, B. J. Kerr<sup>2</sup>, and G. C. Shurson<sup>3</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>USDA-ARS Swine Odor and Manure Management Research Unit, Ames, IA, <sup>3</sup>University of Minnesota, St. Paul.

## Nonruminant Nutrition V Minerals and Vitamins

**Co-Chairs: Dustin Dean, International Ingredient Corporation, St. Louis, MO, and**

**Gretchen Hill, Michigan State University, East Lansing  
136-138**

**Sponsored by: JBS United, Inc.**

- 1:00 PM 170 (Invited) Genetic and molecular mechanisms affecting phosphorus utilization. C. H. Stahl\*, *North Carolina State University, Raleigh.*
- 1:30 PM 171 Presence of pharmacological quantities of Zn as a dose does not stimulate growth. G. M. Hill\*, J. E. Link, J. A. Snedegar, and M. J. Dawes, *Michigan State University, East Lansing.*
- 1:45 PM 172 The effects of KemTRACE® brand Chromium Propionate on growth performance of grow-finish pigs fed reduced fat diets. B. Hinson\*, J. Hahn<sup>2</sup>, and G. Allee<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Kemin Industries, Inc., Des Moines, IA.*
- 2:00 PM 173 Effects of dietary concentration of P and microbial phytase on the digestibility of amino acids and energy by growing pigs. A. A. Pahl<sup>1</sup>, G. I. Petersen\*<sup>1</sup>, N. R. Augspurger<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*JBS United Inc., Sheridan, IN.*
- 2:15 PM 174 Addition of ZINPRO® zinc methionine complex to late finishing swine diets containing ractopamine enhances growth rate. J. W. Frank\*<sup>1</sup>, C. V. Maxwell<sup>1</sup>, Z. B. Johnson<sup>1</sup>, T. L. Ward<sup>2</sup>, and M. E. Wilson<sup>2</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*Zinpro Corporation, Eden Prairie, MN.*
- 2:30 PM 175 Reducing the Ca:P ratio in phytase-supplemented diets did not compromise growth or feed intake responses of nursery pigs. C. Sparks\*<sup>1</sup>, J. Lampe<sup>2</sup>, G. Gourley<sup>2</sup>, and T. Crenshaw<sup>3</sup>, <sup>1</sup>*Lallemand Animal Nutrition, Alden, IA*, <sup>2</sup>*Swine Graphics Enterprises, Webster City, IA*, <sup>3</sup>*University of Wisconsin, Madison.*
- 2:45 PM 83 Efficacy of varying phytase levels and development of a P release curve. C. K. Jones\*<sup>1</sup>, M. D. Tokach<sup>1</sup>, B. W. Ratliff<sup>2</sup>, N. L. Horn<sup>3</sup>, S. S. Dritzi<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. M. DeRouchey<sup>4</sup>, and J. L. Nelssen<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Enzyvia, LLC, Sheridan, IN*, <sup>3</sup>*JBS United, Inc., Sheridan, IN.*

## Physiology

### Reproductive Physiology

**Chair: Matthew E. Wilson, West Virginia University, Morgantown**

**140**

- 1:00 PM 235 Effects of feeding linseed meal on litter size in pigs. K. A. Vonnahme\*<sup>1</sup>, J. Benz<sup>2</sup>, and R. Zimprich<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*Kansas State University, Manhattan.*
- 1:15 PM 236 Thermoregulatory responses of sows to heat stress during three phases of production. E. A. Coate\*, M. C. Lucy, T. J. Safranski, P. A. Eichen, A. M. Williams, and D. E. Spiers, *University of Missouri-Columbia, Columbia.*
- 1:30 PM 237 Productive and reproductive responses to heat stress for sows during a production cycle. A. M. Williams\*, T. J. Safranski, D. E. Spiers, P. A. Eichen, E. A. Coate, and M. C. Lucy, *University of Missouri, Columbia.*
- 1:45 PM 238 Day of farrowing induction and suckling piglet performance. H. M. Smith\*, A. M. Williams, C. C. Selby, and T. J. Safranski, *University of Missouri, Columbia.*
- 2:00 PM 89 Effect of gonadotropin treatment on estrus expression and ovulation in seasonally anestrous weaned sows. R. Manjarin\* and R. Kirkwood, *Michigan State University, East Lansing.*

Tuesday PM

33

- 2:15 PM 93 **Associations of placental efficiency and nutrient transporter expression in the pig.** T. A. Wilmoth\*, C. O. Lemley, J. M. Koch, and M. E. Wilson, *West Virginia University, Morgantown.*
- 2:30 PM 78 **Effect of progesterone (P) antagonist RU486 on uterine progesterone receptor (PGR) mRNA expression, embryonic development and ovarian function during early pregnancy in pigs.** D. J. Mathew\*<sup>1</sup>, E. M. Sellner<sup>1</sup>, C. S. Okamura<sup>1</sup>, R. D. Geisert<sup>1</sup>, L. L. Anderson<sup>2</sup>, and M. C. Lucy<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia,* <sup>2</sup>*Iowa State University, Ames, IA.*
- 2:45 PM **Break.**
- 3:00 PM 81 **Effect of maternal diet on fetal:maternal ratio of circulating amino acids, non-esterified fatty acids, blood urea nitrogen, and glucose concentrations in ewes.** L. A. Lekatz\*<sup>1</sup>, G. Wu<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, J. S. Caton<sup>1</sup>, and K. A. Vonnahme<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo,* <sup>2</sup>*Texas A&M University, College Station.*
- 3:15 PM 239 **Influence of exogenous progestin on ovarian function in beef cows.** R. A. Cushman\*<sup>1</sup>, J. R. Wood<sup>2</sup>, S. E. Echternkamp<sup>1</sup>, and A. S. Cupp<sup>2</sup>, <sup>1</sup>*USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE,* <sup>2</sup>*University of Nebraska, Lincoln.*
- 3:30 PM 98 **Effects of in vitro insulin and 2,4-thiazolidinedione on the function of neutrophils harvested from blood of cows in different physiological states.** X. S. Revelo\* and M. R. Waldron, *University of Missouri, Columbia.*
- 3:45 PM 240 **Interferon-tau (IFNT) stimulated gene expression in lymphocytes of Holstein dairy cows within 20 d after insemination.** J. C. Green\*, M. Elorza, C. S. Okamura, and M. C. Lucy, *University of Missouri, Columbia.*

### **Ruminant Nutrition III**

#### **By-product Utilization**

**Chair: Barry Bradford, Kansas State University, Manhattan**

**204AB**

- 1:00 PM 259 **Supplementing dried distillers grains to growing calves on smooth bromegrass pastures.** A. K. Watson\*, M. K. Luebbe, T. J. Klopfenstein, G. E. Erickson, K. R. Brink, and W. H. Schacht, *University of Nebraska, Lincoln.*
- 1:15 PM 260 **Effects of level of dried distiller's grains supplementation on native pasture and subsequent effects on wheat pasture gains.** K. H. Jenkins\*<sup>1</sup>, J. C. MacDonald<sup>1,2</sup>, F. T. McCollum III<sup>3</sup>, and S. H. Amosson<sup>3</sup>, <sup>1</sup>*Texas AgriLife Research, Amarillo,* <sup>2</sup>*West Texas A&M University, Canyon,* <sup>3</sup>*Texas AgriLife Extension, Amarillo.*
- 1:30 PM 261 **Comparing the energy value of wet distillers grains to dry rolled corn in forage based diets.** B. L. Nuttelman\*, M. K. Luebbe, J. R. Benton, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 1:45 PM 262 **Utilizing wet corn gluten feed instead of roughage during grain adaptation in finishing feedlot cattle.** T. J. Huls<sup>1</sup>, M. K. Luebbe<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, G. E. Erickson\*<sup>1</sup>, W. A. Griffin<sup>1</sup>, R. A. Stock<sup>2</sup>, and D. R. Mark<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln,* <sup>2</sup>*Cargill, Blair, NE.*
- 2:00 PM 263 **Effects of self fed by-products on pasture housed finishing beef cattle on live animal performance and carcass traits.** D. D. Kiesling\*, D. G. Morrical, W. D. Busby, D. R. Strohbehn, M. S. Honeyman, J. H. Sellers, and D. L. Maxwell, *Iowa State University, Ames.*
- 2:15 PM 264 **Effects of substituting wet distillers grains with solubles in a wet corn gluten feed based diet on finishing performance.** C. A. Nichols\*<sup>1</sup>, M. K. Luebbe<sup>1</sup>, G. E. Erickson<sup>1</sup>, R. A. Stock<sup>2</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln,* <sup>2</sup>*Cargill, Blair, NE.*

- 2:30 PM 265 **Corn wet distillers grains plus solubles or solubles in feedlot diets containing wet corn gluten feed.** V. R. Bremer\*<sup>1</sup>, J. R. Benton<sup>1</sup>, K. J. Hanford<sup>1</sup>, G. E. Erickson<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, and R. A. Stock<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, <sup>2</sup>Cargill Wet Milling, Blair, NE.
- 2:45 PM 266 **Effects of wet corn gluten feed and roughage inclusion levels in finishing diets containing modified distillers grains plus solubles.** J. R. Benton\*<sup>1</sup>, G. E. Erickson<sup>1</sup>, T. J. Klopfenstein<sup>1</sup>, M. K. Luebbe<sup>1</sup>, and R. U. Lindquist<sup>2</sup>, <sup>1</sup>University of Nebraska, Lincoln, <sup>2</sup>Archer Daniels Midlands Co., Columbus, NE.
- 3:00 PM **Break.**
- 3:15 PM 267 **Effects of concentration of alfalfa hay on performance of steers fed steam-flaked corn-based finishing diets containing 25% sorghum wet distiller's grains.** J. C. MacDonald\*<sup>1,2</sup>, K. H. Jenkins<sup>1</sup>, F. T. McCollum III<sup>3</sup>, and N. A. Cole<sup>4</sup>, <sup>1</sup>Texas AgriLife Research, Amarillo, <sup>2</sup>West Texas A&M University, Canyon, <sup>3</sup>Texas AgriLife Extension, Amarillo, <sup>4</sup>USDA-ARS, Bushland, TX.
- 3:30 PM 268 **Vaccination to reduce the prevalence of Escherichia coli O157:H7 in feedlot cattle fed wet distillers grains plus solubles.** A. R. Rich\*, A. N. Jepson, M. K. Luebbe, G. E. Erickson, T. K. Klopfenstein, D. R. Smith, and R. A. Moxley, University of Nebraska-Lincoln, Lincoln.
- 3:45 PM 269 **Effect of bambamycin and level of distillers grains on performance and carcass characteristics of feedlot cattle.** E. R. Loe<sup>1</sup>, G. I. Crawford\*<sup>2</sup>, A. E. Wertz-Lutz<sup>1</sup>, and B. D. Rops<sup>1</sup>, <sup>1</sup>South Dakota State University, Brookings, <sup>2</sup>University of Minnesota, Hutchinson.
- 4:00 PM 270 **35% corn wet distiller's grains plus solubles in steam-flaked and dry-rolled corn based finishing diets: Effects on animal performance.** J. C. MacDonald\*<sup>1,2</sup>, K. H. Jenkins<sup>1</sup>, E. K. Buttrey<sup>3,2</sup>, J. B. Lewis<sup>1,2</sup>, S. B. Smith<sup>4</sup>, R. K. Miller<sup>4</sup>, T. E. Lawrence<sup>2</sup>, F. T. McCollum III<sup>3</sup>, and N. A. Cole<sup>5</sup>, <sup>1</sup>Texas AgriLife Research, Amarillo, <sup>2</sup>West Texas A&M University, Canyon, <sup>3</sup>Texas AgriLife Extension, Amarillo, <sup>4</sup>Texas A&M University, College Station, <sup>5</sup>USDA-ARS, Bushland, TX.
- 4:15 PM 271 **35% corn wet distiller's grains plus solubles in steam-flaked and dry-rolled based finishing diets: Effects on fatty acids, sensory attributes, and shelf life of loins.** J. C. MacDonald\*<sup>1,2</sup>, K. H. Jenkins<sup>1</sup>, E. K. Buttrey<sup>3,2</sup>, J. B. Lewis<sup>1,2</sup>, S. B. Smith<sup>4</sup>, R. K. Miller<sup>4</sup>, T. E. Lawrence<sup>2</sup>, F. T. McCollum III<sup>3</sup>, and N. A. Cole<sup>5</sup>, <sup>1</sup>Texas AgriLife Research, Amarillo, <sup>2</sup>West Texas A&M University, Canyon, <sup>3</sup>Texas AgriLife Extension, Amarillo, <sup>4</sup>Texas A&M University, College Station, <sup>5</sup>USDA-ARS, Bushland, TX.

## Nonruminant Nutrition VI

### Other Ingredients

**Chair: Jerry Shurson, University of Minnesota, St. Paul**

**136-138**

- 3:00 PM 176 **Effect of extracted corn meal from a fractionation process on pig growth performance and carcass characteristics.** B. Isaacson\*, T. J. Baas, C. R. Schwab, and K. Schulte, Iowa State University, Ames.
- 3:15 PM 177 **Nutritional value of flaxseed meal for swine.** L. Eastwood and P. Leterme\*, Prairie Swine Centre Inc., Saskatoon, SK, Canada.
- 3:30 PM 178 **Varietal effects of barley carbohydrate composition on digestibility, fermentability and microbial ecophysiology in an in vitro model of the pig gastrointestinal tract.** J. Bindelle<sup>1,2</sup>, R. Pieper<sup>3,4</sup>, B. Rossnagel<sup>4</sup>, A. Van Kessel\*<sup>4</sup>, and P. Leterme<sup>3,4</sup>, <sup>1</sup>Fonds national de la Recherche scientifique, Belgium, <sup>2</sup>Gembloux Agricultural University, Belgium, <sup>3</sup>Prairie Swine Centre Inc., Canada, <sup>4</sup>University of Saskatchewan, Canada.

- 3:45 PM 179 **Digestible and net energy content of white and regular flakes of yellow and black canola meals of Brassica napus and B. juncea in growing pigs.** C. A. Montoya\*, K. Neufeld, P. Kish, and P. Leterme, *Prairie Swine Centre Inc., 2Saskatoon, SK, Canada.*
- 4:00 PM 180 **Effects of oxidized corn oil and synthetic antioxidant blend on animal performance in finishing pigs.** D. M. Fernandez-Dueñas\*<sup>1</sup>, L. W. Kutzler<sup>1</sup>, D. D. Boler<sup>1</sup>, J. Zhao<sup>2</sup>, R. J. Harrell<sup>2</sup>, J. Andrews<sup>2</sup>, M. Vazquez-Añón<sup>2</sup>, M. Ellis<sup>1</sup>, J. Killefer<sup>1</sup>, and F. K. McKeith<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Novus International Inc., St. Charles, MO.*
- 4:15 PM 181 **Amino acid digestibility and energy concentration in full fat soybeans from conventional, high protein, or low oligosaccharide varieties and in soybean meal fed to weaning pigs.** K. M. Baker\*, B. G. Kim, and H. H. Stein, *University of Illinois, Urbana.*
- 4:30 PM 182 **Effects of cracked corn on growth performance and stomach lesions in finishing pigs.** S. M. Williams\*, J. D. Hancock, S. Issa, and T. L. Gugle, *Kansas State University, Manhattan.*
- 4:45 PM 90 **The nutritional value of expeller-pressed canola meal for grower-finisher pigs.** R. W. Seneviratne\*<sup>1</sup>, M. G. Young<sup>2</sup>, E. Beltranena<sup>1,3</sup>, L. A. Goonewardene<sup>1,3</sup>, R. W. Newkirk<sup>4</sup>, and R. T. Zijlstra<sup>1</sup>, <sup>1</sup>*University of Alberta, Edmonton, Alberta, Canada*, <sup>2</sup>*Gowans Feed Consulting, Wainwright, Alberta*, <sup>3</sup>*Alberta Agriculture and Rural Development, Edmonton, Alberta*, <sup>4</sup>*Canadian International Grains Institute, Winnipeg, Manitoba, Canada.*

## POSTER PRESENTATIONS

All posters will be in the Exhibit Hall (Room 206) from Monday at 1:00 PM until Noon on Wednesday. Authors are to be present on their assigned day from 4:30 PM to 6:00 PM.

### Animal Behavior, Housing, & Well Being Posters

#### Sponsored by: Zinpro

- 1 **Environmental factors impacting response to bovine viral diarrhea vaccines in Angus calves.** M. J. Schneider<sup>1</sup>, R. G. Tait, Jr.\*<sup>1</sup>, J. F. Ridpath<sup>2</sup>, and J. M. Reecy<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames, IA, USA*, <sup>2</sup>*National Animal Disease Center/ARS/USDA, Ames, IA, USA.*
- 2 **Effect of maternal fear on pre-weaning mortality of piglets in a loose farrowing system.** Y. Z. Li\*, *University of Minnesota, Morris, MN, US.*
- 3 **Influence of corn coproducts on the behavioral repertoire of growing-finishing swine.** A. K. Johnson\*, L. J. Sadler, K. J. Stalder, and W. Powers, *Department of Animal Science, Iowa State University, Ames, IA, 50021.*
- 4 **Monitoring environmental conditions on a swine transport trailer.** C. M. Pilcher\*, C. M. Peterson, A. C. Lenkaitis, X. Wang, T. L. Funk, Y. Sun, and M. Ellis, *University of Illinois, Urbana.*
- 5 **Impact of Paylean level and handling intensity on stress responses of market-weight pigs to a handling and transportation model.** C. M. Peterson\*<sup>1</sup>, C. M. Pilcher<sup>1</sup>, M. J. Ritter<sup>2</sup>, S. N. Carr<sup>2</sup>, J. N. Marchant-Forde<sup>3</sup>, and M. Ellis<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN*, <sup>3</sup>*USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN.*

## Breeding and Genetics Posters

**Chair: Justin Holl, Smithfield Premium Genetics, Rose Hill, NC**

**Sponsored by: Zinpro**

- 42 Residual feed intake in Angus beef cattle divergently selected for feed:gain ratio. S. Smith\*, *The Ohio State University, Columbus.*
- 319 Feed efficiency, temperament, ultrasound measurements, and growth in developing Angus heifers. B. L. Winslow\*, K. A. Gray, M. H. Poore, C. S. Whisnant, and J. P. Cassidy, *North Carolina State University, Raleigh.*
- 43 Ultrasonically measured ribeye area in beef cattle: A look into the relationship between image quality and prediction bias. M. L. Spangler\*<sup>1</sup>, S. P. Greiner<sup>2</sup>, T. D. Pringle<sup>3</sup>, J. M. Rumph<sup>4</sup>, D. R. Strohhenn<sup>5</sup>, and W. D. Busby<sup>5</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*Virginia Polytechnical Institute and State University, Blacksburg*, <sup>3</sup>*University of Georgia, Athens*, <sup>4</sup>*Michigan State University, East Lansing*, <sup>5</sup>*Iowa State University, Ames.*
- 44 Factors associated with feed intake of Angus steers. M. G. Dib\*<sup>1</sup>, J. F. Taylor<sup>2</sup>, R. D. Schnabel<sup>2</sup>, and L. D. Van Vleck<sup>1,3</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Agriculture Research Service - USDA, Lincoln, NE.*
- 106 Effects of high-sulfur water and clinoptilolite on growth performance and gene expression of steers fed forage-based diets. K. L. Kessler\*<sup>1</sup>, K. C. Olson<sup>2</sup>, C. L. Wright<sup>2</sup>, K. J. Austin<sup>1</sup>, P. S. Johnson<sup>2</sup>, and K. M. Cammack<sup>1</sup>, <sup>1</sup>*University of Wyoming, Laramie*, <sup>2</sup>*South Dakota State University, Brookings.*
- 45 Evaluation of G × E in Angus cattle by using reaction norms. B. Maricle\*<sup>1</sup>, M. Kaps<sup>2</sup>, R. Weaver<sup>1</sup>, and W. Lamberson<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*University of Zagreb, Zagreb, Croatia.*

## Swine Extension Posters

**Chair: Mark Whitney, University of Minnesota, Mankato Hall**

**Sponsored by: Zinpro**

- 69 Evaluation of the growth of backfat depth, loin depth and carcass weight on different sire and dam lines. A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN.*
- 70 Evaluation of different mixed model nonlinear functions to describe the body weight growth of pigs of different sire and dam lines. A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN.*
- 71 Evaluation of the impact of pig birth weight on grow-finish performance. A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN.*
- 72 Evaluation of the impact of pig birth weight on grow-finish performance, backfat depth and loin depth. A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN.*
- 73 Evaluation of different mixed model nonlinear functions to describe the feed intakes of pigs of different sire and dam lines. A. Schinckel\*<sup>1</sup>, M. Einstein<sup>1</sup>, S. Jungst<sup>2</sup>, C. Booher<sup>2</sup>, and S. Newman<sup>2</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*PIC North American, Hendersonville, TN.*
- 74 Number of functional underline sections affects weaned piglet body weight and quality. C. L. Yoder\*<sup>1</sup>, J. S. Fix<sup>1</sup>, J. W. Holl<sup>2</sup>, W. O. Herring<sup>2</sup>, J. M. Bender<sup>2</sup>, and M. T. See<sup>1</sup>, <sup>1</sup>*North Carolina State University, Raleigh*, <sup>2</sup>*Smithfield Premium Genetics Group, Rose Hill, NC.*
- 75 Economic impact of removing pigs prior to marketing on remaining pig growth performance. J. Y. Jacela\*, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*

## Nonruminant Nutrition - Posters Session II

### Additives

#### Sponsored by: Zinpro

- 217 **Effects of two types of carbohydrase supplements on apparent ileal and total tract nutrient digestibility of American and Chinese distiller's dried grains with solubles (DDGS) in growing pigs.** J. H. Lee\*<sup>1</sup>, I. H. Kim<sup>1</sup>, J. S. Yoo<sup>1</sup>, J. W. Hong<sup>2</sup>, J. H. Lee<sup>2</sup>, W. S. Lee<sup>2</sup>, and S. D. Lee<sup>3</sup>, <sup>1</sup>*Department of Animal Resource & Science, Dankook University, Cheonan, Korea*, <sup>2</sup>*Institute of Animal Science, DAESANG Farmsco Co., Ltd, Korea*, <sup>3</sup>*National Institute of Animal Science, Korea*.
- 218 **Evaluation of iron status and iron transfer efficiency in sows following dietary administration of  $\delta$ -aminolevulinic acid and vitamin C.** Y. J. Chen\*<sup>1</sup>, L. Yan<sup>1</sup>, D. K. Kang<sup>1</sup>, Y. Hyun<sup>2</sup>, and I. H. Kim<sup>1</sup>, <sup>1</sup>*Department of Animal Resource & Science, Dankook University, Cheonan, Korea*, <sup>2</sup>*Easy Bio System, Korea*.
- 219 **The influence of complexed minerals fed to developing maternal gilts through three parities on reproductive and lactation performance.** C. L. Bradley\*<sup>1</sup>, J. W. Frank<sup>1</sup>, C. V. Maxwell<sup>1</sup>, Z. B. Johnson<sup>1</sup>, T. L. Ward<sup>2</sup>, and M. E. Wilson<sup>2</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*Zinpro Corporation, Eden Prairie, MN*.
- 220 **Influence of complexed minerals during gilt development on growth performance and claw wall growth.** C. L. Bradley\*<sup>1</sup>, J. W. Frank<sup>1</sup>, C. V. Maxwell<sup>1</sup>, Z. B. Johnson<sup>1</sup>, T. L. Ward<sup>2</sup>, and M. E. Wilson<sup>2</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*Zinpro Corporation, Eden Prairie, MN*.
- 221 **Effects of carboxo on microbial ecology in ileal digesta and feces of weanling pigs.** M. Song\*<sup>1</sup>, L. L. Stewart<sup>1</sup>, J. Barnes<sup>1</sup>, J. A. Soares<sup>1</sup>, B. R. Gramm<sup>2</sup>, R. D. Nimmo<sup>2</sup>, H. H. Stein<sup>1</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana, IL, USA*, <sup>2</sup>*Phibro Animal Health Co., Ridgefield Park, NJ, USA*.
- 222 **Effect of carboxo on apparent ileal digestibility of amino acids by nursery pigs.** L. L. Stewart<sup>1</sup>, B. G. Kim\*<sup>1</sup>, B. R. Gramm<sup>2</sup>, R. D. Nimmo<sup>2</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana, IL*, <sup>2</sup>*Phibro Animal Health Co., Ridgefield Park, NJ*.
- 223 **Comparison of a yeast-derived protein source (NuPro®) and plasma protein in pig starter diets: wean-to-finish performance response.** P. Groenewegen\*<sup>1</sup>, J. Lampe<sup>2</sup>, and G. Gourley<sup>2</sup>, <sup>1</sup>*Alltech Inc., Nicholasville, KY, USA*, <sup>2</sup>*Swine Graphics Enterprises, Webster City, IA, USA*.
- 224 **Dietary anionic mineral (CAD-MATE®) addition increases body pools of readily exchangeable Ca in prepartum sows.** C. Darriet\*<sup>1</sup>, D. E. Axe<sup>2</sup>, and T. D. Crenshaw<sup>1</sup>, <sup>1</sup>*University of Wisconsin, Madison, WI*, <sup>2</sup>*Granco Minerals, Petersburg, VA*.
- 225 **Effect of an enzyme blend (Livestock Answer®) on growth performance of nursery pigs.** J. M. Benz\*<sup>1</sup>, J. L. Nelsens<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, M. D. Tokach<sup>1</sup>, R. D. Goodband<sup>1</sup>, and S. S. Dritz<sup>1</sup>, *Kansas State University, Manhattan, Kansas*.
- 226 **Effect of intake of yeast  $\beta$ -glucans during lactation on post weaning performance of piglets after a pathogenic *E. coli* infection.** P. J. L. Ramaekers\*<sup>1</sup>, C. H. M. Smits<sup>1</sup>, and J. J. Eissen<sup>2</sup>, <sup>1</sup>*Swine Research Centre, Boxmeer, The Netherlands*, <sup>2</sup>*Trouw Nutrition International, Tilburg, The Netherlands*.
- 227 **Effects of copper sulfate, zinc oxide, and NeoTerramycin on weanling pig growth and bacterial sensitivity.** N. W. Shelton\*<sup>1</sup>, M. E. Jacob<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. L. Nelsens<sup>1</sup>, R. D. Goodband<sup>1</sup>, S. S. Dritz<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. Amachawadi<sup>1</sup>, X. Shi<sup>1</sup>, and T. G. Nagaraja<sup>1</sup>, *Kansas State University, Manhattan*.
- 228 ***In vitro* assay to evaluate ability of enzymatically hydrolyzed yeast containing MOS to bind enteropathogenic bacteria.** S. Jalukar\*<sup>1</sup>, J. Oppy<sup>1</sup>, and M. Holt<sup>1</sup>, *Varied Industries Corporation, Mason City, IA, USA*.
- 229 **Dose-dependent TNF- $\alpha$  production of porcine alveolar macrophages in response to yeast components.** M. T. Che\*<sup>1</sup>, R. W. Johnson<sup>1</sup>, K. W. Kelley<sup>1</sup>, K. A. Dawson<sup>2</sup>, C. A. Moran<sup>2</sup>, and J. E. Pettigrew<sup>1</sup>, <sup>1</sup>*Department of Animal Sciences, University of Illinois, Urbana, IL*, <sup>2</sup>*Alltech North American Bioscience Center, Nicholasville, KY*.



- 230 **Effects of phenyllactic acid on growth performance, nutrient digestibility, microbial shedding, and blood characteristics in pigs.** J. P. Wang\*<sup>1</sup>, H. J. Kim<sup>1</sup>, I. B. Chung<sup>2</sup>, J. H. Lee<sup>1</sup>, R. Nobel<sup>3</sup>, I. H. Kim<sup>1</sup>, and S. H. Oh<sup>3</sup>, <sup>1</sup>*Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, Korea*, <sup>2</sup>*National Institute of Animal Science, Korea*, <sup>3</sup>*Department of Animal Science, North Carolina A&T, USA.*
- 231 **Effects of probiotic supplementation on growth performance, blood immune-related cell population, meat quality and fecal ammonia gas emissions in finishing pigs.** S. O. Shin\*<sup>1</sup>, R. Noble<sup>2</sup>, H. D. Jang<sup>1</sup>, T. X. Zhou<sup>1</sup>, I. H. Kim<sup>1</sup>, and S. H. Oh<sup>2</sup>, <sup>1</sup>*Department of Animal Resource & Science, Dankook University, Cheonan, Korea*, <sup>2</sup>*Department of Animal Science, North Carolina A&T State University.*
- 232 **Evaluation of a commercial enzyme on growing pig performance.** J. J. Jacela\*<sup>1</sup>, S. S. Dritz<sup>1</sup>, M. D. Tokach<sup>1</sup>, J. M. DeRouchey<sup>1</sup>, R. D. Goodband<sup>1</sup>, J. L. Nelssen<sup>1</sup>, and P. Brown<sup>2</sup>, <sup>1</sup>*Kansas State University, Manhattan, KS*, <sup>2</sup>*Agri-King Inc., Fulton, IL.*
- 324 **Effect of feeding yeast culture in the diets of late gestation and lactating sows and gilts on sow and litter performance.** C. Stangohr\*<sup>1</sup>, T. Kellner<sup>2</sup>, G. Fitzner<sup>3</sup>, J. Sonderman<sup>4</sup>, and C. Hostetler<sup>1</sup>, <sup>1</sup>*South Dakota State University, Brookings*, <sup>2</sup>*University of Nebraska, Lincoln*, <sup>3</sup>*Diamond V, Cedar Rapids, IA*, <sup>4</sup>*Danbred North America, Columbus, NE.*

## Physiology Posters Reproductive Physiology

**Chair: Kimberly A. Vonnahme, North Dakota State University, Fargo**  
**Sponsored by: Zinpro**

- 116 **Determination of the contributions of cytochrome P450 2C (CYP2C) and 3A (CYP3A) to the hepatic catabolism of progesterone.** C. O. Lemley\* and M. E. Wilson, *West Virginia University, Morgantown.*
- 241 **In vivo and in vitro expression of porcine zinc transporter (ZnT1) mRNA.** H. Tran\*, P. S. Miller, and T. E. Burkey, *University of Nebraska, Lincoln.*
- 242 **Influence of initiating luteal regression prior to treatment with GnRH on initiation of a new follicular wave and synchrony of estrus.** N. L. Hojer\*, S. D. Fields, S. F. Lares, B. L. Perry, and G. A. Perry, *South Dakota State University, Brookings.*
- 243 **Influence of post-AI diet change on uterine pH and blood urea nitrogen.** G. A. Perry\*, B. L. Perry, J. A. Walker, and C. L. Wright, *South Dakota State University, Brookings.*
- 244 **Characterization of progesterone receptor (PGR) mRNA isoforms in the endometrium of cyclic and pregnant pigs.** E. M. Sellner\*, J. W. Ross, C. S. Okamura, K. D. Wells, R. D. Geisert, and M. C. Lucy, *University of Missouri, Columbia.*
- 321 **Influence of pre-cryopreservation pH and temperature on boar semen quality.** N. E. Tharp\*<sup>1</sup>, P. Purdy<sup>2</sup>, H. Blackburn<sup>2</sup>, S. Spiller<sup>2</sup>, and T. S. Stewart<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*USDA-ARS-NCGRP, National Animal Germplasm Program, Fort Collins, CO.*

## Ruminant Nutrition - Posters Session II Sponsored by: Zinpro

- 287 **Relationship between mitochondrial complex proteins and RFI in steers.** M. P. Davis\*, M. A. Brooks, J. H. Porter, and M. S. Kerley, *University of Missouri, Columbia.*
- 288 **Effect of length of time between maternal separation and shipping on feedlot performance and carcass merit of ranch-direct beef calves weaned during the summer.** J. W. Bolte\*<sup>1</sup>, J. R. Jaeger<sup>1</sup>, T. B. Schmidt<sup>2</sup>, D. U. Thomson<sup>1</sup>, B. J. White<sup>1</sup>, R. L. Larson<sup>1</sup>, G. A. Milliken<sup>1</sup>, N. A. Sproul<sup>1</sup>, M. D. Thomas<sup>1</sup>, and K. C. Olson<sup>1</sup>, <sup>1</sup>*Kansas State University, Manhattan*, <sup>2</sup>*Mississippi State University, Starkville.*

- 289 **Post-wean performance by spring and fall-born steer calves weaned from full access, limited access, or no access to endophyte-infected tall fescue.** J. Caldwell\*<sup>1</sup>, K. Coffey<sup>1</sup>, D. Philipp<sup>1</sup>, J. Jennings<sup>3</sup>, D. Hubbell, III<sup>1</sup>, T. Hess<sup>1</sup>, D. Kreider<sup>1</sup>, M. Looper<sup>2</sup>, M. Popp<sup>1</sup>, M. Savin<sup>1</sup>, and C. Rosenkrans, Jr.<sup>1</sup>, <sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>USDA-ARS, Booneville, AR, <sup>3</sup>Cooperative Extension Service, Little Rock, AR.
- 290 **Effects of lipid source on feed digestibility and flow of fatty acids from the rumen.** R. Potu\*, A. AbuGhazaleh, K. Jones, and R. Atkinson, Southern Illinois University, Carbondale.
- 291 **Effects of functional oils and monensin alone or in combination on feedlot cattle growth and carcass composition.** M. Jedlicka\*<sup>1</sup>, T. Purevjav<sup>1</sup>, A. Conover<sup>1</sup>, J. Torrent<sup>2</sup>, G. Pusillo<sup>2</sup>, and M. Hoffman<sup>1</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Oligo Basics USA LLC, Wilmington, DE.
- 292 **Effects of fat enriched protein supplement on performance and tissue fatty acid composition of grazed lambs.** Q. Baptiste\*, S. Chavez, E. Nestor, D. Matapadrino, and E. Felton, West Virginia University, Morgantown.
- 293 **Influence of dietary thiamin supplementation on ruminal pH and hydrogen sulfide gas concentration in lambs fed a ration containing 60% distillers dried grains with solubles.** B. W. Neville\*<sup>1</sup>, C. S. Schauer<sup>2</sup>, L. A. Kirschten<sup>1</sup>, K. Karges<sup>3</sup>, M. L. Gibson<sup>3</sup>, and G. P. Lardy<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Hettinger Research and Extension Center, Hettinger, ND, <sup>3</sup>Dakota Gold Research Association, Sioux Falls, SD.
- 294 **Effects of distillers dried grains with solubles inclusion in growing and finishing diets on intake, average daily gain, and gain efficiency of beef steers.** J. L. Leupp\*<sup>1</sup>, G. P. Lardy<sup>1</sup>, R. J. Maddock<sup>1</sup>, M. L. Bauer<sup>1</sup>, K. Karges<sup>2</sup>, M. L. Gibson<sup>2</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>North Dakota State University, Fargo, <sup>2</sup>Dakota Gold Research Association, Sioux Falls, SD.
- 295 **The effect of level of wet distillers grains plus solubles and condensed corn distillers solubles ensiled with wheat straw on performance of growing steers.** M. M. Peterson\*, M. K. Luebbe, R. J. Rasby, T. J. Klopfenstein, and L. M. Kovarik, University of Nebraska, Lincoln.
- 296 **In situ ruminal degradability of dry matter and protein from corn germ, distillers grains, and soybean meal.** M. M. Abdelqader\*, J. L. Anderson, A. R. Hippen, D. J. Schingoethe, and K. F. Kalscheur, South Dakota State University, Brookings.
- 297 **Distillers' grains–soy hull diets as a corn replacement for feedlot cattle.** C. O. Trejo\*<sup>1</sup>, L. L. Berger<sup>1</sup>, T. G. Nash<sup>1</sup>, and L. Forster<sup>2</sup>, <sup>1</sup>University of Illinois, Urbana, <sup>2</sup>Archer Daniels Midland Company, Decatur, IL.
- 298 **Effects of differing levels of glycerol supplementation on performance and carcass characteristics in feedlot steers.** K. Culp\*<sup>1</sup>, C. Fleenor<sup>1</sup>, M. Claeys<sup>1</sup>, R. Lemenager<sup>1</sup>, and S. Lake<sup>2</sup>, <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>University of Wyoming, Laramie.
- 299 **Effect of a lactic acid-lactobacillus preservative and moisture level at baling on in-situ digestibility of crabgrass hay by heifers.** J. D. Caldwell\*<sup>1</sup>, A. E. Killion<sup>1</sup>, L. A. Hardin<sup>1</sup>, K. P. Coffey<sup>1</sup>, A. N. Young<sup>1</sup>, D. Philipp<sup>1</sup>, and W. Coblenz<sup>2</sup>, <sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>USDA-ARS, Marshfield, WI.
- 300 **Alternatives for baling alfalfa hay under high moisture conditions.** F. Valdez\*<sup>1</sup>, B. Lavin<sup>2</sup>, A. Hernandez<sup>2</sup>, D. Sapienza<sup>3</sup>, T. Johnson<sup>1</sup>, and D. Westerhaus<sup>1</sup>, <sup>1</sup>Kemin Industries, Inc., Des Moines, IA, <sup>2</sup>Beta Sta. Monica, Coahuilla, Mexico, <sup>3</sup>Sapienza Analytica, LLC, Slater, LA.

# Wednesday, March 18

## SYMPOSIA AND ORAL SESSIONS

### Breeding and Genetics II

**Chair: Jennifer Minnick-Bormann,  
Kansas State University, Manhattan**

**142-144**

- 9:00 AM 35 (Dairy Innovation Award) (Invited Young Dairy Scholar) Genetic regulation of milk fatty acid composition: developing tools for use in selection. R. A. Nafikov<sup>\*1</sup>, J. P. Schoonmaker<sup>1</sup>, J. M. Reecy<sup>1</sup>, D. Moody-Spurlock<sup>1</sup>, J. Minnick-Bormann<sup>2</sup>, K. J. Koehler<sup>1</sup>, and D. C. Beitz<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Kansas State University, Manhattan*.
- 9:30 AM 36 Comparison of linear regression, fixed factors, saturated and cubic spline models to modeling the effects of inbreeding and age at first calving on milk yield in first lactation rbST and non-rbST treated Holstein cows. M. J. Geha<sup>\*1</sup>, J. F. Keown<sup>1</sup>, S. D. Kachman<sup>1</sup>, and L. D. VanVleck<sup>1,2</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*U.S. Meat Animal Research Center-ARS, Lincoln, NE*.
- 9:45 AM 37 Correlation of pelvic measures in beef cows with calf birth weight and dystocia score. J. M. Rumph<sup>\*1</sup>, R. E. Williams<sup>2</sup>, and J. K. Bertrand<sup>3</sup>, <sup>1</sup>*Michigan State University, Lake City*, <sup>2</sup>*American-International Charolais Association, Kansas City, MO*, <sup>3</sup>*University of Georgia, Athens*.
- 10:00 AM 308 Effects of sire by implant interactions on carcass traits in Hereford cattle. J. A. Bishop<sup>\*</sup> and D. W. Moser, *Kansas State University, Manhattan*.
- 10:15 AM 38 Simulation of genomic selection in a crossbred beef cattle population. K. Kizilkaya<sup>\*1,2</sup>, R. L. Fernando<sup>1</sup>, and D. Garrick<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Adnan Menderes University, Aydin, Turkey*.
- 10:30 AM 39 Gut microbial population differently affects feed intake in mice lines selected for high and low heat loss. M. Nielsen<sup>\*</sup>, R. Griess, J. Walter, and A. Benson, *University of Nebraska, Lincoln*.
- 10:45 AM 40 Predicting allele frequencies in a DNA pools using Illumina high density SNP genotyping data. B. L. Peiris<sup>\*1</sup>, J. Ralph<sup>2</sup>, S. J. Lamont<sup>1</sup>, and J. C. M. Dekkers<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Aviagen Ltd. UK, UK*.
- 11:00 AM 97 Sequence diversity in shrimp species and how to exploit it. D. M. Gorbach<sup>\*</sup>, Z.-L. Hu, Z.-Q. Du, and M. F. Rothschild, *Iowa State University, Ames*.
- 11:15 AM 41 Bivariate Student-t error linear mixed model and Bayesian MCMC implementation. K. Kizilkaya<sup>\*1,2</sup> and B. Mestav<sup>2</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Adnan Menderes University, Aydin, Turkey*.

### Beef/Small Ruminant Extension

**Chair: Galen Erickson, University of Nebraska, Lincoln**

**146-148**

- 9:00 AM 53 Time of day of harvest impact on nitrate concentration in forage sorghum. R. C. LeValley, G. E. Selk<sup>\*</sup>, G. A. Highfill, H. Zhang, and C. J. Richards, *Oklahoma Cooperative Extension Service, Stillwater, OK*.
- 9:15 AM 54 Effect of growing beef replacement heifers on wheat pasture before and during breeding on reproductive performance. M. H. Bryant<sup>\*</sup>, G. E. Selk, R. P. Wettemann, D. L. Lalman, and G. W. Horn, *Oklahoma Agricultural Experiment Station, Stillwater, OK*.

- 9:30 AM 55 **Profit variability for calf-fed and yearling production systems.** R. M. Small\*<sup>1</sup>, D. R. Mark<sup>1</sup>, D. M. Feuz<sup>2</sup>, and T. J. Klopfenstein<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*Utah State University, Logan.*
- 9:45 AM 56 **The economic impact of increasing corn price and supplementation decisions on economics of beef production systems.** W. A. Griffin\*, T. J. Klopfenstein, G. E. Erickson, D. R. Mark, and K. M. Rolfe, *University of Nebraska, Lincoln.*
- 10:00 AM 57 **Impact of supplementing modified wet distillers grains with solubles to long yearling steers grazing native range.** K. M. Rolfe\*, M. K. Luebbe, W. A. Griffin, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 10:15 AM 58 **Comparison of corn co-products/corn residue bales and alfalfa hay on cow performance, lactation, and economics.** T. J. Braungardt\*<sup>1</sup>, D. B. Faulkner<sup>1</sup>, D. W. Shike<sup>1</sup>, K. Karges<sup>2</sup>, M. Gibson<sup>2</sup>, and N. M. Post<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*Dakota Gold Research Association, Souix Falls, SD.*
- 10:30 AM 59 **An economic budget for determining co-product storage costs.** J. A. Waterbury\*, D. R. Mark, R. J. Rasby, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 10:45 AM 60 **Development of a maturity index as a predictor of first pregnancy probability.** M. C. Stockton\*<sup>1</sup>, R. K. Wilson<sup>1</sup>, L. A. Stalker<sup>1</sup>, D. M. Feuz<sup>2</sup>, and R. N. Funston<sup>1</sup>, <sup>1</sup>*University of Nebraska, Lincoln*, <sup>2</sup>*Utah State University, Logan.*

## **Swine Extension II**

**Chair: Mark Whitney, University of Minnesota, Mankato**

**140**

- 9:00 AM 67 **Effect of reduced nocturnal temperature for early-weaned pigs on performance and energy consumption.** R. C. Thaler\*<sup>1</sup>, L. J. Johnson<sup>2</sup>, M. C. Brumm<sup>3</sup>, and M. C. Shannon<sup>4</sup> and the NCERA-89 Committee on Swine Management, <sup>1</sup>*South Dakota State University, Brookings*, <sup>2</sup>*West Central Research and Outreach Center, University of Minnesota, Morris, MN*, <sup>3</sup>*University of Nebraska, Lincoln*, <sup>4</sup>*University of Missouri, Columbia.*
- 9:15 AM 68 **(National Pork Board Education Award) Construction resource use by swine facilities: Gestation and grow-finish.** P. J. Lammers\*, M. S. Honeyman, J. D. Harmon, J. B. Kliebenstein, and M. J. Helmers, *Iowa State University, Ames.*
- 9:30 AM 312 **Impact of time and temperature on tissue quality and diagnostic outcome in swine.** W. Holt\*<sup>1</sup>, J. Reiman<sup>1</sup>, L. Karriker<sup>1</sup>, J. Hanson<sup>2</sup>, L. Layman<sup>1</sup>, and A. Johnson<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames, Iowa*, <sup>2</sup>*Murphy Brown Inc., Rose Hill, NC.*

## **Growth, Development, Muscle Biology and Meat Science II**

**Chair: Terry Houser, Kansas State University, Manhattan**

**205IJ**

- 9:00 AM 306 **Fatty acid profiles of and iodine value correlations between four carcass fat depots from pigs fed varied combinations of ractopamine and energy.** H. L. Evans\*<sup>1</sup>, R. B. Hinson<sup>1</sup>, B. R. Wiegand<sup>1</sup>, M. J. Ritter<sup>2</sup>, S. N. Carr<sup>2</sup>, K. S. Roberts<sup>1</sup>, and G. Allee<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN.*
- 9:15 AM 314 **Measuring the compositional and instrumental firmness variations in fresh pork bellies.** K. A. Trusell\*, J. K. Apple, J. W. S. Yancey, T. M. Johnson, and R. J. Stackhouse, *University of Arkansas Division of Agriculture, Fayetteville.*
- 9:30 AM 82 **Use of microarray to determine genes differentially expressed in muscle and subcutaneous fat of heifers never treated or considered chronically morbid after a 63-d preconditioning program.** J. Johnson\*, D. R. Stein, L. O. Burciaga-Robles, B. P. Holland, D. L. Step, U. DeSilva, and C. R. Krehbiel, *Oklahoma State University, Stillwater.*

- 9:45 AM 96 **Effect of dietary arginine supplementation to sows on litter size, fetal weight and myogenesis at d 75 of gestation.** J. Bérard\*<sup>1,2</sup>, M. Kreuzer<sup>2</sup>, and G. Bee<sup>1</sup>, <sup>1</sup>*Agrroscope Liebefeld Posieux, Posieux, Fribourg, Switzerland*, <sup>2</sup>*Department of Agricultural and Food Science, Zurich, Zurich, Switzerland*.
- 10:00 AM **Break.**
- 10:30 AM 117 **Advantages in utilizing CT technology in selection for balanced progress for carcass & meat quality.** J. Kongsro, B. Holm\*, and D. Olsen, *Norsvin, Hamar, Norway*.
- 10:45 AM 118 **Antioxidant capacity of calcium lactate on m-calpain activity in vitro.** Y. H. Kim\*, S. M. Lonergan, and E. Huff-Lonergan, *Iowa State University, Ames*.
- 11:00 AM 119 **Influence of selection for reduced residual feed intake on pork quality.** R. M. Smith\*<sup>1</sup>, J. M. Young<sup>1</sup>, M. J. Anderson<sup>1</sup>, R. C. Johnson<sup>2</sup>, E. Huff-Lonergan<sup>1</sup>, J. Dekkers<sup>1</sup>, and S. M. Lonergan<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames*, <sup>2</sup>*Farmland Foods, Dennison, IA*.
- 11:15 AM 120 **Effects of different winter growing programs and subsequent finishing on gene expression in different adipose tissue depots in beef steers.** D. Stein\*<sup>1</sup>, A. Pillai<sup>1</sup>, U. DeSilva<sup>1</sup>, C. K. Krehbiel<sup>1</sup>, G. W. Horn<sup>1</sup>, M. McCurdy<sup>2</sup>, J. J. Wagner<sup>3</sup>, P. Ayoubi<sup>1</sup>, J. B. Morgan<sup>1</sup>, and R. D. Geisert<sup>4</sup>, <sup>1</sup>*Oklahoma State University, Stillwater*, <sup>2</sup>*Nutrition Service Associates, Kenmore, QLD, Australia*, <sup>3</sup>*Southeast Colorado Research Center, Colorado State University, Lamar, CO*, <sup>4</sup>*University of Missouri, Columbia*.

## **Nonruminant Nutrition VII Feeding and Management**

**Co-Chairs: Nathalie L. Trottier, Michigan State University, East Lansing, and Denny McKilligan, Tech Mix Inc, Ames, IA  
136-138**

- 9:00 AM 183 **The effects of feeder design on growth performance and carcass characteristics of finishing pigs.** J. R. Bergstrom\*, M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, and R. D. Goodband, *Kansas State University, Manhattan*.
- 9:15 AM 184 **Effects of feeder adjustment on growth performance of finishing pigs.** A. W. Duttlinger\*, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, J. L. Nelssen, and R. D. Goodband, *Kansas State University, Manhattan*.
- 9:30 AM 79 **Efficacy of potassium bicarbonate for prevention of fatigue in market pigs.** J. R. Danielson\*, J. L. Reichert, J. A. Kane, and T. D. Crenshaw, *University of Wisconsin, Madison*.
- 9:45 AM 185 **Effect of incremental levels of red blood cells on growth performance, linear carcass traits, and viscera and organ weights of finishing pigs.** E. D. Frugé\*, T. D. Bidner, and L. L. Southern, *LSU Agricultural Center, Baton Rouge, LA*.
- 10:00 AM 186 **Evaluation of an encapsulated fortified nutrient pack (FNP) on growth performance and apparent total tract nutrient digestibility in growing-finishing pigs.** V. D. Naranjo\*<sup>1</sup>, T. D. Bidner<sup>1</sup>, S. L. Johnston<sup>2</sup>, R. E. Musser<sup>3</sup>, and L. L. Southern<sup>1</sup>, <sup>1</sup>*LSU Agricultural Center, Baton Rouge, LA*, <sup>2</sup>*Hubbard Feeds Inc., Mankato, MN*, <sup>3</sup>*Soda Feed Ingredients, LLC, Mankato, MN*.
- 10:15 AM 187 **Effects of decreasing or increasing sow feed intake prior to farrowing on lactation performance.** D. W. Rozeboom\*<sup>1</sup>, R. D. Goodband<sup>2</sup>, K. J. Stalder<sup>3</sup>, and NCERA-89 Committee on Swine Management<sup>4</sup>, <sup>1</sup>*Michigan State University, East Lansing*, <sup>2</sup>*Kansas State University, Manhattan*, <sup>3</sup>*University of Tennessee, Knoxville*.
- 10:30 AM 188 **Supplementing sow diets with N-Take during lactation increases feed intake.** C. L. Bradley\*<sup>1</sup>, J. W. Frank<sup>1</sup>, C. Zier<sup>2</sup>, C. V. Maxwell<sup>1</sup>, R. D. Boyd<sup>2</sup>, and D. McKilligan<sup>3</sup>, <sup>1</sup>*University of Arkansas, Fayetteville*, <sup>2</sup>*The Hanor Company, Inc., Franklin, KY*, <sup>3</sup>*TechMix, Inc., Stewart, MN*.

Wednesday AM

43

- 10:45 AM 189 **Does the heavier weaning weights of modern pigs affect their iron requirement?** J. S. Jolliff\* and D. C. Mahan, *The Ohio State University, Columbus.*
- 11:00 AM 190 **Effects of an organic copper source on growth performance and tissue copper concentration in nursery pigs.** J. Zhao\*<sup>1</sup>, R. J. Harrell<sup>1</sup>, G. Allee<sup>2</sup>, B. Hinson<sup>2</sup>, P. Winkelbauer<sup>1</sup>, C. Atwell<sup>1</sup>, J. D. Richards<sup>1</sup>, and M. Vazquez-Anon<sup>1</sup>, <sup>1</sup>*Novus International Inc, St. Charles, MO*, <sup>2</sup>*University of Missouri, Columbia.*
- 11:15 AM 309 **The nutritional efficacy of mare milk in neonatal pigs.** E. L. Wilsplotz\*, A. Willyard, A. Buckley, and N. L. Trotter, *Michigan State University, East Lansing.*

## Ruminant Nutrition IV

**Chair: Alvaro Garcia, South Dakota State University, Brookings  
204AB**

- 9:00 AM 95 **Effects of nutritional plane and selenium supply on intestinal mass and mRNA expression of angiogenic factors and their receptors in the ewe and neonatal lamb.** A. M. Meyer\*<sup>1</sup>, T. L. Neville<sup>1</sup>, J. J. Reed<sup>1</sup>, J. B. Taylor<sup>2</sup>, L. P. Reynolds<sup>1</sup>, D. A. Redmer<sup>1</sup>, K. A. Vonnahme<sup>1</sup>, and J. S. Caton<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo*, <sup>2</sup>*USDA-ARS, U.S. Sheep Experiment Station, Dubois, ID.*
- 9:15 AM 272 **Effects of sulfur and monensin concentrations on in vitro hydrogen sulfide production.** D. R. Smith<sup>1</sup>, N. DiLorenzo\*<sup>1</sup>, J. Leibovich<sup>1</sup>, M. L. May<sup>1</sup>, M. J. Quinn<sup>1</sup>, J. W. Homm<sup>2</sup>, and M. L. Galyean<sup>1</sup>, <sup>1</sup>*Texas Tech University, Lubbock*, <sup>2</sup>*Elanco Animal Health, Greenfield, IN.*
- 9:30 AM 273 **Feedlot incidences of polio and ruminal hydrogen sulfide levels with varying hay level inclusion.** S. Vanness\*, N. Meyer, T. Klopfenstein, and G. Erickson, *University of Nebraska, Lincoln.*
- 9:45 AM 274 **Measuring the bacterial protein of rumen fluid using real time polymerase chain reaction (RTPCR).** E. Castillo-Lopez\*, J. Miner, and P. Kononoff, *University of Nebraska, Lincoln.*
- 10:00 AM 275 **Intake and growth of dairy heifers fed deoiled dried distillers grains.** R. C. Schroer\*<sup>1</sup>, T. D. Nennich<sup>1</sup>, D. E. Little<sup>2</sup>, and S. S. Donkin<sup>1</sup>, <sup>1</sup>*Purdue University, West Lafayette, IN*, <sup>2</sup>*DairyNet Inc., Brookings, SD.*
- 10:15 AM **Break.**
- 10:30 AM 276 **Lactation performance of dairy cows fed corn silage treated with Silaferm.** A. R. Hippen\*<sup>1</sup>, M. S. Laubach<sup>1</sup>, K. D. Gross<sup>1</sup>, P. L. Linke<sup>1</sup>, K. F. Kalscheur<sup>1</sup>, D. J. Schingoethe<sup>1</sup>, and P. Summer<sup>2</sup>, <sup>1</sup>*South Dakota State University, Brookings*, <sup>2</sup>*Ajinomoto USA, Inc., Eddyville, IA.*
- 10:45 AM 277 **Lactational response of lactating dairy cows fed a diet containing mustard bran.** H. A. Maiga\*<sup>1</sup>, M. L. Bauer<sup>2</sup>, C. Dahlen<sup>3</sup>, and M. Badaruddin<sup>3</sup>, <sup>1</sup>*University of Minnesota, Crookston*, <sup>2</sup>*North Dakota State University, Fargo*, <sup>3</sup>*Northwest Research and Outreach Center, Crookston, MN*, <sup>4</sup>*Minn-Dak Growers, Ltd, Grand Forks, ND.*
- 11:00 AM 278 **Practical association of colostral somatic cell counts with calf immunity, health and growth.** E. Ferdowsi Nia<sup>1</sup>, G. R. Ghorbani<sup>1</sup>, H. R. Rahmani<sup>1</sup>, M. Alikhani<sup>1</sup>, M. Mohammad Alipour<sup>1</sup>, and A. Nikkhah\*<sup>2,3</sup>, <sup>1</sup>*Isfahan University of Technology, Isfahan, Iran*, <sup>2</sup>*University of Illinois, Urbana*, <sup>3</sup>*Zanjan University, Zanjan, Iran.*
- 11:15 AM 307 **Microbial growth in refrigerated colostrum over 7 days.** M. Beyer\*, S. I. Kehoe, *University of Wisconsin, River Falls.*

**Special Symposium**  
**North American Swine Energy System**  
**Chair: James E. Pettigrew, University of Illinois, Urbana**  
**204FG**

**Sponsored by: National Pork Board and United Soybean Board**

- 9:00 AM 191 **(Invited) North American Swine Energy System: Introduction.** J. E. Pettigrew\*<sup>1</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, H. H. Stein<sup>1</sup>, D. Y. Kil<sup>1</sup>, A. D. Beaulieu<sup>3</sup>, R. B. Hinson<sup>2</sup>, and F. Ji<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prairie Swine Centre, Saskatoon*.
- 9:20 AM 192 **(Invited) The importance of advancing our understanding and application of energy systems.** J. F. Patience\*<sup>1,2</sup>, G. L. Allee<sup>3</sup>, F. Ji<sup>4</sup>, R. B. Hinson<sup>3</sup>, D. Y. Kil<sup>4</sup>, H. H. Stein<sup>4</sup>, L. L. Stewart<sup>4</sup>, J. E. Pettigrew<sup>4</sup>, and A. D. Beaulieu<sup>1</sup>, <sup>1</sup>*Prairie Swine Centre, Saskatoon, SK Canada*, <sup>2</sup>*Iowa State University, Ames*, <sup>3</sup>*University of Missouri, Columbia*, <sup>4</sup>*University of Illinois, Urbana*.
- 9:45 AM 193 **(Invited) North American Swine Energy System: Experimental strategy and methods.** G. L. Allee\*<sup>1</sup>, R. B. Hinson<sup>1</sup>, J. E. Pettigrew<sup>2</sup>, J. F. Patience<sup>3</sup>, H. H. Stein<sup>2</sup>, D. Y. Kil<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, F. Ji<sup>2</sup>, and L. L. Stewart<sup>2</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*University of Illinois, Urbana*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, Saskatchewan Canada*.
- 10:05 AM 194 **(Invited) Net energy requirements for maintenance in growing and finishing pigs.** D. Y. Kil\*<sup>1</sup>, F. Ji<sup>1</sup>, R. B. Hinson<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, L. L. Stewart<sup>1</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, J. E. Pettigrew<sup>1</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*.
- 10:30 AM **Break.**
- 10:50 AM 195 **(Invited) Effects of dietary lipids on net energy of corn in diets fed to growing and finishing pigs.** D. Y. Kil\*<sup>1</sup>, F. Ji<sup>1</sup>, R. B. Hinson<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, L. L. Stewart<sup>1</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, J. E. Pettigrew<sup>1</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*.
- 11:05 AM 196 **(Invited) Net energy content of commercial and low-oligosaccharide soybean meal.** R. B. Hinson\*<sup>1</sup>, D. Y. Kil<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, L. L. Stewart<sup>2</sup>, J. Fei<sup>2</sup>, J. E. Pettigrew<sup>2</sup>, J. F. Patience<sup>3</sup>, H. H. Stein<sup>2</sup>, and G. L. Allee<sup>1</sup>, <sup>1</sup>*University of Missouri, Columbia*, <sup>2</sup>*University of Illinois, Urbana*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*.
- 11:20 AM 197 **(Invited) Net energy of soybean oil and choice white grease in diets fed to growing or finishing pigs.** D. Y. Kil\*<sup>1</sup>, F. Ji<sup>1</sup>, R. B. Hinson<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, L. L. Stewart<sup>1</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, J. E. Pettigrew<sup>1</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*.
- 11:35 AM 198 **(Invited) Net energy of soybean hulls and wheat middlings in diets fed to growing or finishing pigs.** L. L. Stewart\*<sup>1</sup>, D. Y. Kil<sup>1</sup>, F. Ji<sup>1</sup>, R. B. Hinson<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, J. E. Pettigrew<sup>1</sup>, and H. H. Stein<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*.
- 11:50 AM 199 **(Invited) Reduced dietary crude protein impacts growth performance, carcass nutrients and energy metabolism in growing and finishing pigs.** A. D. Beaulieu\*<sup>1</sup>, G. L. Allee<sup>2</sup>, F. Ji<sup>3</sup>, R. B. Hinson<sup>2</sup>, D. Y. Kil<sup>3</sup>, H. H. Stein<sup>3</sup>, L. L. Stewart<sup>3</sup>, J. E. Pettigrew<sup>3</sup>, and J. F. Patience<sup>1,4</sup>, <sup>1</sup>*Prairie Swine Centre, Saskatoon, SK, Canada*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*University of Illinois, Urbana*, <sup>4</sup>*Iowa State University, Ames*.

- 12:05 PM 200 (Invited) Comparison of measured values for NE in diets and ingredients fed to pigs and values predicted from European energy systems. D. Y. Kil<sup>1</sup>, F. Ji<sup>1</sup>, R. B. Hinson<sup>2</sup>, A. D. Beaulieu<sup>3</sup>, L. L. Stewart<sup>1</sup>, G. L. Allee<sup>2</sup>, J. F. Patience<sup>3</sup>, J. E. Pettigrew<sup>1</sup>, and H. H. Stein\*<sup>1</sup>, <sup>1</sup>*University of Illinois, Urbana*, <sup>2</sup>*University of Missouri, Columbia*, <sup>3</sup>*Prarie Swine Centre, Saskatoon, SK, Canada*.
- 12:35 PM (Invited) North American Swine Energy System: Conclusions and recommendations. J.E. Pettigrew, University of Illinois, Urbana.
- 1:00 PM Adjourn.

**Writing a Scientific Paper for Publication Workshop**  
**Co-Chairs: Michael Galyean, Gregory Lewis and a Third Person to be announced**

**134**

**Sponsored by: ASAS/ADSA MW Section, JAS and JDS**

9:00 AM

Communicating science is as important to the scientific process as designing and conducting the experiment itself. This workshop will help students take complete sets of data from the data presentation stage to a fully formed paper. The workshop will focus on essential techniques for writing a scientific paper. The basic structure for the paper will be modeled after either the Journal of Animal Science or Journal of Dairy Science (whichever the student prefers to publish in).

Full information can be found on the Midwest web site: <http://adsa.asas.org/midwest/2009/>

Participation is limited to 12 ASAS/ADSA MW Graduate Students or Post Doctoral Students and pre-registration is required.

5:00 PM Adjourn.



# MIDWEST SECTION ADSA/ASAS

## Committee Assignment

### 2008-2009

#### Program Committees

##### **Animal Behavior, Housing, Well Being**

Janeen Salak-Johnson, Chair  
Ernest Minton  
Suzanne Milman

##### **Breeding and Genetics**

Douglas W. Newcom, Chair  
Justin Holl  
Jennifer Minick-Bormann

##### **Extension - Beef / Small Ruminant**

Galen Erickson, Chair  
Daniel Buskirk  
Kent Tjardes

##### **Extension – Swine**

Mark Whitney, Chair  
Janet Snow  
Chad Hastad

##### **Extension - Dairy**

Dave Fischer, Chair  
James Paulson  
Mike Socha  
Cindie Luhman

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

Dan Nonneman, Chair  
Terry Houser  
Tara McDanel

##### **Nonruminant Nutrition**

John F. Patience, Chair  
Aaron Gaines  
Nathan Augsburger

## **Odor and Nutrient Management**

Dustin Kendall, Chair  
Joel DeRouchey  
Mike Brouk

### **Physiology**

Matt Wilson, Chair  
Kim Vonnahme  
Jeremy Miles

## **Ruminant Nutrition**

Alvaro Garcia, Chair  
Barry Bradford  
Al Miron

### **Teaching**

Miriam Weber-Nielsen, Chair  
Kelly Bruns  
Sylvia Kehoe

## **David H. Baker Symposium**

Gail Czarnecki-Maulden, Chair  
Terri Parr  
Ryan Dilger

## **Billy Day Symposium**

Rod Geisert, Chair  
Stephen K. Webel  
Duane Davis  
Steve Terlouw  
Ronald Christenson

## **Special Committees**

### **ASAS Nominations**

Merlyn Nielsen, Chair  
Ronny L. Moser  
Deana L. Hancock

### **ADSA Nominations**

Richard Pursley, Chair  
Michael Schutz  
Patrick Hoffman

### **Academic Quadrathlon**

Eric Berg, Chair  
Tony Seykora  
Kim Vonnahme  
Matt Wilson  
Paul Kuber  
Aimee Wertz-Lutz  
Sylvia Kehoe  
Phil Spike  
Tim Safranski  
Dennis Banks  
Richard Cobb

## **Competitive Research Paper Committees**

### **Graduate Student**

Dari Brown, Chair  
Leo Timms  
Marc Bauer  
Sam Baidoo  
J.W. Schroeder  
A. DiCostanzo  
Scott Radcliffe  
Gerry Shurson  
Ron Bates  
Jess Miner  
Betsey Newton  
Chris Forcherio  
Ken Purser  
Tom Johnson  
Mercedes Vazquez-Anon

### **Undergraduate Student**

Jim Linn, Chair  
Mike Fowler  
Ernie Minton  
Paul Walker  
Ed Stephas  
Terry Faidley

# **Young Animal/Dairy Science Leaders Awards Committees**

## **Extension**

David Casper, Chair  
Graham Clifford Lamb  
Joel DeRouchey  
Bill Miller

## **Research**

Shawn Donkin, Chair  
Jamie Matthews  
John Killefer  
James Reecy

## **Teaching**

Greg Lardy, Chair  
Kelly Bruns  
Katherine Lee  
Henry Zerby

## **Agribusiness**

Alvaro Garcia, Chair  
Murray Pettitt  
Jason Woodworth  
Paul Porter

## **National Pork Board Swine Innovation**

Merlyn Nielsen, Chair  
Nathan R. Augspurger  
Randy Walker

## **Innovation in Dairy Research**

Richard Pursley, Chair  
David Carlson  
A. Bettegowda

## **Stahly Award**

Tom Crenshaw, Chair  
Gary Cromwell  
Jerry Weigel

# PAST RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

## OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vatthauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. Nelssen, Kansas State University
1993	A. P. Schinckel, Purdue University
1994	D. A. Funk, University of Wisconsin, Madison
1995	G. C. Shurson, University of Minnesota
1996	R. D. Shaver, University of Wisconsin, Madison
1997	R. D. Goodband, Kansas State University
1998	Not given
1999	M. D. Tokach, Kansas State University
2000	J. F. Smith, Kansas State University
2001	W. O. Herring, University of Missouri
2002	M. J. Brouk, Kansas State University
2003	W. J. Powers, Iowa State University
2004	S. J. Moeller, The Ohio State University
2005	K. J. Stalder, Iowa State University
2006	P. M. Fricke, University of Wisconsin
2007	G. C. Lamb, University of Minnesota
2008	J. M. DeRouchey, Kansas State University

## OUTSTANDING RESEARCHER AWARD

1971	D. H. Baker, University of Illinois
1972	C. E. Allen, University of Minnesota
1974	F. N. Owens, University of Illinois
1976	W. G. Bergen, Michigan State University
1977	D. E. Bauman, University of Illinois
1978	G. L. Allee, Kansas State University
1979	S. E. Curtis, University of Illinois
1980	T. L. Veum, University of Missouri
1981	R. L. Prior, Roman L. Hruska U.S. Meat Animal Research Center

1982 B. D. Schanbacher, Roman L. Hruska U.S. Meat Animal Research Center  
 1983 H. A. Garverick, University of Missouri  
 1984 G. C. Fahey, Jr., University of Illinois  
 1985 J. J. Ford, Roman L. Hruska U.S. Meat Animal Research Center  
 1986 C. L. Ferrell, Roman L. Hruska U.S. Meat Animal Research Center  
 1987 D. Gianola, University of Illinois  
 1988 S. P. Ford, Iowa State University  
 1989 L. L. Berger, University of Illinois  
 1990 M. F. Rothschild, Iowa State University  
 1991 M. F. Smith, University of Missouri  
 1992 D. L. Harmon, Kansas State University  
 1993 M. Koochmaraie, Roman L. Hruska, U.S. Meat Animal Research Center  
 1994 L. G. Sheffield, University of Wisconsin, Madison  
 1995 J. Odle, University of Illinois  
 1996 J. L. Nelssen, Kansas State University  
 1997 R. S. Prather, University of Missouri  
 1998 D. Pomp, University of Nebraska  
 1999 R. W. Johnson, University of Illinois  
 2000 M. C. Lucy, University of Missouri  
 2001 C. K. Tuggle, Iowa State University  
 2002 M. Morrison, Ohio State University  
 2003 T. P. L. Smith, USDA, NE  
 2004 C. W. Ernst, Michigan State University  
 2005 E. Huff-Lonergan, Iowa State University  
 2006 A. S. Cupp, University of Nebraska  
 2007 J. C. Matthews, University of Kentucky  
 2008 J. M. Reecy, Iowa State University

### **OUTSTANDING TEACHER AWARD**

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

1997 H. D. Tyler, Iowa State University  
 1998 C. R. Youngs, Iowa State University  
 1999 J. N. Spain, University of Missouri  
 2000 M. E. Doumit, Michigan State University  
 2001 S. M. Lonergan, Iowa State University  
 2002 W. N. Osburn, Michigan State University  
 2003 S. C. Kelm, University of Wisconsin-River Falls  
 2004 M. S. Weber Nielsen, Michigan State University  
 2005 B. D. Nielsen, Michigan State University  
 2006 B. A. Reiling, University of Nebraska  
 2007 K. W. Bruns, South Dakota State University  
 2008 H. N. Zerby, The Ohio State University

**AGRIBUSINESS AWARD**

1995 P. L. Houghton, Heartland Cattle Co., McCook, Nebraska  
 1996 J. A. Barmore, Vita Plus Corp., Madison, Wisconsin  
 1997 D. E. Dill, Dairy Strategies, Mendota Heights, MN  
 1998 C. M. Luhman, Land O'lakes Research Farm, Webster City, IA  
 1999 Not Given  
 2000 D. L. Hancock, Elanco Animal Health, Greenfield, IN  
 2001 J. M. Lynch, Heartland Cattle Co., McCook, NE  
 2002 Not Given  
 2003 J. M. Campbell, APC, Inc., IA  
 2004 D. M. Webel, United Feeds, IN  
 2005 T. A. Rathje, Danbred North America, Columbus, NE  
 2006 T. E. Sauber, Pioneer, A Dupont Company  
 2007 M. J. Pettitt, Prairie Swine Centre, LLC, Canada  
 2008 J. C. Woodworth, Lonza Inc.

**PAST WINNERS OF INVITATIONAL  
 COMPETITIVE RESEARCH PAPER AWARDS**

**UNDERGRADUATE STUDENTS - ORAL**

1987 R. E. Raw, University of Missouri  
 1988 J. A. Ragains, University of Missouri  
 1989 G. L. Ambrose, South Dakota State University  
 1990 C. N. Kemper, University of Missouri  
 1991 T. R. Eberle, North Dakota State University  
 1992 B. J. MacDonald, North Dakota State University  
 1993 B. L. Dunn, Kansas State University  
 1994 S. M. Nelson, University of Nebraska  
 1995 L. J. Trinity, Iowa State University  
 1996 M. E. Cunningham, Oklahoma State University  
 1997 C. E. Sorenson, South Dakota State University  
 1998 J. L. Strickland, University of Nebraska  
 1999 B. A. DeMontigny, North Dakota State University  
 2000 K. S. Freise, University of Illinois  
 2001 K. R. Nollette, University of Nebraska  
 2002 B. Meyer, University of Nebraska  
 2003 A. Harvey, South Dakota State University

- 2004 L. H. Bach, Michigan State University  
 2005 A. M. Meyer, Michigan State University  
 2006 L. D. Holmes, Southern Illinois University  
 R. Schnobrich, University of Minnesota  
 2007 B. H. Godsey, Kansas State University  
 2008 B. L. Varnes, Michigan State University

### **GRADUATE STUDENTS - ORAL**

- 1976 D. G. Haught, Iowa State University  
 1977 L. L. Berger, University of Nebraska  
 1978 G. F. Collings, Michigan State University  
 1979 R. D. Boyd, University of Nebraska  
 1980 D. G. Cieslak, University of Wisconsin  
 1981 W. F. Pope, University of Nebraska  
 1982 P. F. Saenger, Purdue University  
 1983 D. A. Redmer, University of Missouri  
 1984 W. F. Brown, University of Nebraska  
 1985 J. H. Brendemuhl, University of Nebraska  
 1986 P. L. Houghton, Purdue University  
 1987 M. H. Wilde, The Ohio State University  
 1988 T. R. Radke, University of Nebraska  
 1989 K. K. Kreikemeier, Kansas State University  
 1990 R. A. Nold, Kansas State University  
 1991 M. D. Tokach, University of Minnesota  
 1992 G. F. Louis, University of Nebraska  
 1993 B. T. Larson, University of Missouri  
 1994 L. H. Anderson, The Ohio State University  
 1995 M. L. Augenstein, University of Minnesota  
 1996 D. D. Koehler, University of Minnesota  
 1997 R. A. Nold, South Dakota State University  
 1998 K. J. Rozeboom, University of Minnesota  
 1999 L. A. Averette, North Carolina State University  
 2000 T. A. Armstrong, North Carolina State University  
 2001 T. G. McDaneld, University of Nebraska\*  
 J. H. Hampton, University of Missouri\*\*  
 2002 K. M. Hargrave, University of Nebraska\*  
 M. J. Hersom, Oklahoma State University\*\*  
 2003 J. Luther, North Dakota State University\*  
 R. Main, Kansas State University\*\*  
 2004 R. C. Bott, University of Nebraska\*  
 M. M. Martinez, Michigan State University\*\*  
 2005 J. M. Koch, West Virginia University\*  
 N. D. Fastinger, The Ohio State University\*\*  
 2006 D. M. Larson, North Dakota State University\*  
 M. Gorocica-Buenfil, The Ohio State University\*\*  
 2007 P. E. Urriola, University of Minnesota\*  
 R. N. Dilger, University of Illinois\*\*  
 2008 J. M. Mapes, Michigan State University\*  
 E. Kiarie, University of Manitoba, Winnipeg, Canada\*\*



## **GRADUATE STUDENTS - POSTER**

- 2007 P. L. Nester, North Dakota State University\*  
N. DiLorenzo, University of Minnesota\*\*
- 2008 N. R. Bork, North Dakota State University\*  
B. A. Peterson, University of Illinois\*\*

\*M.S. Division

\*\*Ph.D. Division

## **PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION**

- 1998 M. Bode, University of Missouri  
D. Hasekamp, University of Missouri  
J. Rumph, Michigan State University  
M. Schoenfield, University of Minnesota
- 1999 L. Becker, University of Minnesota
- 2000 R. Hawkins, North Dakota State University
- 2001 Discontinued

## **YOUNG DAIRY SCHOLARS**

- 2006 B. J. Bradford, Michigan State University  
N. Litherland, University of Illinois  
W. Miller, Kansas State University  
R. Rastani, University of Wisconsin
- 2007 M. Abdelqader, South Dakota State University  
D. B. Carlson, University of Illinois  
M. Carriquiry, University of Minnesota  
M. Geha, University of Nebraska  
N. A. Janovick-Guretzky, University of Illinois  
D. H. Kleinschmit, South Dakota State University  
E. D. Reid, University of Illinois  
P. J. Ross, Michigan State University
- 2008 A. Bettegowda, Michigan State University  
J.M. Bewley, Purdue University  
E.L. Karcher, Iowa State University  
K.M. Moyes, University of Illinois  
B. W. Pamp, South Dakota State University  
M. L. Raeth-Knight, University of Minnesota

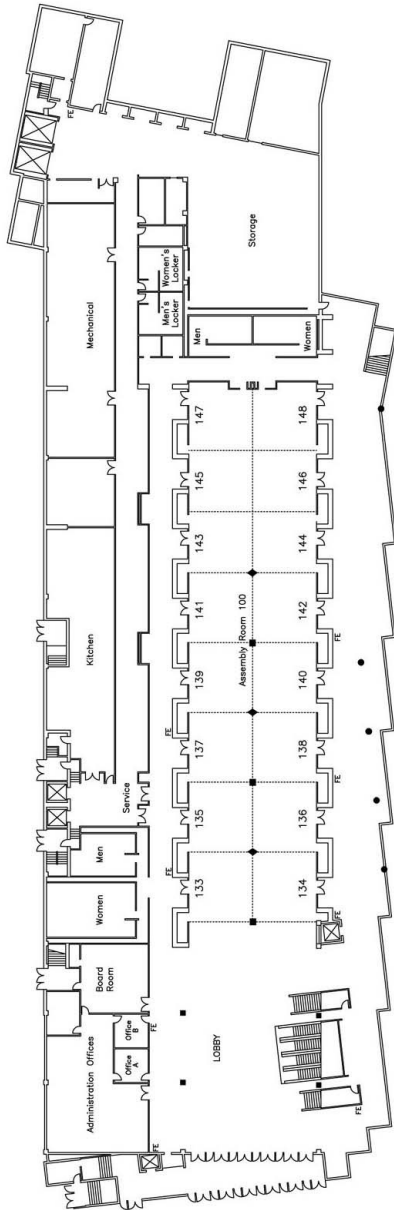
## ASAS MIDWESTERN SECTION PRESIDENTS

1963	O. G. Bentley, University of Illinois
1964-65	R. H. Grummer, University of Wisconsin
1966-67	G. R. Johnson, The Ohio State University
1968	R. J. Meade, University of Minnesota
1969	J. A. Hoefler, Michigan State University
1970-71	W. E. Dinusson, North Dakota State University
1972	J. F. Lasley, University of Missouri
1973	U. S. Garrigus, University of Illinois
1974-75	V. C. Speer, Iowa State University
1976	H. S. Teague, The Ohio State University
1977	R. M. Luther, South Dakota State University
1978	B. N. Day, University of Missouri
1979-80	D. R. Zimmerman, University of Nebraska
1981	A. L. Pope, University of Wisconsin
1982	R. D. Goodrich, University of Minnesota
1983	E. R. Miller, Michigan State University
1984	W. R. Woods, Purdue University
1985	L. R. Corah, Kansas State University
1986	B. D. Moser, University of Missouri
1987	S. E. Curtis, University of Illinois
1988	R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana
1989	T. J. Klopfenstein, University of Nebraska
1990	J. R. Romans, South Dakota State University
1991	J. E. Pettigrew, University of Minnesota
1992	C. E. Sasse, Cenex/Land O'Lakes
1993	M. G. Hogberg, Michigan State University
1994	G. L. Allee, University of Missouri
1995	S. K. Webel, Purina Mills, Bloomington, IL
1996	D. L. Meeker, National Pork Producers Council, Des Moines, IA
1997	T. S. Stahly, Iowa State University
1998	R. P. Lemenager, Purdue University
1999	S. P. Ford, Iowa State University
2000	J. R. Males, Oregon State University
2001	M. L. Day, The Ohio State University
2002	R. K. Johnson, University of Nebraska
2003	C. L. Ferrell, USDA, Clay Center
2004	G. C. Shurson, University of Minnesota
2005	A. L. Grant, Purdue University
2006	D. L. Hancock, Elanco Animal Health, Greenfield, IN
2007	R. L. Moser, JBS United, Inc., Sheridan, IN
2008	M. K. Nielsen, University of Nebraska

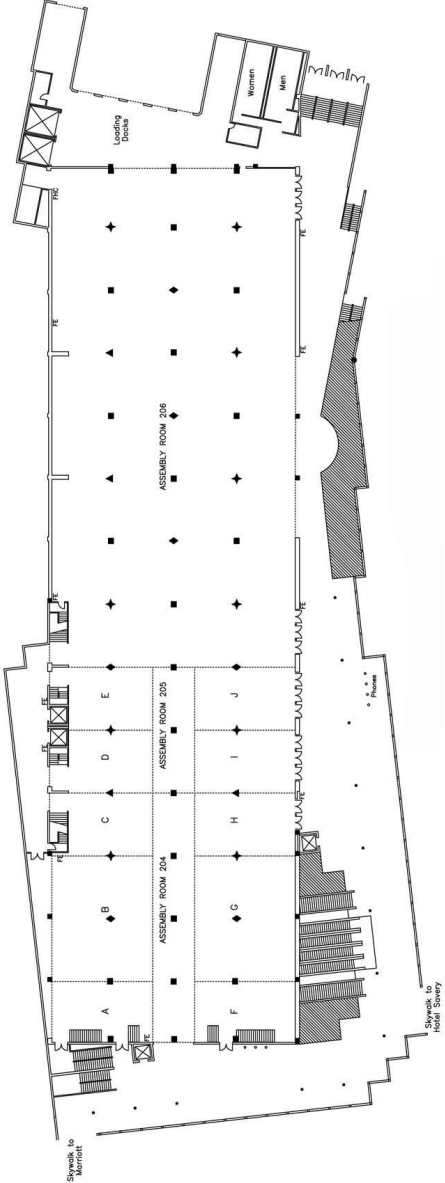
## **ADSA MIDWEST BRANCH PRESIDENTS**

1992	J. F. Keown, University of Nebraska
1993	J. G. Linn, University of Minnesota
1994	D. J. Schingoethe, South Dakota State University
1995	J. L. Morrill, Kansas State University
1996	M. F. Hutjens, University of Illinois
1997	M. A. Faust, Iowa State University
1998	J. K. Drackley, University of Illinois
1999	R. D. Shaver, University of Wisconsin
2000	R. J. Grant, University of Nebraska
2001	M. L. Eastridge, The Ohio State University
2002	J. D. Quigley III, APC, Inc.
2003	S. T. Franklin, University of Kentucky
2004	D. K. Combs, University of Wisconsin
2005	L. L. Timms, Iowa State University
2006	P. Hoffman, University of Wisconsin - Madison
2007	M. M. Schutz, Purdue University
2008	J. R. Pursley, Michigan State University

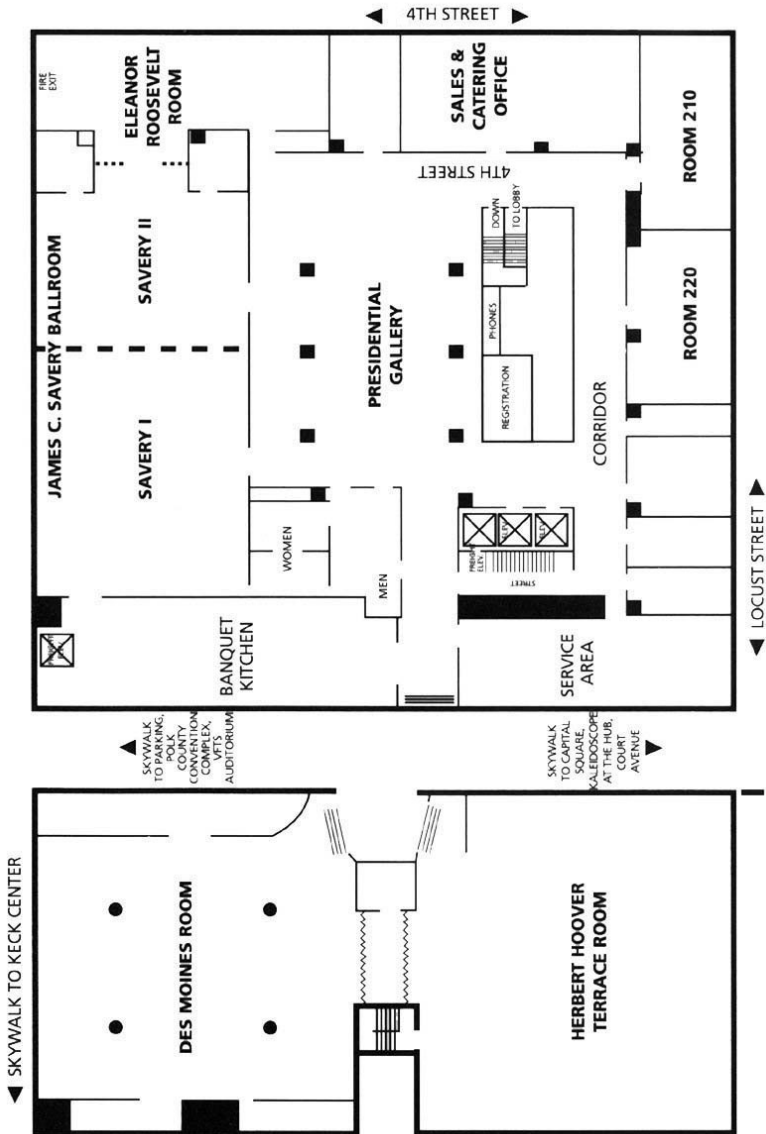
# POLK COUNTY CONVENTION COMPLEX Lower Level



# POLK COUNTY CONVENTION COMPLEX Upper Level



# THE SAVERY HOTEL SECOND FLOOR



## **FUTURE MEETINGS**

2010 March 15–17



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