



American Dairy Science Association®

MIDWEST

American Society of Animal Science



ASAS Midwestern Section and
ADSA® Midwest Branch

Scientific Sessions & Business Meeting

Des Moines, IA • March 17-19

2014

FUTURE MEETINGS

2015	March 15-18	Des Moines
2016	March 13-16	Des Moines

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INNOVATE 2014: Global Food Security Innovations in Protein Production to Meet the Global Demands of 2050

October 5-7, 2014

**Madden's On
Gull Lake
Brainerd, MN**



asas.org/innovate2014

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REGISTRATION

Iowa Events Center, Lobby

Sunday, March 16, 3:00 PM – 5:00 PM

Monday, March 17, 7:00 AM – 7:30 PM

Tuesday, March 18, 7:00 AM – 4:00 PM

Wednesday, March 19, 7:00 AM – 11:00 AM

COMPLIMENTARY SHUTTLE SCHEDULE

Continuous shuttle service between the noted hotels (per route)
and the Convention Center during these time periods:

SHUTTLE 1

Des Moines Marriott – Renaissance Savery and Iowa Events Center

Monday

7:30 AM to 8:30 AM

4:00 PM to 7:30 PM

Tuesday

7:00 AM to 9:00 AM

6:00 PM to 8:00 PM

Wednesday

7:00 AM to 9:00 AM

11:00 AM to 1:00 PM

SHUTTLE 2

Embassy Suites – Holiday Inn Downtown and Iowa Events Center

Monday

7:30 AM to 8:30 AM

12:00 PM to 2:00 PM

4:00 PM to 7:30 PM

Tuesday

7:00 AM to 9:00 AM

12:00 PM to 2:00 PM

6:00 PM to 8:00 PM

Wednesday

7:00 AM to 9:00 AM

11:00 AM to 1:00 PM

IMPORTANT PHONE NUMBERS

Des Moines Marriott (Downtown): 515.245.5500

Renaissance Savery: 515.244.2151

Embassy Suites: 515.244.1700

Holiday Inn Downtown 515.283.0151

JOB RESOURCE CENTER

Continuing in 2014: The traditional Job Resource Center will be located in the Exhibit Hall, Ballroom of the Community Choice Credit Union Convention Center. Sign-up sheets for making “connections” and instructions for use of the Placement 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 in Des Moines beginning at noon on Monday, March 17, 2014.

ARPAS CONTINUING EDUCATION UNITS

The 2014 Midwest Meeting has been approved for up to 16 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

ASAS CAREER CENTER

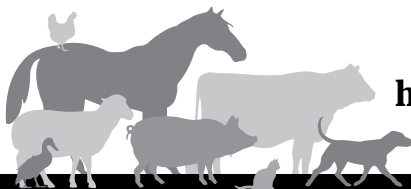
ASAS Career Center is the premier electronic recruitment resource for the animal science industry. This site is a great tool that offers benefits to both employers and job seekers alike.

EMPLOYERS

Here, employers and recruiters can access the most qualified talent pool with relevant work experience to fulfill staffing needs.

JOB SEEKERS

This site offers job seekers the opportunity to get information out to potential employers and search job postings all in one location with a single login.



<http://careers.asas.org/>

SCHEDULE OF EVENTS

All rooms are at the Community Choice Credit Union Convention Center (CCCUCC) unless otherwise noted.

Changes To The Schedule

Please note that in response to Midwest Membership request, we have made a number of schedule changes. Most notably, we have moved the Poster Presentations to Tuesday and Wednesday morning with donuts and coffee available, we have moved the Business Meeting and Awards from a Wednesday breakfast to Tuesday evening at 5:00 pm with a substantial reception following and we have added a number of snack breaks throughout the meeting.

MONDAY, MARCH 17, 2014

- 7:30 AM 2014 Breakfast to kick off AQ Activities, Grand Ballroom Foyer
- 8:00 AM AQ Written Exams, Community Choice Credit Union Convention Center (See AQ organizer for room assignments)
- 8:00 AM Gary Allee Symposium: Feeding Sick Pigs, Grand Ballroom
- 8:30 AM ADSA/ASAS Midwest Board of Directors, Boardroom 2
- 10:00 AM AQ Quiz Bowl Preliminary Rounds, 302/303, 304/305, and 306/307
- 1:00 PM David H. Baker Amino Acid Symposium, 318/319/320
- 2:00 PM Graduate Student Competition MS Oral I, 302/303
- 2:00 PM Graduate Student Competition MS Oral II, 304/305
- 2:00 PM Graduate Student Competition PhD Oral I, 312/313
- 2:00 PM Graduate Student Competition PhD Oral II, 314/315
- 2:00 PM Undergraduate Student Competition Oral I, 306/307
- 1:00 PM Undergraduate Student Competition Oral II, 308/309
- 5:30 PM Reception & Recognition of Young Scholar Winners, Grand Ballroom
- 7:00 PM Final AQ Quiz Bowl Competition and Awards Presentation, Grand Ballroom
- 7:15 PM Graduate Student Dinner and Learn, 101/102
- 8:30 PM Program Committee Reception, Renaissance Savery Hotel
- 9:00 PM Graduate Student Social, Marriott, Hall of Cities

TUESDAY, MARCH 18, 2014 / MORNING

- 7:30 AM Poster Presentations with Donuts and Coffee, Grand Ballroom
- 7:30 AM Graduate Student Poster Competition, Grand Ballroom
- 7:30 AM Undergraduate Student Poster Competition, Grand Ballroom
- 8:30 AM Growth, Development, Muscle Biology, and Meat Science Symposium: Insulin Revisited, 306/307
- 9:00 AM Animal Behavior, Housing, & Well-Being Symposium: What Does This Study Say About Well-Being? Caveats and Considerations, 308/309
- 9:00 AM Breeding and Genetics I, 312/313
- 9:00 AM David Schingoethe Symposium: Heifer Nutrition and the Future, 302/303
- 9:00 AM Nonruminant Nutrition: Grow-Finish Management and Nutrition, 314/315
- 9:00 AM Nonruminant Nutrition: Nursery Management and Nutrition, 316/317
- 9:00 AM Nonruminant Nutrition: Sow Management and Nutrition, 318/319
- 9:00 AM Ruminant Nutrition: Coproducts, 304/305

-
- 11:00 AM Extension – Swine, 318/319
12:30 PM Bentley Symposium and Lunch, Speaker: Dr. Jeff Wood, Bristol University, Grand Ballroom
12:30 PM AQ Lunch, 101/102

TUESDAY, MARCH 18, 2014 / AFTERNOON

- 1:30 PM Animal Behavior, Housing and Well-Being I, 318/319
1:30 PM Breeding & Genetics Symposium: Analysis of Next Generation Sequencing (NGS) Data, 308/309
1:30 PM Equine, 401
1:30 PM Extension – Dairy Symposium: Strategies To Increase Fiber Digestibility In Lactating Dairy Cows, 302/303
1:30 PM Growth and Development, Muscle Biology and Meat Science, 312/313
1:30 PM Nonruminant Nutrition: Feed Processing, Ingredients, and Additives, 316/317
1:30 PM Nonruminant Nutrition: Gut Health and Disease: Nutritional and Metabolic Impacts, 314/315
1:30 PM Physiology Symposium: A Lifetime of Metabolites, 306/307
1:30 PM Ruminant Nutrition: General, 304/305
5:30 PM* Business Meeting and Awards Program, Grand Ballroom
7:00 PM* Reception, Grand Ballroom

WEDNESDAY, MARCH 19, 2014

- 7:30 AM Poster Presentations with Donuts and Coffee, Grand Ballroom
9:00 AM Breeding and Genetics II, 306/307
9:00 AM Harlan Ritchie Beef Cattle Symposium: Today's and Tomorrow's Beef Industry, 304/305
9:00 AM Nonruminant Nutrition: Co-Products, 312/313
9:00 AM Nonruminant Nutrition: Minerals and Vitamins, 308/309
9:00 AM Physiology, 314/315
9:00 AM Ruminant Nutrition Symposium: Amino Acids, 302/303
11:30 AM Midwestern Section ASAS Post-Meeting Symposium: Evaluating, Optimizing and Utilizing Technologies To Improve Pig Performance (Sponsored by Zoetis), Grand Ballroom
12:00 PM ADSA/ASAS Midwest Board of Directors, Boardroom 2

**Please not the new time of the Business Meeting and Awards Program.*

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 Midwest ASAS Secretary.

A SPECIAL THANK YOU

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2014 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 – Alliance Nutrition

National Pork Board Swine Innovation (Abstract) Awards

Research – National Pork Board

Education – National Pork Board

Agribusiness Award

BASF Plant Science

Student Competition Paper Awards

Graduate Oral, Ph.D. – Akey

Graduate Poster, M.S. – ADSA ASAS MW Board

Graduate Poster, Ph.D. – ADSA ASAS MW Board

Undergraduate Oral – ADSA ASAS MW Board

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

Agri-King

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Iowa State University

2014 MIDWEST MEETING SPONSORS

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American Dairy Science Association (ADSA)
American Meat Science Association (AMSA)
American Registry of Professional Animal Scientists (ARPAS)

POSTER SCHEDULE

****NEW**** Poster presentations will take place on Tuesday and Wednesday **MORNING** from 7:30 am to 9:00 am. Donuts and coffee will be available to presenters and attendees starting at 7:00 am each morning.

All posters will be in the Grand Ballroom and will be in place from Monday at 1:00 pm until Wednesday at noon. Authors are to be present on their assigned day from 7:30 am to 9:00 am. Authors are welcome to man posters during the evening receptions to enhance visibility, however it is not required. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections. Judging of student competition posters will take place on TUESDAY morning.

Tuesday, March 18, 2014

All authors present from 7:30 am to 9:00 am

Graduate Student Poster Competition-M.S.
Graduate Student Poster Competition-Ph.D.
Undergraduate Student Poster Competition
Animal Behavior, Housing, & Well-Being:
Nonruminant Nutrition—Supplements and Alternative Feedstuffs
Extension - Beef/Small Ruminant
Nonruminant Nutrition: Amino Acids
Nonruminant Nutrition: Feed Additives and Ingredients
Nonruminant Nutrition: Nutritional Technologies and Feeding Strategies
Physiology
Teaching

Wednesday, March 19, 2014

All authors present from 7:30 am to 9:00 am

Animal Behavior, Housing, & Well-Being
Breeding and Genetics
Extension - Swine
Growth, Development, Muscle Biology, and Meat Science
Nonruminant Nutrition: Grow-Finish Nutrition and Management
Nonruminant Nutrition: Nutrition and Management of Sows
Nonruminant Nutrition: Weaned Pig Nutrition and Management
Ruminant Nutrition

SPECIAL EVENTS

Reception & Recognition of Young Scholar Winners

Monday, March 17 • 5:30 PM • Grand Ballroom

Join us for the opening reception of the 2014 Midwest Meeting. This is a great time to catch up with colleagues. We will also take the time to recognize the 2014 Young Scholar Winners. Young Scholars must be in attendance to receive their award.

ASAS Undergraduate Midwestern Academic Quadrathlon Quiz Bowl Finals & Award Presentation

Monday, March 17 – 7:00 pm – Grand Ballroom

ASAS is excited to offer our undergraduates the chance to compete in the Midwestern Section Academic Quadrathlon (AQ). The AQ competition will conclude with the Quiz Bowl final Monday night as the final two teams compete for the honor of representing the Midwestern Section at the national meeting in Kansas City. Following the Quiz Bowl final the AQ Awards will be presented. Please come out and support our undergraduates.

Graduate Student Dinner and Learn

Monday, March 17 • 7:15-9:00 PM • Room 101-102

The objective of the Student Dinner and Learn is to provide undergraduate and graduate students with opportunities for professional development and networking. This year each table/topic will have a company sponsor. The topics will involve discussion on career preparation, job search, and effective scientific communication in the areas of Industry Research & Development, and Industry Technical Consulting/Sales. Each company will send a professional to represent their topic and students will be assigned to a table based on their area of interest. Join us and take advantage of the opportunity to discuss your interests with professionals in the field. *Preregistration is required. Registration fee is \$5.00.*

Graduate Student Mixer

Monday, March 17 • 9:00 PM • Marriott, Hall of Cities

Join your fellow graduate students at a mixer for all to enjoy. This event will provide an opportunity to catch up with old friends and make new ones so don't miss it. *Preregistration is highly recommended; all students are welcome. Registration fee is \$5.00.*

Bentley Lecture

Tuesday, March 18 • 12:30 PM • Grand Ballroom

Fat Deposition And Meat Quality In Food Animals

Jeff Wood, Professor Emeritus, Bristol University, UK

Considered by many to be the foremost global authority on fat deposition, fattening patterns, and fat quality in food animals. Dr. Wood has developed a prolific research career in his field and is sought after by many to speak on the topics related to fat in food producing animals. Bringing an appealing discussion for many disciplines in Animal Science, we are very proud to sponsor Dr. Wood as the second annual Bentley Lecturer at the 2014 Midwest Annual Meeting.

*Sponsored by: ASAS Midwestern Section / ADSA® Midwestern Branch Joint Board
Registration is required; attendance is limited to the first 400 registrants.*

Business Meeting and Awards Program

Tuesday, March 18 • 5:30 PM • Grand Ballroom

Please join the ADSA Midwest Branch/ASAS Midwestern Section for the annual Business Meeting and 2014 Awards Program. Immediately following the Awards Program everyone is invited to come to the final reception of the 2014 meeting.

Reception

Tuesday, March 18 • 7:00 PM • Grand Ballroom

Come join us after the Business Meeting and Awards Program to celebrate and congratulate all of the 2014 award recipients.



AnimalSmart.org presents scientific and agriculturally important information about animals to the public. Visitors of any age can learn about animal science, companion animals, and animal production.

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Monday, March 17, 2014
SYMPOSIA AND ORAL PRESENTATIONS

GARY ALLEE SYMPOSIUM: FEEDING SICK PIGS

Chair: K. J. Touchette, Ajinomoto Heartland, Inc.

Sponsor: Gary Allee Appreciation Club, ASAS Foundation
Grand Ballroom

8:00 AM		Introductory Remarks
8:10 AM	60	(Invited) The longitudinal impact of PRRS on metabolism, whole body protein accretion and feed efficiency in grow-finisher pigs. <i>N. K. Gabler*, Iowa State University, Ames</i>
8:40 AM	62	(Invited) Metabolic and Physiological Ramifications of Immune Activation. <i>R. N. Dilger*, University of Illinois, Urbana</i>
9:10 AM		Break
9:20 AM	63	(Invited) Managing Systemic Disease Stress in Commercial Pig Production: Cost and Possible Nutritional Practices to Reduce Performance Loss. <i>R. D. Boyd* and C. E. Zier-Rush, The Hanor Company, Inc., Franklin, KY</i>
9:50 AM	61	(Invited) Managing Disease in Commercial Swine Production: Costs and Possible Nutritional and Management Practices to Reduce Losses. <i>T. J. Loula*, Swine Vet Center, Saint Peter, MN</i>
10:20 AM		Break
10:30 AM		PEDv and Panel Discussion

DAVID BAKER AMINO ACIDS SYMPOSIUM

Chair: Hans H. Stein, University of Illinois at Urbana-Champaign

Sponsor: David Baker Appreciation Club, ASAS Foundation, DPP-NA
318/319/320

1:00 PM		Introductory Remarks
1:05 PM	34	(Invited) A Short History of Ideal Protein. <i>N. R. Augspurger*, JBS United, Inc., Sheridan, IN</i>

1:25 PM	35	<p>(Invited) Current knowledge about ideal protein for growing pigs. <i>J. van Milgen^{*1}, N. Le Floc^{'h1}, E. Corrent² and M. Gloaguen¹, ¹INRA, Saint Gilles, France, ²Ajinomoto Eurolysine, Paris, France</i></p>
2:10 PM	36	<p>Validating dietary approach to determine the Trp:Lys ratio for pigs. <i>M. A. D. Goncalves^{*1}, M. D. Tokach¹, S. S. Dritz¹, K. J. Touchette², J. M. DeRouchey¹, J. C. Woodworth¹ and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL</i></p>
2:25 PM		Break
2:45 PM	37	<p>Effect of feeding reduced CP, amino acid supplemented diets, on dietary nitrogen and energy utilization and volatile fatty acid excretion in wean-to-finish swine. <i>A. M. Jones^{*1}, D. T. Kelly¹, B. T. Richert¹, C. V. Maxwell² and J. S. Radcliffe¹, ¹Purdue University, West Lafayette, IN, ²University of Arkansas, Fayetteville</i></p>
3:00 PM	38	<p>(Invited) Novel approaches to estimating amino acid requirements and amino acid ratios in diets fed to gestating sows. <i>S. Moehn[*] and R. O. Ball, University of Alberta, Edmonton, AB, Canada</i></p>
3:45 PM	88	<p>Impact of reduced crude protein diets on lactating sow nitrogen utilization and piglet performance. <i>L. A. Huber^{*1}, C. F. M. de Lange², U. Krogh³, D. Chamberlin⁴ and N. L. Trottier⁴, ¹University of Guelph, Guelph, ON, Canada, ²Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, ³Aarhus University, Foulum, Denmark, ⁴Michigan State University, East Lansing</i></p>
4:00 PM		<p>(Invited) Use of Ideal Protein in practical diet formulation for pigs. <i>J. D. Hahn[*], Murphy Brown, LLC, Ames, IA</i></p>
4:45 PM		Concluding Remarks

GRADUATE STUDENT COMPETITION: MASTER ORAL I

Chair: Gary Cromwell, University of Kentucky

302/303

2:00 PM	64	<p>Efficacy of yeast cell wall based feed additive in prevention of mycotoxicoses in pigs fed a diet with aflatoxin under the EU regulatory levels. <i>Y. Sun[*], J. Guo, I. Park and S. W. Kim, North Carolina State University, Raleigh</i></p>
2:15 PM	65	<p>Expression of cationic amino acid transporters mRNA in the jejunum of high and low efficiency steers. <i>H. C. Cunningham^{*1}, Z. T. L. Gray¹, S. I. Paisley¹, K. J. Austin¹, K. M. Cammack¹ and A. M. Meyer², ¹Department of Animal Science, University of Wyoming, Laramie, ²Division of Animal Sciences, University of Missouri, Columbia</i></p>
2:30 PM	66	<p>Effects of Calcium Oxide Treatment of Dry and Modified Wet Distillers Grains with Solubles on Economics, Feed Intake Pattern, and Growth and Carcass Performance of Feedlot Steers. <i>A. R. Schroeder^{*1}, M. J. Duckworth¹, D. W. Shike¹, J. P. Schoonmaker² and T. L. Felix¹, ¹University of Illinois at Urbana-Champaign, Urbana, ²Purdue University, West Lafayette, IN</i></p>
2:45 PM	67	<p>Rumen Measurements in Periruminant Holstein Bull Calves Fed a Fermentation Extract of <i>Aspergillus oryzae</i>. <i>T. T. Yohe[*], E. M. Dudash, R. M. Townsley, Y. Roman Garcia, A. R. Gibson, K. M. O'Diam and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Wooster</i></p>
3:00 PM	68	<p>Effect of α-galactosidase and citric acid on nursery pig growth performance. <i>E. K. Pegg[*] and P. J. Lammers, Illinois State University, Normal</i></p>
3:15 PM		Break
3:30 PM	69	<p>Fat quality of pigs is altered when 20% DDGS are fed over three industry standard marketing cuts. <i>K. E. Shircliff¹, Z. D. Callahan¹, T. A. Wilmoth¹, R. C. Johnson² and B. R. Wiegand¹, ¹University of Missouri, Columbia, ²Farmland Foods, Denison, IA</i></p>

3:45 PM	70	<p>Validation of ME prediction equations and the impact of feeding diets containing corn distillers dried grain with solubles (DDGS) with variable oil content on growth performance of growing-finishing pigs. <i>F. Wu^{*1}, L. J. Johnston², P. E. Urriola¹, A. M. Hilbrands² and G. C. Shurson¹, ¹Department of Animal Science, University of Minnesota, St. Paul, ²West Central Research and Outreach Center, University of Minnesota, Morris</i></p>
4:00 PM	71	<p>Effects of dietary calcium and phosphorus on reproductive performance and bone turnover of sows housed in stalls or group. <i>F. P. Tan^{*1,2} and A. D. Beaulieu¹, ¹Prairie Swine Centre Inc., Saskatoon, SK, Canada, ²Department of Animal & Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada</i></p>
4:15 PM	72	<p>Assessing the interaction of stocking density and dietary energy concentration on finishing pig performance. <i>G. N. Rozeboom^{*1,2}, D. Gillis² and D. Beaulieu², ¹University of Saskatchewan, Saskatoon, SK, Canada, ²Prairie Swine Centre Inc., Saskatoon, SK, Canada</i></p>

GRADUATE STUDENT COMPETITION: MASTER ORAL II

Chair: Kenneth Odde, Kansas State University

304/305

2:00 PM	73	<p>Translactational analgesia technology for the improvement of swine welfare during castration and tail docking. <i>J. L. Bates^{*1}, L. A. Karriker¹, J. F. Coetzee², M. L. Stock³, K. M. Pertzborn¹ and L. G. Baldwin¹, ¹Swine Medicine Education Center, Iowa State University College of Veterinary Medicine, Ames, ²Pharmacology Analytical Support Team, Iowa State University College of Veterinary Medicine, Ames, ³Iowa State University College of Veterinary Medicine, Department of Veterinary Diagnostic and Production Animal Medicine, Ames</i></p>
2:15 PM	74	<p>Surface enlargement factor of rumen papillae and expression of genes involved in dermatological diseases and their relationships with feed intake in beef steers. <i>R. J. Kern^{*1}, A. K. Lindholm-Perry², H. C. Freetly², W. M. Snelling², J. R. Miles² and P. A. Ludden¹, ¹University of Wyoming, Laramie, ²USDA, ARS, US MARC, Clay Center, NE</i></p>

2:30 PM	75	<p>The effect of cross fostering on PRRS transmission and litter performance. <i>B. Mason¹, A. E. DeDecker², J. L. Seate³ and M. F. Billing³, ¹University of Illinois, Champaign, ²Murphy-Brown LLC, Rose Hill, NC, ³Murphy Brown LLC, Rose Hill, NC</i></p>
2:45 PM	76	<p>Effect of feeding ractopamine hydrochloride (Optaflexx) with or without supplemental zinc and chromium propionate on growth performance, carcass characteristics, and LM quality of finishing steers. <i>B. M. Bohrer¹, B. M. Edenburn², S. C. Loerch³, D. D. Boler¹, A. C. Dilger² and T. L. Felix², ¹The Ohio State University, Columbus, ²University of Illinois at Urbana-Champaign, Urbana, ³The Ohio State University, Wooster</i></p>
3:00 PM	77	<p>Influence of early gestational nutrient restriction on vascularity of beef cow placentomes. <i>B. Mordhorst¹, L. E. Camacho¹, C. O. Lemley², D. A. Redmer¹ and K. A. Vonnahme¹, ¹North Dakota State University, Fargo, ²Mississippi State University, Mississippi State</i></p>
3:15 PM		Break
3:30 PM	78	<p>Effects of dietary melatonin supplementation during late gestation on uterine artery hemodynamics in Holstein heifers. <i>K. E. Brockus[*], C. G. Hart, L. J. Grossner, S. H. Ward, J. E. Larson and C. O. Lemley, Mississippi State University, Mississippi State</i></p>
3:45 PM	79	<p>Yield, Forage Nutritive Value, and Preference of Spring Planted Annual Grasses under Horse Grazing. <i>A. M. Grev[*], K. L. Martinson and C. C. Sheaffer, University of Minnesota, Saint Paul</i></p>
3:00 PM	80	<p>Effect of maternal nutrition and regrouping on lamb behavior. <i>N. Chapel[*], M. Orr and S. Wagner, North Dakota State University, Fargo</i></p>
4:15 PM	81	<p>Small intestinal morphological integrity in horses suffering from pituitary pars intermedia dysfunction. <i>J. L. De Vries¹, H. C. Schott II¹, J. Lubitz¹, D. Chamberlin¹, L. A. Huber² and N. L. Trottier¹, ¹Michigan State University, East Lansing, ²University of Guelph, Guelph, ON, Canada</i></p>

4:30 PM	82	<p>PRRSv reduces feed efficiency and tissue accretion rates in grow-finisher pigs. <i>W. P. Schweer¹, J. F. Patience¹, L. A. Karriker², J. C. Sparks³, G. G. Gourley⁴, M. FitzSimmons⁵, K. Schwartz⁶, T. E. Burkey⁷ and N. K. Gabler¹, ¹Iowa State University, Ames, ²Swine Medicine Education Center, Iowa State University College of Veterinary Medicine, Ames, ³Choice Genetics, Alden, IA, ⁴Swine Graphics Enterprises, Webster City, IA, ⁵MAF Veterinary Services, Mapleton, MN, ⁶Veterinary Diagnostic & Production Animal Medicine, Iowa State University College of Veterinary Medicine, Ames, ⁷University of Nebraska, Lincoln</i></p>
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GRADUATE STUDENT COMPETITION: PHD ORAL I

Chair: Allison Meyer, University of Missouri

Sponsor: Akey

312/313

2:00 PM	83	<p>Effects of microbial phytase on apparent and standardized total tract digestibility of calcium in calcium supplements fed to growing pigs. <i>J. C. Gonzalez-Vega¹, C. L. Walk² and H. H. Stein³, ¹University of Illinois, Urbana, ²AB Vista Feed Ingredients, Marlborough, United Kingdom, ³University of Illinois at Urbana-Champaign, Urbana</i></p>
2:15 PM	84	<p>Effects of dietary soybean meal concentration on growth performance and immune response of pigs during a porcine reproductive and respiratory syndrome virus challenge. <i>S. J. Rochell¹, L. S. Alexander¹, R. D. Boyd², W. G. Van Alstine³, J. Pettigrew¹ and R. N. Dilger¹, ¹University of Illinois, Urbana, ²The Hanor Company, Inc., Franklin, KY, ³Purdue University, West Lafayette, IN</i></p>
2:30 PM	85	<p>Impacts of high nursing intensity on sow performance during a subsequent lactation. <i>J. Guo¹, G. Voilque¹, Y. Sun¹, A. E. DeDecker², M. T. Coffey² and S. W. Kim¹, ¹North Carolina State University, Raleigh, ²Murphy-Brown LLC, Rose Hill, NC</i></p>
2:45 PM	86	<p>Effects of withdrawing high-fiber ingredients prior to market on finishing pig growth performance, carcass characteristics, intestinal weights, and carcass fat quality. <i>K. F. Coble¹, J. M. DeRouchey¹, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, T. A. Houser¹, B. Goehring¹ and M. J. Azain², ¹Kansas State University, Manhattan, ²Rhodes Center for Animal & Dairy Science, Athens, GA</i></p>

3:00 PM	87	<p>Energy values of bermudagrass, forage sorghum, and sweet sorghum to pigs and the use of carbohydrases to enhance energy utilization. <i>A. A. Passos¹, C. Andrade^{1,2}, M. Veal¹, C. E. Phillips³, M. T. Coffey³ and S. W. Kim¹, ¹North Carolina State University, Raleigh, ²Sao Paulo State University, Piracicaba, Brazil, ³Murphy-Brown LLC, Rose Hill, NC</i></p>
3:15 PM		Break
3:30 PM	88	<p>Impact of reduced crude protein diets on lactating sow nitrogen utilization and piglet performance. <i>L. A. Huber¹, C. F. M. de Lange², U. Krogh³, D. Chamberlin⁴ and N. L. Trottier¹, ¹University of Guelph, Guelph, ON, Canada, ²Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, ³Aarhus University, Foulum, Denmark, ⁴Michigan State University, East Lansing</i></p>
3:45 PM	89	<p>Dietary peroxidized corn oil reduces growth performance of nursery pigs. <i>A. R. Hanson¹, P. E. Urriola¹, L. J. Johnston², S. Baidoo³, C. Chen¹, B. J. Kerr⁴ and G. C. Shurson¹, ¹University of Minnesota, Saint Paul, ²University of Minnesota, West Central Research and Outreach Center, Morris, ³Southern Research and Outreach Center, University of Minnesota, Waseca, ⁴USDA - ARS, Ames, IA</i></p>
4:00 PM	90	<p>Nutrient Digestibility of Solvent-extracted <i>B. napus</i> and <i>B. juncea</i> Canola Meals and Their Air-classified Fractions Fed to Ileal-cannulated Grower Pigs. <i>X. Zhou¹, R. T. Zijlstra¹ and E. Beltranena^{1,2}, ¹University of Alberta, Edmonton, AB, Canada, ²Alberta Agriculture and Rural Development, Edmonton, AB, Canada</i></p>
4:15 PM	91	<p>Optimum sulfur amino acid to lysine ratio for weaner pigs infected with enterotoxigenic <i>E.coli</i>. <i>M. M. Capozzalo¹, J. W. Resink², J. K. Htoo³, J. C. Kim⁴, C. F. M. de Lange⁵, C. F. Hansen⁶, B. Mullan⁴ and J. Pluske¹, ¹Murdoch University, Western Australia, Australia, ²Nutreco, Boxmeer, Netherlands, ³Evonik Industries AG, Hanau-Wolfgang, Germany, ⁴Department of Agriculture and Food, Western Australia, Australia, ⁵Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, ⁶Department of Large Animal Sciences, University of Copenhagen, Copenhagen, Denmark</i></p>

4:30 PM	92	<p>Effect of dried distiller grains with solubles (DDGS) feeding strategies on growth and feed intake responses of immunologically castrated pigs harvested at 9, 7 or 5 weeks post-second Improvest dose. <i>E. K. Harris¹, M. A. Mellencamp², L. J. Johnston³ and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²Zoetis, Inc, Florham Park, NJ, ³West Central Research and Outreach Center, University of Minnesota, Morris</i></p>
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GRADUATE STUDENT COMPETITION: PHD ORAL II

Chair: J. Scott Radcliffe, Purdue University

Sponsor: Akey

314/315

2:00 PM	93	<p>Stimulation of Estrus and Ovulation in Lactating Sows. <i>H. L. Frobose*, K. M. Gourley, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, R. D. Goodband, J. L. Nelssen and D. L. Davis, Kansas State University, Manhattan</i></p>
2:15 PM	94	<p>Predicting Swine MHC Haplotypes from High-Density SNP Genotypes. <i>J. Dunkelberger*, Iowa State University, Ames</i></p>
2:30 PM	95	<p>Effects of in utero heat stress and core body temperature on tissue accretion during the growing phase (30 to 60 kg) in pigs. <i>J. S. Johnson¹, M. V. Sanz Fernandez¹, J. F. Patience¹, J. W. Ross¹, N. K. Gabler¹, M. C. Lucy², T. J. Safranski², R. P. Rhoads³ and L. H. Baumgard¹, ¹Iowa State University, Ames, ²University of Missouri, Columbia, ³Virginia Tech, Blacksburg</i></p>
2:45 PM	96	<p>Impact of oral meloxicam on circulating physiological biomarkers of stress and inflammation in beef steers after long distance transportation. <i>N. Van Enge*, M. L. Stock, T. Engelken, R. Vann, L. W. Wulf, L. A. Karriker, W. D. Busby, J. Lakritz, B. Bradford, W. Hsu, C. Wang, J. F. Coetzee, Iowa State University, Ames</i></p>
3:00 PM	97	<p>Comparison of Four Perennial Forage Finishing Systems and a Limit-Fed Corn-Based Finishing System on Lamb Growth and Carcass Characteristics. <i>J. S. McCutcheon¹, H. N. Zerby², S. C. Loerch³ and F. L. Fluharty³, ¹The Ohio State University, Mount Gilead, OH, ²The Ohio State University, Columbus, OH, ³The Ohio State University, Wooster</i></p>

3:15 PM		Break
3:30 PM	98	<p>Interactive effects of zinc and zilpaterol hydrochloride on the bovine β-adrenergic receptors. <i>J. E. Hergenreder^{*1}, J. O. Baggerman¹, A. D. Hosford¹, M. E. Branine² and B. J. Johnson¹, ¹Texas Tech University, Lubbock, TX, ²Zinpro Corporation, Eden Prairie, MN</i></p>
3:45 PM	99	<p>Effect of a supplemental zinc complex and ractopamine hydrochloride on blood markers of the immune and beta-adrenergic responses in beef steers. <i>O. N. Genther^{*1}, M. E. Branine² and S. L. Hansen¹, ¹Iowa State University, Ames, ²Zinpro Corporation, Eden Prairie, MN</i></p>
4:00 PM	100	<p>Growth performance, carcass characteristics and serum cholesterol and progesterone concentrations of heifers fed different energy sources on pasture. <i>C. H. Pereira^{*1,2}, H. O. Patino³, J. B. S. Borges², K. C. Swanson⁴, F. A. L. González², D. M. Z. Vargas², D. M. Panazzolo², L. L. Cardoso² and J. U. Tarouco², ¹North Dakota State University, Fargo, ²Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, ³Universidade Federal do Rio Grande Do Sul, Porto Alegre, Brazil, ⁴North Dakota State University, Fargo</i></p>
4:15 PM	101	<p>Effects of calf age at weaning on cow and calf performance and feed utilization in an intensive production system. <i>J. M. Warner^{*1}, K. H. Jenkins², R. J. Rasby¹, M. K. Luebke², G. E. Erickson³ and T. J. Klopfenstein³, ¹University of Nebraska, Lincoln, ²University of Nebraska, Scottsbluff, NE, ³University of Nebraska-Lincoln, Lincoln</i></p>

UNDERGRADUATE STUDENT COMPETITION ORAL I

Chair: Paul Walker, Illinois State University
306-307

2:00 PM	228	<p>Performance and Carcass Measurements by Fall-Born Calves Weaned in the Morning or Evening Using Either Fenceline or Traditional Weaning Methods. <i>H. L. Bartimus^{*1}, J. D. Caldwell¹, B. C. Shanks¹, K. P. Coffey², D. S. Hubbell, III³, J. D. Tucker³, C. R. Krehbiel⁴ and C. L. Maxwell⁴, ¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR, ³Livestock and Forestry Research Station, University of Arkansas Division of Agriculture, Batesville, AR, ⁴Oklahoma State University, Stillwater, OK</i></p>
2:15 PM	229	<p>Performance by Dorper-Katahdin Crossbred Lambs Weaned Using Two Different Weaning Methods. <i>J. K. Hanlin^{*1}, J. D. Caldwell¹, B. C. Shanks¹, T. Wuliji¹, E. A. Backes² and A. L. Bax¹, ¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²University of Arkansas, Fayetteville</i></p>
2:30 PM	230	<p>Growth of Periruminant Holstein Bull Calves Fed a Fermentation Extract of <i>Aspergillus oryzae</i>. <i>E. M. Dudash[*], T. T. Yohe, R. M. Townsley, Y. Roman Garcia, A. R. Gibson, K. M. O'Diam and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Wooster</i></p>
2:45 PM	231	<p>Health of Holstein Bull Calves Fed a Fermentation Extract of <i>Aspergillus oryzae</i>. <i>R. M. Townsley[*], T. T. Yohe, E. M. Dudash, Y. Roman Garcia, A. R. Gibson, K. M. O'Diam and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Wooster</i></p>
3:00 PM	232	<p>In utero heat stress alters body temperature and loin eye area in barrows. <i>M. C. Shane[*], T. A. Wilmoth, Z. D. Callahan, T. J. Safranski and B. R. Wiegand, University of Missouri, Columbia</i></p>
3:15 PM		<p>Break</p>
3:30 PM	233	<p>The effects of glucuronic acid and N-acetyl-D-glucosamine on the in vitro fertilization of pigs. <i>C. L. Durfey^{*1}, K. Schmidt¹ and B. D. Whitaker², ¹The University of Findlay, Findlay, OH, ²University of Findlay, Findlay, OH</i></p>

3:45 PM	234	<p>Effects of drought-affected corn and non-starch polysaccharide enzymes on nursery pig performance. <i>E. L. Frantz^{*1}, H. L. Frobose¹, J. M. DeRouchey¹, R. D. Goodband¹, J. R. Bergstrom² and C. K. Jones¹, ¹Kansas State University, Manhattan, ²DSM Nutritional Products, North America, Marshall, MO</i></p>
4:00 PM	235	<p>The Effects of an Altered Suckling Treatment on Piglet Performance during Late Lactation and the Nursery Period. <i>K. M. Gourley[*], H. L. Frobose, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, R. D. Goodband, J. L. Nelssen and D. L. Davis, Kansas State University, Manhattan</i></p>
4:15 PM	236	<p>Effect of Diet Choices on Feed Consumption Behavior of Cattle. <i>E. VenJohn[*], K. A. Miller, C. L. Van Bibber-Krueger and J. S. Drouillard, Kansas State University, Manhattan</i></p>

UNDERGRADUATE STUDENT COMPETITION ORAL II

**Chair: Justin Rickard
308-309**

2:00 PM	237	<p>Effect of human interaction on standing behavior and health parameters of individually-housed dairy calves. <i>T. M. Ray[*] and J. D. Allen, Northwest Missouri State University, Maryville</i></p>
2:15 PM	238	<p>An Investigation of <i>Cryptosporidium parvum</i> and <i>Giardia lamblia</i> and Environmental Stressors in Dairy Calves. <i>S. M. Waibel[*], F. D. McCarthy, and B. Henderson-Dean, The University of Findlay, Findlay, OH</i></p>
2:30 PM	239	<p>The effects of socializing piglets prior to weaning on lactating sows. <i>C. Shilling[*], N. Diefenbacher, B. P. Bennett, K. Ledergerber and B. D. Whitaker, University of Findlay, Findlay, OH</i></p>
2:45 PM	240	<p>The effects of environmental enrichments on behavior and performance of weanling pigs. <i>N. Diefenbacher[*], C. Shilling, B. P. Bennett, K. Ledergerber and B. D. Whitaker, University of Findlay, Findlay, OH</i></p>

3:00 PM	241	<p>Nonstructural Carbohydrate Content of Weeds Commonly Found in Drylots. <i>D. L. Gunder¹, J. Wilson² and K. L. Martinson³, ¹University of Minnesota, St. Paul, ²Turner Wilson Equine Consulting LLC., Stillwater, MN, ³University of Minnesota, Saint Paul</i></p>
3:15 PM		Break
3:30 PM	242	<p>Effect of Weight Loss on Markers of Oxidant Status in the Mature Horse. <i>E. H. Hoblitzell¹, J. L. Zambito¹, H. S. Spooner² and K. M. Barnes¹, ¹West Virginia University, Morgantown, ²Middle Tennessee State University, Murfreesboro</i></p>
3:45 PM	243	<p>Implications of drought stress on corn or sorghum utilization in broiler chicks. <i>A. D. Yoder*, C. W. Ross, C. K. Jones, A. C. Bingham, R. S. Beyer and G. Aldrich, Kansas State University, Manhattan</i></p>
4:00 PM	244	<p>Effects of dietary melatonin supplementation on total serum nitrites and antioxidant capacity of late gestating Holstein heifers. <i>B. O. Fleming*, K. E. Brockus, C. G. Hart and C. O. Lemley, Mississippi State University, Mississippi State</i></p>
4:15 PM	245	<p>Development of a Scholarship Program to Support Future Swine Professionals. <i>C. Hostetler¹ and A. R. Clements², ¹National Pork Board, Des Moines, IA, ²University of Tennessee, Knoxville</i></p>

Tuesday, March 18, 2014

POSTER PRESENTATIONS

7:30 – 9:00 AM • Grand Ballroom

PLEASE SEE POSTER MAP ON PAGE 100

GRADUATE STUDENT COMPETITION: MASTER POSTER

270 (BG)	<p>The Effect of Initial Assignment of Parent Population Boer Does into High and Low Parasite Resistance Groups on Subsequent Doe Parasite Resistance, Survival Rate, Reproductive Efficiency, and Kid Performance and Survival Rates – 2 Year Summary. <i>C. L. Thomas*, B. C. Shanks, J. D. Caldwell, L. S. Wilbers and K. L. Basinger, Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO</i></p>
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- 278 (EBSR) **The North Dakota Beef Industry Survey I. Demographics, Challenges, and Opportunities.**
D. N. Black¹, M. R. Schook¹, J. C. Hadrich², G. P. Lardy¹ and C. R. Dahlen¹, ¹North Dakota State University, Fargo, ²Colorado State University, Fort Collins
- 279 (EBSR) **The North Dakota Beef Industry Survey II. Comparing herd management and production practices among producers planning to exit the industry and producers planning to remain in production.**
M. R. Schook¹, D. N. Black¹, J. C. Hadrich², G. P. Lardy¹ and C. R. Dahlen¹, ¹North Dakota State University, Fargo, ²Colorado State University, Fort Collins
- 287 (ES) **The effect of cross fostering on PRRS transmission and litter performance.**
B. Mason¹, J. L. Seate², A. E. DeDecker³ and M. F. Billing², ¹University of Illinois, Champaign, IL, ²Murphy Brown LLC, Rose Hill, NC, ³Murphy-Brown LLC, Rose Hill, NC
- 304 (GDMM) **Comparison of red meat versus high carbohydrate diet using the gilt biomedical model: Blood chemistry.**
L. L. Baranko¹, K. R. Wellnitz¹, K. A. Vonnahme¹ and E. P. Berg², ¹North Dakota State University, Fargo, ²North Dakota State University, Fargo
- 341 (NR) **Effect of adding minimally refined cottonseed oil or crude glycerol to diets containing 40% distillers dried grains with solubles (DDGS) on carcass fat firmness of growing-finishing pigs.**
C. C. E. J. Villela¹, R. Cox¹, G. C. Shurson¹, K. M. Compart¹, P. E. Urriola¹ and L. J. Johnston², ¹University of Minnesota, Saint Paul, ²University of Minnesota, West Central Research and Outreach Center, Morris
- 343 (NR) **Selenium-Enriched Probiotics Improves Antioxidant Status and Immune Function of Piglets Raised in a High-Temperature Environment.**
F. Gan¹, N. Regmi², X. Chen¹, C. Lv¹, F. Ren¹, G. Ye¹, C. Pan¹, J. Shi¹, X. Shi¹, H. Zhou¹, S. F. Liao² and K. Huang¹, ¹Nanjing Agricultural University, Nanjing, Jiangsu, China, ²Mississippi State University, Mississippi State
- 378 (RN) **Effects of maternal nutrient restriction and rumen-protected arginine supplementation of ewes on carotid artery hemodynamics during gestation and lamb birth weights.**
J. L. Peine¹, K. R. Wellnitz¹, G. Q. Jia¹, A. M. Meyer², L. P. Reynolds¹ and J. S. Caton¹, ¹North Dakota State University, Fargo, ²Division of Animal Sciences, University of Missouri, Columbia

- 402 (RN) **Effects of postruminal amino acid supply on growth performance and feed cost of beef steers.**
*M. M. Masiero**, *M. S. Kerley* and *W. J. Sexten*, *University of Missouri, Columbia*
- 405 (TEACH) **Utilization of a modified Delphi method to perform a needs assessment and curriculum revision of a senior-level beef systems management course.**
*E. L. Lundy**, *D. D. Loy* and *P. J. Gunn*, *Iowa State University, Ames*

GRADUATE STUDENT COMPETITION: PHD POSTER

- 273 (BG) **Combined effect of sow deep intrauterine insemination and boar frozen semen on economic indicators.**
*D. Gonzalez-Peña Fundora*¹, *R. V. Knox*², *J. Pettigrew*² and *S. L. Rodriguez Zas*¹, ¹*University of Illinois at Urbana-Champaign, Urbana*, ²*University of Illinois, Urbana*
- 282 (EBSR) **Impact of oral meloxicam on circulating physiological biomarkers of stress and inflammation in beef steers after long distance transportation.**
*N. Van Engen**, *Iowa State University, Ames*
- 336 (NR) **Influence of dietary fiber concentrations on the basal endogenous loss of phosphorus in growing pigs.**
*A. R. Son** and *B. G. Kim*, *Konkuk University, Seoul, South Korea*
- 350 (NR) **Interactive effects of different energy intake during periods of gestation and housing system on sow performance.**
*P. Ren*¹, *R. Railton*², *J. Jendza*² and *S. Baidoo*³, ¹*University of Minnesota Southern Research and Outreach Center, Waseca*, ²*Southern Research and Outreach Center, Waseca*, ³*Southern Research and Outreach Center, University of Minnesota, Waseca*
- 361 (ONM) **Effect of Micro-Aid® Supplementation on Nitrogen Losses from Cattle Manure.**
*A. K. Watson*¹, *G. E. Erickson*¹, *T. J. Klopfenstein*¹ and *M. J. Rincker*², ¹*University of Nebraska-Lincoln, Lincoln*, ²*DPI GLOBAL, Berea, KY*
- 362 (PHY) **Effect of Selenium-Enriched Probiotics on Selenoprotein Gene Expression of Piglets Raised in a High-Temperature Environment.**
*F. Gan*¹, *T. Wang*², *X. Chen*¹, *C. Lv*¹, *F. Ren*¹, *G. Ye*¹, *C. Pan*¹, *J. Shi*¹, *X. Shi*¹, *H. Zhou*¹, *S. F. Liao*² and *K. Huang*¹, ¹*Nanjing Agricultural University, Nanjing, Jiangsu, China*, ²*Mississippi State University, Mississippi State*

- 363 (PHY) **Response of swine divergently selected for feed efficiency to a glucose tolerance test.**
*J. D. Colpoys¹, D. M. van Sambeek¹, L. L. Anderson¹, J. C. M. Dekkers¹, A. K. Johnson¹, F. R. Dunshea² and N. K. Gabler¹,
¹Iowa State University, Ames, ²The University of Melbourne, Parkville, Australia*

UNDERGRADUATE STUDENT COMPETITION POSTER

- 257 (ABHWB) **The effects of socializing piglets prior to weaning on nursery performance and behavior.**
B. P. Bennett, K. Ledergerber, C. Shilling, N. Diefenbacher and B. D. Whitaker, University of Findlay, Findlay, OH*
- 258 (ABHWB) **The effects of socializing piglets prior to weaning on piglet performance.**
K. Ledergerber, B. P. Bennett, N. Diefenbacher, C. Shilling and B. D. Whitaker, University of Findlay, Findlay, OH*
- 259 (ABHWB) **Gilt approachability to a human when selected for feed efficiency.**
J. F. Sholar¹, J. D. Colpoys¹, N. K. Gabler¹, A. F. Keating¹, S. T. Millman¹, J. M. Siegford² and A. K. Johnson¹, ¹Iowa State University, Ames, ²Michigan State University, East Lansing
- 264 (ABHWB) **Evaluating changes to lying and standing in lame sows administered flunixin meglumine.**
M. M. Righi, M. D. Pairs-Garcia, S. T. Millman and A. K. Butters-Johnson, Iowa State University, Ames*
- 269 (ABHWB) **Effects of repeated electroejaculation on bull behavior and serum cortisol concentrations.**
E. J. Navis, A. R. Green, C. F. Shipley, J. L. Stewart, S. C. Jimenez, F. A. Ireland, D. W. Shike and T. L. Felix, University of Illinois at Urbana-Champaign, Urbana*
- 275 (BG) **Effect of Pre-Breeding Boar Exposure on Gilt Estrus.**
T. Kelsay, M. D. Lindemann, H. J. Monegue and J. S. Monegue, University of Kentucky, Lexington*
- 301 (GDMM) **Expression Patterns of ABLIM1 and ATF4 During Skeletal Muscle Development of Yorkshire-Landrace Crossbred Pigs.**
M. A. Woodward, K. R. Perry, N. E. Raney, Y. L. Bernal Rubio, V. D. Rilmington and C. W. Ernst, Michigan State University, East Lansing
- 309 (GDMM) **Temporal Postmortem RNA Degradation in Subcutaneous Adipose Tissue in Swine.**
E. K. Hogan, D. L. Clark and A. C. Dilger, University of Illinois at Urbana-Champaign, Urbana*

- 321 (NR) **Comparison of Fermented Soybean Meal Processing Methods on Nursery Pig Growth Performance.**
*A. B. Clark**, *H. L. Frobose*, *J. M. DeRouchey*, *M. D. Tokach*, *S. S. Dritz*, *R. D. Goodband* and *J. Woodworth*, *Kansas State University, Manhattan*
- 370 (PHY) **Effects of PMSG Dosage on Reproductive Efficiency of Artificially Inseminated, Farm-Raised White-Tailed (*Odocoileus virginianus*) Deer.**
W. M. Haslag¹, *B. C. Shanks¹*, *J. D. Caldwell¹*, *D. R. Hill²* and *N. L. Forsythe²*, *¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²Oak Creek Whitetail Ranch, Bland, MO*
- 375 (RN) **Effects of Corn Silage Diets on Intestinal Morphology in Dairy Calves.**
*T. J. Pogreba** and *S. I. Kehoe*, *University of Wisconsin-River Falls, River Falls*
- 381 (RN) **Performance by Katahdin Ewes Supplemented With Different Levels of Raw Whole Soybeans While Grazing Stockpiled Tall Fescue - One Year Summary.**
*K. A. Vandeloecht**, *J. D. Caldwell*, *B. C. Shanks* and *A. L. Bax*, *Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO*
- 383 (RN) **Effects of Dietary Glycerin on Rumen Metabolism of Beef Cattle Fed 50% Dried Distillers Grains with Solubles.**
*C. J. Long** and *T. L. Felix*, *University of Illinois at Urbana-Champaign, Urbana*
- 385 (RN) **Effects of Pyrethroid and Pyrethrin Insecticides on Beef Bull Reproductive Parameters.**
*S. C. Jimenez Poveda**, *J. L. Stewart*, *C. F. Shipley*, *V. L. Jarrell*, *E. J. Navis*, *F. A. Ireland*, *T. L. Felix* and *D. W. Shike*, *University of Illinois at Urbana-Champaign, Urbana*
- 388 (RN) **Determination of forage quality and in situ digestibility of miscanthus over time.**
*N. F. Reitz**, *E. J. Sacks* and *T. L. Felix*, *University of Illinois at Urbana-Champaign, Urbana*
- 400 (RN) **The Effects of Fenceline Weaning With or Without the Presence of Companion Goats on Performance and Behavior Measurements of Fall-Born Calves.**
E. G. Goose¹, *J. D. Caldwell¹*, *B. C. Shanks¹*, *C. A. Clifford-Rathert¹*, *E. A. Backes²*, *C. L. Boeckmann¹* and *C. A. DeOrnellis¹*, *¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²University of Arkansas, Fayetteville*

**ANIMAL BEHAVIOR, HOUSING, & WELL-BEING: NONRUMINANT
NUTRITION-SUPPLEMENTS AND ALTERNATIVE FEEDSTUFFS**

- 246 **The Effect of Fermented Soybean Meal Supplementation on Nutrient Apparent Total Tract Digestibility and Ileal Digestibility in Weanling Pigs.**
*H. L. Li, D. Jung and I. H. Kim**, Dankook University, Cheonan, South Korea
- 247 **Evaluation of Extruded Rice as a Replacement for Dried Whey in Weanling Pigs.**
*Y. Lei, S. Kim and I. H. Kim**, Dankook University, Cheonan, South Korea
- 248 **Productivity Assessment Based on Animal Protein Sources in Weanling Pigs.**
*J. H. Cho, H. Beak and I. H. Kim**, Dankook University, Cheonan, South Korea
- 249 **Effect of Supplementation of Evening Primrose Extract on Growth Performance, Nutrient Digestibility, Blood Characteristics, Fecal Microbiota and Fecal Score in Weanling Pigs.**
*H. C. Jang, H. Beak and I. H. Kim**, Dankook University, Cheonan, South Korea
- 250 **Effect of Vitality Mineral Liquid Complex on Growth Performance, Nutrient Digestibility, Blood Profile, Fecal Microbiota and Fecal Mineral Content in Weanling Pigs.**
*H. C. Jang, D. Jung and I. H. Kim**, Dankook University, Cheonan, South Korea
- 251 **Dietary Supplementation of Curcuma Longa by Bioconversion Technology Improved Growth Performance and Digestibility in Weanling Pigs.**
*Y. Lei, J. H. Cho and I. H. Kim**, Dankook University, Cheonan, South Korea
- 252 **Effect of Bioconversion Natural Complex on Growth Performance, Nutrient Digestibility, Blood Characteristics, and Fecal Microbiota in Weanling Pigs.**
*S. Kim, D. Jung and I. H. Kim**, Dankook University, Cheonan, South Korea
- 253 **Effects of Probiotics Supplementation on Growth Performance, Nutrient Digestibility, Blood Profiles, Fecal Noxious Gas Emission in Growing Pigs.**
*J. Li, H. L. Li and I. H. Kim**, Dankook University, Cheonan, South Korea

- 254 **Effect of Phaffia Rhodozyma on Performance, Nutrient Digestibility, Blood Characteristics, and Meat Quality in Finishing Pigs.**
*Y. J. Jang, Y. Lei and I. H. Kim**, Dankook University, Cheonan, South Korea
- 255 **Effect of Supplementary Feeding of Italian Ryegrass on Reproductive Performance, Blood Profiles, and Rectum Temperature in the 2nd Parity Sows.**
*M. Mohammadi Gheisar, J. P. Lee and I. H. Kim**, Dankook University, Cheonan, South Korea
- 256 **Effects of Supplementary Feeding of Italian Ryegrass on the Reproductive Performance, Levels of Stress Hormones, Body Temperature, Fecal Score and Fecal Microbiota in Primiparous Sows and in Piglets.**
*E. Balolong Jr., S. D. Upadhaya and I. H. Kim**, Dankook University, Cheonan, South Korea

EXTENSION – BEEF/SMALL RUMINANT

- 280 **Ohio Livestock Producer Perceptions of Producing and Marketing of Grass-Based Beef and Lamb.**
J. S. McCutcheon¹, L. W. Morton², H. N. Zerby³, S. C. Loerch⁴, L. Miller⁵ and F. L. Fluharty⁴, ¹The Ohio State University, Mount Gilead, ²Iowa State University, Ames, ³The Ohio State University, Columbus, ⁴The Ohio State University, Wooster, ⁵Small Farm Institute, Millersburg, OH
- 281 **Effects of internal parasite infection at feedlot arrival on performance and carcass characteristics in beef steers.**
C. A. Clark¹, B. J. Dedrickson², J. L. Sorensen² and P. J. Gunn³, ¹Armstrong Memorial Research and Demonstration Farm, Iowa State University, Lewis, ²Merial, Duluth, GA, ³Iowa State University, Ames
- 282 (GS-PHD) **Impact of oral meloxicam on circulating physiological biomarkers of stress and inflammation in beef steers after long distance transportation.**
*N. Van Engen**, Iowa State University, Ames
- 283 **An economic analysis of conventional and alternative cow-calf production systems.**
J. M. Warner¹, K. H. Jenkins², R. J. Rasby¹, K. Brooks³ and T. J. Klopfenstein⁴, ¹University of Nebraska, Lincoln, ²University of Nebraska, Scottsbluff, ³University of Nebraska - Lincoln, Lincoln, ⁴University of Nebraska-Lincoln, Lincoln

NONRUMINANT NUTRITION: AMINO ACIDS

- 313 **Effect of surplus L-Ile plus L-Val in a wheat-based diet with excess Leu on performance and serum concentration of amino acids of growing pigs.**
N. Arce¹, A. Morales¹, H. García¹, B. A. Araiza¹, J. K. Htoo^{2} and M. Cervantes³, ¹ICA, Universidad Autónoma de Baja California, Mexicali, Mexico, ²Evonik Industries AG, Hanau-Wolfgang, Germany, ³ICA, Universidad Autónoma de Baja California, Mexicali, Mexico*
- 314 **Supplementation of L-methionine has beneficial effects on intestinal morphology, redox status, and growth performance of broiler chicks compared with DL-methionine.**
Y. Shen, P. Ferket, I. Park, R. D. Malheiros and S. W. Kim, North Carolina State University, Raleigh*
- 315 **Dynamic estimation of digestible lysine levels to maximize weight gain and protein deposition in two lines of growing-finishing pigs.**
*L. Cloutier^{*1,2}, M. P. Létourneau Montminy³, J. F. Bernier², J. Pomar⁴ and C. Pomar¹, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Université Laval, Québec, QC, Canada, ³Université Laval, Québec, QC, Canada, ⁴Universitat de Lleida, Lleida, Spain*
- 316 **Phase feeding of lactating sow on ideal amino acid basis.**
D. P. Pangen^{i}, J. Kim, X. Yang and S. Baidoo, Southern Research and Outreach Center, University of Minnesota, Waseca*

NONRUMINANT NUTRITION: FEED ADDITIVES AND INGREDIENTS

- 317 **Docosahexaenoic acid (DHA) algal supplement for newly weaned pigs.**
*R. S. Samuel^{*1}, B. W. James² and R. A. Timmons¹, ¹Alltech, Inc., Nicholasville, KY, ²Kalmbach Feeds, Inc., Upper Sandusky, OH*
- 318 **Influence of increasing pharmacological ZnO dose to 2500 ppm and superdoses of phytase on piglet growth performance from d 0 to 21 post-weaning.**
*I. J. Wellock^{*1}, P. Wilcock², P. Toplis¹, J. J. Chewning³ and C. L. Walk², ¹Primary Diets, Melmerby, United Kingdom, ²AB Vista Feed Ingredients, Marlborough, United Kingdom, ³Swine Research Services, Inc., Springdale, AR*
- 319 **Composite analysis of pharmacological ZnO and superdoses of phytase on piglet fecal scores from d 1 to 10 post-weaning.**
*C. L. Walk^{*1}, I. J. Wellock², P. Toplis², C. L. Bradley¹ and P. Wilcock¹, ¹AB Vista Feed Ingredients, Marlborough, United Kingdom, ²Primary Diets, Melmerby, United Kingdom*

- 320 **Digestible phosphorus in canola meal, 00-rapeseed meal, and 00-rapeseed expellers without and with microbial phytase fed to nursery pigs.**
*T. Maison¹ and H. H. Stein^{*2}, ¹University of Illinois, Urbana, ²University of Illinois at Urbana-Champaign, Urbana*
- 321 (UGS) **Comparison of Fermented Soybean Meal Processing Methods on Nursery Pig Growth Performance.**
A. B. Clark^{}, H. L. Frobose, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband and J. Woodworth, Kansas State University, Manhattan*
- 322 **Evaluation of increasing peptone blend on nursery pig performance.**
M. A. D. Goncalves^{}, J. R. Flohr, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband and J. C. Woodworth, Kansas State University, Manhattan*
- 323 **Effects of *Bacillus* spp direct-fed microbial supplementation on the nutrient digestibility by weanling pigs.**
A. Owusu-Asiedu¹, N. W. Jaworski², A. A. Awati¹ and H. H. Stein², ¹DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom, ²University of Illinois at Urbana-Champaign, Urbana
- 324 **Effect of supplementation of *Bacillus* spp. strains with high enzymatic activities on energy efficiency and growth performance in grow-finish pigs fed corn-soybean meal based diet.**
A. Owusu-Asiedu¹, A. Awati¹, Y. D. Jang² and M. D. Lindemann², ¹DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom, ²University of Kentucky, Lexington
- 325 **Bioefficacy of high enzyme producing *Bacillus* spp. strains in nursery and grow-finish pigs fed corn-soybean based diets containing high co-products.**
*A. Owusu-Asiedu¹, D. Petri², S. Baidoo³, G. Jones⁴, M. D. Lindemann^{*5} and E. van Heugten⁶, ¹DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom, ²BioControl Development - DuPont Nutrition & Health, Waukesha, WI, ³Southern Research and Outreach Center, University of Minnesota, Waseca, ⁴Danisco USA Inc, Cedar Rapids, IA, ⁵University of Kentucky, Lexington, ⁶North Carolina State University, Raleigh*
- 326 **Peroxide value (PV) and thiobarbituric acid reactive substances (TBARS) as indicators of dietary lipid peroxidation, reduced growth performance, and metabolic oxidation status when feeding peroxidized lipids to pigs and broilers.**
A. R. Hanson^{}, P. E. Urriola and G. C. Shurson, University of Minnesota, Saint Paul*

- 327 **Comparison of lipid peroxidation measures for corn oil subjected to different heating times and temperatures.**
*A. R. Hanson¹, L. Wang¹, C. Chen¹, B. J. Kerr² and G. C. Shurson¹,
¹University of Minnesota, Saint Paul, ²USDA - ARS, Ames, IA*
- 328 **Content of Soluble Non-Starch Polysaccharides β -Mannan and Xylan in Legume Meals, Non-Legume Meals, and Cereal Grains or Cereal Grain by-products.**
J. E. Ferrel^{}, D. M. Anderson and H. Y. Hsiao, Elanco Animal Health, Greenfield, IN*
- 329 **Effects of feeding a proprietary yeast blend on growth performance of commercial nursery pigs.**
R. Song, K. W. Purser, R. E. Musser and C. D. Hagen^{}, NUTRIQUEST, Mason City, IA*
- 330 **A novel procedure for predicting energy digestibility in feedstuffs fed to pigs.**
S. A. Lee^{}, C. S. Park and B. G. Kim, Konkuk University, Seoul, South Korea*

NONRUMINANT NUTRITION: NUTRITIONAL TECHNOLOGIES AND FEEDING STRATEGIES

- 331 **The effects of withdrawing high-fiber ingredients prior to market on growth and carcass characteristics in commercial finishing pigs.**
K. F. Coble^{}, J. M. DeRouchey, S. S. Dritz, M. D. Tokach and R. D. Goodband, Kansas State University, Manhattan*
- 332 **Effect of Precision Feeding Strategy on Growth Performance and Nitrogen Excretion of Growing-Finishing Pigs.**
I. Andretta¹, C. Pomar², J. Rives³, J. Pomar⁴, P. A. Lovatto¹ and J. Radünz Neto¹, ¹Universidade Federal de Santa Maria, Santa Maria, Brazil, ²Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ³Centre de Développement du Porc du Québec, Québec, QC, Canada, ⁴Universitat de Lleida, Lleida, Spain
- 333 **Characterizing the feed intake pattern of immunologically castrated male pigs following administration of the second anti-GnRF injection.**
A. J. Elsbernd¹, C. F. M. de Lange² and J. F. Patience¹, ¹Iowa State University, Ames, ²Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada
- 334 **Impact of Ractopamine on Whole-Body and Carcass Growth and Efficiency in Pigs Reared Under Moderate Heat Stress.**
C. E. Zier-Rush¹, M. McGrath¹, R. Palan¹, A. Vaske², K. D. Haydon² and R. D. Boyd¹, ¹The Hanor Company, Inc., Franklin, KY, ²Elanco Animal Health, Greenfield, IN

- 335 **Effect of Feed Form (Mash vs. Pellets) and Ractopamine on Pork Fat Quality.**
*N. Matthews**¹, *L. Greiner*², *C. R. Neill*¹, *S. Jungst*¹, *B. Fields*¹, *R. C. Johnson*³ and *A. Sosnicki*¹, ¹Genus PIC, Hendersonville, TN, ²Carthage Innovative Swine Solutions, Carthage, IL, ³Farmland Foods, Denison, IA

PHYSIOLOGY

- 364 **Changes in the cattle cervical transcriptome between estrus and metestrus.**
*D. Gonzalez-Peña Fundora**¹, *K. Caetano-Anollés*¹, *P. Cardoso*², *M. B. Wheeler*³ and *S. L. Rodriguez Zas*¹, ¹University of Illinois at Urbana-Champaign, Urbana, ²University of Illinois at Urbana-Champaign, Urbana, ³University of Illinois, Urbana
- 365 **Orchestration of circadian peripheral non-esterified fatty acids rhythms in dairy cows: feeding timing and diet effects.**
*A. Nikkhah**, *University of Zanjan, Zanjan, Iran*
- 366 **Circadian rhythms of peripheral β -hydroxybutyrate in morning and evening fed lactating cows.**
*A. Nikkhah**, *University of Zanjan, Zanjan, Iran*
- 367 **Prepartum somatotropin injections affects gene expression in granulosa cells of the first postpartum dominant follicle in late pregnant Holstein heifers.**
D. A. Velasco Acosta^{1,2}, *A. Schneider*², *C. Bespalhok Jacometo*², *P. Cardoso*¹ and *M. Nunes Corrêa*², ¹University of Illinois at Urbana-Champaign, Urbana, IL, ²Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil
- 368 **Hepatic peroxisome proliferator activated receptor alpha (PPAR α) is increased during mid- to late gestation in beef cows.**
*C. G. Hart*¹, *L. J. Grossner*¹, *L. E. Camacho*², *K. C. Swanson*², *K. A. Vonnahme*² and *C. O. Lemley*¹, ¹Mississippi State University, Mississippi State, ²North Dakota State University, Fargo
- 369 **Maternal metabolizable protein restriction during late gestation leads to greater gravid uterine uptake of total serum nitrites in sheep.**
*L. A. Lekatz*¹, *M. L. Van Emon*², *L. E. Camacho*³, *C. S. Schauer*², *K. R. Maddock Carlin*⁴ and *K. A. Vonnahme*³, ¹Department of Agriuculture, Illinois State University, Normal, IL, ²Hettinger Research Extension Center, North Dakota State University, Hettinger, ND, ³North Dakota State University, Fargo, ⁴Department of Animal Sciences, North Dakota State University, Fargo

- 370 (UGS) **Effects of PMSG Dosage on Reproductive Efficiency of Artificially Inseminated, Farm-Raised White-Tailed (*Odocoileus virginianus*) Deer.**
W. M. Haslag¹, B. C. Shanks¹, J. D. Caldwell¹, D. R. Hill² and N. L. Forsythe², ¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²Oak Creek Whitetail Ranch, Bland, MO
- 371 **Effects of maintenance energy requirements of gestating beef cows on calf performance.**
B. H. Boehmer, K. J. McLean, T. A. Pye and R. P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater, OK*
- 372 **Effects of maternal nutrient restriction followed by realimentation during early and mid-gestation on maternal jugular serum, umbilical cord serum, and amniotic fluid metabolite concentrations in beef cows.**
L. E. Camacho¹, C. O. Lemley², J. Haring¹, K. C. Swanson¹ and K. A. Vonnahme¹, ¹North Dakota State University, Fargo, ²Mississippi State University, Mississippi State

TEACHING

- 404 **Educational Outcomes of an Online Course; Pharmaceutical Use in Cattle.**
E. Blythe, West Texas A&M University, Canyon*
- 405 (GS-MS) **Utilization of a modified Delphi method to perform a needs assessment and curriculum revision of a senior-level beef systems management course.**
E. L. Lundy, D. D. Loy and P. J. Gunn, Iowa State University, Ames*
- 406 **Temporal changes in undergraduate students' self-reported perceptions of motivation of learning, grade anxiety, and instructor effectiveness in animal science courses.**
J. D. Allen¹ and G. A. Becker², ¹Northwest Missouri State, Maryville, ²Northwest Missouri State University, Maryville
- 407 **Development and implementation of a lean hog futures trading game to enhance student engagement and learning.**
B. D. Whitaker and G. W. Arburn, University of Findlay, Findlay, OH*

Tuesday, March 18, 2014
SYMPOSIA AND ORAL PRESENTATIONS

**GROWTH, DEVELOPMENT, MUSCLE BIOLOGY, AND
MEAT SCIENCE SYMPOSIUM: INSULIN REVISITED**

Chair: Lance H. Baumgard, Iowa State University

Sponsor: American Meat Science Association

306-307

8:30 AM	102	(Invited ASAS Animal Science Young Scholar) Insulin: Secretagogues and Nutrient Partitioning. <i>M. V. Sanz Fernandez and L. H. Baumgard*, Iowa State University, Ames</i>
9:10 AM	103	(Invited) The influence of insulin on adipose tissue differentiation, metabolism and adipokine secretion. <i>G. J. Hausman*, University of Georgia, Athens</i>
9:50 AM	104	(Invited) Mechanisms underlying insulin supported skeletal muscle growth. <i>R. P. Rhoads*¹ and L. H. Baumgard², ¹Virginia Tech, Blacksburg, ²Iowa State University, Ames</i>
10:30 AM		Break
10:40 AM	105	(Invited) Effects of heat stress on post-absorptive metabolism. <i>M. V. Sanz Fernandez*¹, J. S. Johnson¹, R. P. Rhoads² and L. H. Baumgard¹, ¹Iowa State University, Ames, ²Virginia Tech, Blacksburg</i>
11:10 AM	106	(Invited) Impact of insulin on ovarian function. <i>A. F. Keating*, Iowa State University, Ames</i>
11:50 AM	107	(Invited) Insulin/IGF Action in the Mammary Gland Revisited. <i>W. S. Cohick*, Rutgers University, New Brunswick, NJ</i>

**ANIMAL BEHAVIOR, HOUSING, & WELL-BEING SYMPOSIUM:
WHAT DOES THIS STUDY SAY ABOUT WELL-BEING?**

CAVEATS AND CONSIDERATIONS

Chair: Courtney L. Daigle, Michigan State University

308-309

9:00 AM	1	(Invited) The Science of Animal Welfare. <i>D. C. Lay Jr.*, U.S. Dept of Agriculture, West Lafayette, IN</i>
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9:45 AM	2	(Invited) Scientifically Evaluating the Impact of Nutritional Management on Animal Welfare. <i>T. DeVries*</i> , University of Guelph, Kemptville, ON, Canada
10:15 AM	3	(Invited) Considerations for Applying Electronic Measurements in Animal Welfare Research. <i>A. R. Green*</i> , University of Illinois at Urbana-Champaign, Urbana
10:45 AM	4	(Invited) Where's Waldo? Using sickness behavior to find the sick animal in the crowd. <i>A. L. Stanton*</i> , University of Wisconsin-Madison, Madison
11:15 AM	5	(Invited) Relating Economics to Animal Welfare. <i>G. T. Tonsor*</i> , Kansas State University, Manhattan
11:45 AM		Discussion

BREEDING AND GENETICS I

**Chair: Michael G. Gonda, South Dakota State University
312-313**

9:00 AM	14	Improving accuracies of genomic predictions by enriching 50K genotypes with markers from 770K genotypes at QTL regions. <i>M. Saatchi*</i> and <i>D. J. Garrick</i> , Iowa State University, Ames
9:15 AM	15	Haplotype diversity analysis in ten US cattle breeds. <i>H. Su*</i> , <i>J. E. Koltes</i> , <i>M. Saatchi</i> , <i>J. Lee</i> , <i>R. L. Fernando</i> and <i>D. J. Garrick</i> , Iowa State University, Ames
9:30 AM	16	Comparison of genomic breeding values based on single or multiple breed reference populations in US Maine-Anjou beef cattle. <i>J. Lee*</i> , <i>M. Saatchi</i> and <i>D. J. Garrick</i> , Iowa State University, Ames
9:45 AM	17	Improving the Accuracy of Genomic Prediction of Milk Fat Yield in the New Zealand Holstein Friesian Population. <i>M. K. Hayr*</i> ¹ , <i>M. Saatchi</i> ¹ , <i>D. Johnson</i> ² and <i>D. J. Garrick</i> ¹ , ¹ Iowa State University, Ames, ² LIC, Hamilton, New Zealand
10:00 AM	18	Heritability Estimation for Escherichia coli O157:H7 Vaccine Response in Beef Cattle. <i>K. Marley*</i> ¹ , <i>L. A. Kuehn</i> ² , <i>J. Keele</i> ² , <i>B. Wileman</i> ^{3,4} and <i>M. G. Gonda</i> ¹ , ¹ South Dakota State University, Brookings, SD, ² USDA-ARS, Clay Center, NE, ³ EpiTopix LLC, Willmar, MN, ⁴ Kansas State University, Manhattan

10:15 AM	19	<p>Genotype by environment interaction in Red Angus cattle in the United States. <i>W. R. Lamberson¹, D. Fennewald², R. L. Weaver³ and M. Kaps⁴, ¹University of Missouri, Columbia, ²Univeristy of Missouri, Columbia, ³Kansas State University, Manhattan, ⁴University of Zagreb, Zagreb, Croatia</i></p>
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**DAVID SCHINGOETHE SYMPOSIUM:
HEIFER NUTRITION AND THE FUTURE**

Chair: David P. Casper, South Dakota State University
Sponsor: David Schingoethe Appreciation Club, ASAS Foundation
302-303

9:00 AM		Introductory Remarks
9:05 AM	40	<p>(Invited) Future Perspective on Accelerated Milk Replacer Feeding. <i>J. G. Linn* and N. B. Litherland, University of Minnesota, St. Paul</i></p>
9:45 AM	41	<p>(Invited) Nutrition and Management of Automatic Calf Feeding Systems. <i>T. Earleywine*, Land O'Lakes Animal Milk Products, Cottage Grove, WI</i></p>
10:25 AM		Break
10:40 AM	42	<p>(Invited) Formulating Starter Diets to Meet Nutrient Requirements of Dairy Calves During Rapid Early Growth. <i>J. K. Drackley and S. Y. Morrison*, University of Illinois, Urbana</i></p>
11:20 AM	43	<p>(Invited) How much dietary fat should growing prepubertal dairy heifers be fed? <i>J. L. Anderson*, South Dakota State University, Brookings, SD</i></p>
12:00 PM	44	<p>(Invited) Finding the future now – health, genomics, and calves. <i>A. L. Stanton*, University of Wisconsin-Madison, Madison</i></p>
12:40 PM		Concluding Remarks

**NONRUMINANT NUTRITION:
GROW-FINISH MANAGEMENT AND NUTRITION**

**Chairs: Zach J Rambo, Zinpro Corporation and
Cassandra K Jones, Kansas State University**

**Sponsor: JBS United
314-315**

9:00 AM	117	<p>Comparison of the lysine requirement of immunologically versus physically castrated male pigs. <i>A. J. Elsbernd^{*1}, C. F. M. de Lange², K. J. Stalder¹ and J. F. Patience¹, ¹Iowa State University, Ames, ²University of Guelph, Guelph, ON, Canada</i></p>
9:15 AM	118	<p>Effects of reducing the particle size of corn on growth performance and carcass characteristics of growing - finishing pigs. <i>O. J. Rojas[*] and H. H. Stein, University of Illinois at Urbana-Champaign, Urbana</i></p>
9:30 AM	119	<p>Prediction of loin, belly and jowl IV based on diet composition versus daily fatty acid intake. <i>T. A. Kellner[*], K. J. Prusa and J. F. Patience, Iowa State University, Ames</i></p>
9:45 AM	120	<p>Regression Analysis to Predict Growth Performance from Dietary Net Energy in Growing-Finishing Pigs. <i>S. Nitikanchana[*], S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, B. J. White and J. L. Nelssen, Kansas State University, Manhattan</i></p>
10:00 AM	121	<p>Effect of Two Net Energy Feeding Programs in Combination with Ractopamine on Grow-finish Pig Growth Performance and Carcass Characteristics. <i>W. Steyn^{*1}, E. C. Allen², C. A. P. Garbossa³, A. P. Schinckel², J. M. Eggert⁴ and B. T. Richert², ¹TOPIGS, Helvoirt, Netherlands, ²Purdue University, West Lafayette, IN, ³Federal University of Lavras, Lavras, Brazil, ⁴TOPIGS USA, Demotte, IN</i></p>
10:15 AM	122	<p>Effect of β-mannanase and Lysine Level During Ractopamine Feeding 35 Days Prior to Marketing on Growth Performance and Carcass Characteristics of Finishing Pigs. <i>M. D. Asmus^{*1}, K. D. Haydon², T. A. Marsteller², J. E. Ferrel² and B. T. Richert¹, ¹Purdue University, West Lafayette, IN, ²Elanco Animal Health, Greenfield, IN</i></p>
10:30 AM		Break

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| 10:45 AM | 123 | <p>Effects of corn particle size and diet form on finishing pig growth performance and carcass characteristics.
 <i>J. E. Nemecek¹, M. D. Tokach¹, K. F. Coble¹, C. W. Hastad², J. M. DeRouche¹, S. S. Dritz¹ and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²New Fashion Pork, Jackson, MN</i></p> |
| 11:00 AM | 124 | <p>In utero heat stress alters body composition during the early finishing phase (60 to 80 kg) in pigs.
 <i>J. S. Johnson¹, M. V. Sanz Fernandez¹, J. F. Patience¹, J. W. Ross¹, N. K. Gabler¹, M. C. Lucy², T. J. Safranski², R. P. Rhoads³ and L. H. Baumgard¹, ¹Iowa State University, Ames, ²University of Missouri, Columbia, ³Virginia Tech, Blacksburg</i></p> |
| 11:15 AM | 125 | <p>Evaluation of prediction equations to estimate the concentration of GE, DE, and ME content of corn dried distillers grains with solubles (DDGS) based on variable chemical composition for growing pigs.
 <i>P. E. Urriola¹, M. Li¹, B. J. Kerr² and G. C. Shurson¹, ¹University of Minnesota, Saint Paul, ²USDA - ARS, Ames, IA</i></p> |
| 11:30 AM | 126 | <p>Effect of wheat middling and multiple enzyme products on growth performance and carcass characteristics in nursery and finisher pigs.
 <i>T. C. Tsai¹, H. J. Kim¹, J. R. Bergstrom², J. J. Chewning³, J. K. Apple¹ and C. V. Maxwell¹, ¹University of Arkansas, Fayetteville, ²DSM Nutritional Products, North America, Marshall, MO, ³Swine Research Services, Inc., Springdale, AR</i></p> |
| 11:45 AM | 127 | <p>Effect of Bacillus spp. direct-fed microbials on fecal VFA concentrations, growth performance, and carcass characteristics of growing-finishing pigs.
 <i>N. W. Jaworski¹, A. Owusu-Asiedu², A. A. Awati² and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, Urbana, ²DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom</i></p> |
| 12:00 PM | 128 | <p>Effect of dietary supplementation of the osmolyte betaine on growing pig performance and metabolic status during thermo-neutral and heat-stressed conditions.
 <i>S. M. Mendoza¹, E. van Heugten¹ and R. D. Boyd², ¹North Carolina State University, Raleigh, ²The Hanor Company, Inc., Franklin, KY</i></p> |

**NONRUMINANT NUTRITION:
NURSERY MANAGEMENT AND NUTRITION**

**Chairs: Dustin W. Dean, International Ingredient Corp and
Robert Charles Thaler, South Dakota State University
316-317**

9:00 AM	129	<p>Effect of nursery diet protein quality and fish oil supplementation on growth performance, immune response, and gut morphology in starter pigs. <i>S. Hooda*</i>, <i>N. Richmond</i>, <i>N. A. Karrow</i> and <i>C. F. M. de Lange</i>, <i>Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada</i></p>
9:15 AM	130	<p>Effects of high levels of phytase in low lysine diets on the growth performance of nursery pigs. <i>J. R. Flohr¹</i>, <i>R. D. Goodband¹</i>, <i>M. D. Tokach¹</i>, <i>S. S. Dritz¹</i>, <i>J. M. DeRouche¹</i>, <i>J. Woodworth¹</i>, <i>K. B. Langbein¹</i> and <i>J. R. Bergstrom²</i>, ¹<i>Kansas State University, Manhattan, MO</i>, ²<i>DSM Nutritional Products, North America, Marshall, MO</i></p>
9:30 AM	131	<p>Effects of diet complexity, antibiotics, and benzoic acid on nursery pig growth performance. <i>J. E. Nemecek¹</i>, <i>M. D. Tokach¹</i>, <i>J. R. Bergstrom²</i>, <i>J. M. DeRouche¹</i>, <i>S. S. Dritz¹</i> and <i>R. D. Goodband¹</i>, ¹<i>Kansas State University, Manhattan, MO</i>, ²<i>DSM Nutritional Products, North America, Marshall, MO</i></p>
9:45 AM	132	<p>Soluble fibre and insoluble fibre sources added to enterotoxigenic Escherichia coli-challenged pigs after weaning influence production and β-hemolytic E. coli excretion. <i>J. Pluske¹</i> and <i>J. C. Kim²</i>, ¹<i>Murdoch University, Western Australia, Australia</i>, ²<i>Department of Agriculture and Food, Western Australia, Australia</i></p>
10:00 AM	133	<p>Effects of corn particle size, complete diet grinding, and diet form on 11- to 20-kg nursery pig growth performance and caloric efficiency. <i>J. A. De Jong¹</i>, <i>J. M. DeRouche¹</i>, <i>M. D. Tokach¹</i>, <i>R. D. Goodband¹</i>, <i>S. S. Dritz¹</i> and <i>C. W. Hastad²</i>, ¹<i>Kansas State University, Manhattan, MO</i>, ²<i>New Fashion Pork, Jackson, MN</i></p>
10:15 AM	134	<p>Efficacy of xylanase on growth performance, nutrients digestibility and digesta fermentation metabolites in nursery pigs fed wheat based diets. <i>M. C. Walsh¹</i>, <i>E. Kiarie²</i>, <i>H. Bento¹</i>, <i>H. Simmins¹</i> and <i>M. Nyachoti³</i>, ¹<i>DuPont Industrial Biosciences - Danisco Animal Nutrition, Marlborough, United Kingdom</i>, ²<i>DuPont Industrial Bioscience - Danisco Animal Nutrition, Waukesha, WI</i>, ³<i>University of Manitoba, Winnipeg, MB, Canada</i></p>

10:30 AM	135	<p>Effects of Spray-Dried Porcine Plasma of Fecal Microbiota in Nursery Pigs. <i>H. Tran*</i>, <i>C. L. Anderson</i>, <i>S. C. Fernando</i>, <i>J. W. Bundy</i>, <i>P. S. Miller</i> and <i>T. E. Burkey</i>, <i>University of Nebraska, Lincoln</i></p>
10:45 AM		Break
11:00 AM	136	<p>Growth Validation of Net Energy Estimates for Soybean Meal and Fat (CWG) Using 12 to 30 kg Pigs. <i>R. D. Boyd*</i>¹, <i>C. E. Zier-Rush</i>¹, <i>S. Smith</i>¹, <i>R. Shirley</i>² and <i>K. J. Touchette</i>², ¹<i>The Hanor Company, Inc., Franklin, KY</i>, ²<i>Ajinomoto Heartland, Inc., Chicago, IL</i></p>
11:15 AM	137	<p>Evaluation of dietary acidifiers on growth performance of nursery pigs. <i>J. E. Nemechek*</i>¹, <i>M. D. Tokach</i>¹, <i>J. R. Bergstrom</i>², <i>J. M. DeRouchey</i>¹, <i>S. S. Dritz</i>¹ and <i>R. D. Goodband</i>¹, ¹<i>Kansas State University, Manhattan</i>, ²<i>DSM Nutritional Products, North America, Marshall, MO</i></p>
11:30 AM	138	<p>Evaluation of feeding a Bacillus-based probiotic with Rhizopus oligosporus biomass in nursery pigs. <i>D. M. van Sambeek*</i>¹, <i>B. J. Kerr</i>², <i>J. van Leeuwen</i>¹, <i>D. C. Beitz</i>¹ and <i>N. K. Gabler</i>¹, ¹<i>Iowa State University, Ames</i>, ²<i>USDA - ARS, Ames, IA</i></p>
11:45 AM	139	<p>Effects of high-protein canola meals fed to weanling pigs on growth performance, organ weights, bone ash, and blood parameters. <i>C. K. Parr*</i>¹, <i>Y. Liu</i>¹, <i>C. M. Parsons</i>¹ and <i>H. H. Stein</i>², ¹<i>University of Illinois, Urbana</i>, ²<i>University of Illinois at Urbana-Champaign, Urbana</i></p>
12:00 PM	140	<p>Protease supplementation improved growth performance and profitability of nursery pigs consuming a corn-soybean meal based diet. <i>Y. Ma*</i>, <i>N. Odetallah</i>, <i>M. Vazquez-Anon</i> and <i>J. Escobar</i>, <i>Novus International Inc., St. Charles, MO</i></p>
12:15 PM	141	<p>Pharmacological ZnO dose and superdoses of phytase on piglet growth performance and cost of gain from d 0 to 21 post-weaning. <i>C. L. Bradley*</i>, <i>C. L. Walk</i>, <i>G. Cordero</i> and <i>P. Wilcock</i>, <i>AB Vista Feed Ingredients, Marlborough, United Kingdom</i></p>

NONRUMINANT NUTRITION: SOW MANAGEMENT AND NUTRITION**Chair: Crystal L. Levesque, South Dakota State University****318-319**

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| 9:00 AM | 142 | <p>Determination of the impact of housing system on the determination of apparent total tract digestibility of energy and dry matter.
 <i>C. L. Holloway[†] and J. F. Patience, Iowa State University, Ames</i></p> |
| 9:15 AM | 143 | <p>Supplementing sows or their litters with a direct fed microbial feed additive decreases fecal shedding of bacterial pathogens and increases litter performance in sows naturally infected with porcine reproductive and respiratory syndrome virus (PRRS).
 <i>P. K. Brown*, D. A. Spangler, K. M. Foerder, J. C. Coomer, D. F. Jones and R. J. Hall, Agri-King, Inc., Fulton, IL</i></p> |
| 9:30 AM | 144 | <p>Response of sow and progeny to supplementation of dietary essential fatty acids during lactation.
 <i>D. S. Rosero Tapia^{*1}, E. van Heugten¹, J. Odle¹, M. McCulley² and R. D. Boyd², ¹North Carolina State University, Raleigh, ²The Hanor Company, Inc., Franklin, KY</i></p> |
| 9:45 AM | 145 | <p>The impact of supplemental choice white grease on sows and litter performance when fed during lactation.
 <i>C. R. Little^{*1}, T. N. Kessie² and R. Hinson³, ¹JBS United Inc., Sheridan, IN, ²JBS United, Inc., Sheridan, IN, ³JBS United, Sheridan, IN</i></p> |
| 10:00 AM | 146 | <p>The impact of feeding natural betaine to lactating sows during periods of heat stress.
 <i>L. Greiner^{*1}, J. Remus², D. D. Hall², R. D. Boyd³, R. J. Harrell⁴ and J. Connor⁵, ¹Carthage Innovative Swine Solutions, Carthage, IL, ²Dupont, St. Louis, MO, ³The Hanor Company, Inc., Franklin, KY, ⁴Professional Swine Management, Carthage, IL, ⁵Carthage Veterinary Service, Ltd, Carthage, IL</i></p> |

RUMINANT NUTRITION: COPRODUCTS**Chair: Stephanie L. Hansen, Iowa State University****304-305**

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| 9:00 AM | 205 | <p>Effects of Feeding Dry or Modified Wet Distillers Grains with Solubles with or without Supplemental Calcium Oxide on Ruminal Metabolism and Microbial Enzymatic Activity in Beef Cattle.
 <i>A. R. Schroeder*, M. Iakiviak, I. K. O. Cann and T. L. Felix, University of Illinois at Urbana-Champaign, Urbana</i></p> |
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- 9:15 AM 206 **Optimum inclusions of alkaline treated cornstalks and distillers grains fed to calf-fed steers.**
*S. J. Peterson¹, B. L. Nuttelman², C. J. Schneider¹, D. B. Burken², J. C. MacDonald² and G. E. Erickson²,
¹University of Nebraska, Lincoln, ²University of Nebraska-Lincoln, Lincoln*
- 9:30 AM 207 **Effect of distillers grains on average daily gain of cattle grazing corn residue.**
M. Jones, J. C. MacDonald, T. J. Klopfenstein, G. E. Erickson and A. K. Watson, University of Nebraska-Lincoln, Lincoln*
- 9:45 AM 208 **Feeding Elevated Levels of Corn Silage and MDGS in Finishing Diets.**
D. B. Burken, B. L. Nuttelman, C. J. Bittner, G. E. Erickson and T. J. Klopfenstein, University of Nebraska-Lincoln, Lincoln*
- 10:00 AM 209 **Energy value of de-oiled modified distillers grains plus solubles in a forage-based diet.**
M. L. Bremer, D. B. Burken, A. K. Watson, J. C. MacDonald and G. E. Erickson, University of Nebraska-Lincoln, Lincoln*
- 10:15 AM 210 **Digestion of finishing diets containing modified distillers grains plus solubles and condensed distillers solubles with and without oil extraction.**
M. L. Jolly, A. L. Shreck, J. L. Harding, G. E. Erickson, J. C. MacDonald and T. J. Klopfenstein, University of Nebraska-Lincoln, Lincoln*
- 10:30 AM 211 **Energy value of de-oiled modified distillers grains plus solubles in beef feedlot diets.**
M. L. Bremer, B. L. Nuttelman, C. J. Bittner, D. B. Burken, G. E. Erickson, J. C. MacDonald and T. J. Klopfenstein, University of Nebraska-Lincoln, Lincoln*
- 10:45 AM 212 **Energy value of de-oiled wet distillers grains plus solubles relative to corn processing method of steam-flaked or dry-rolled.**
M. L. Bremer¹, M. K. Luebke², K. H. Jenkins² and G. E. Erickson¹, ¹University of Nebraska-Lincoln, Lincoln, ²University of Nebraska, Scottsbluff, NE
- 11:00 AM 213 **Influence of Parturition Dietary Protein Concentration on Beef Cow Performance and Calf Growth, Carcass Characteristics, and Plasma Glucose and Insulin Concentrations.**
T. B. Wilson, N. M. Long², D. B. Faulkner¹ and D. W. Shike³, ¹University of Illinois, Urbana-Champaign, IL, ²Clemson University, Clemson, SC, ³University of Illinois at Urbana-Champaign, Urbana*

EXTENSION – SWINE

Chair: Brian T. Richert, Purdue University
318-319

11:00 AM	54	<p>Effects of Skycis® and Stafac® on growth and carcass performance of finishing pigs – A meta analysis. <i>R. A. Arentson^{*1}, J. J. Chewning², S. N. Carr³, G. L. Allee⁴, M. C. Brumm⁵ and E. G. McMillan⁶, ¹Elanco, Greenfield, IN, ²Swine Research Services, Inc., Springdale, AR, ³Elanco Animal Health, Greenfield, IN, ⁴Pork Tech, LLC, Columbia, MO, ⁵Brumm Swine Consultancy, Inc., Mankato, MN, ⁶Nutreco Canada Agresearch, Burford, ON, Canada</i></p>
11:15 AM	55	<p>The effect of regrinding DDGS and SBM on pellet quality in swine finishing diets. <i>W. J. Pacheco^{*1}, M. Knauer¹, E. van Heugten¹, C. R. Stark¹, A. C. Fahrenholz¹ and C. E. Phillips², ¹North Carolina State University, Raleigh, ²Murphy-Brown LLC, Rose Hill, NC</i></p>
11:30 AM	56	<p>The effect of cross fostering on PRRS transmission and litter performance. <i>B. Mason^{*1}, A. E. DeDecker², J. L. Seate³ and M. F. Billing³, ¹University of Illinois, Champaign, ²Murphy-Brown LLC, Rose Hill, NC, ³Murphy Brown LLC, Rose Hill, NC</i></p>
11:45 AM	57	<p>Effects of suckling history of mammary glands on teat order and growth of nursing piglets during a subsequent lactation. <i>J. Guo^{*1}, G. Voilque¹, Y. Sun¹, A. E. DeDecker², M. T. Coffey² and S. W. Kim¹, ¹North Carolina State University, Raleigh, ²Murphy-Brown LLC, Rose Hill, NC</i></p>
12:00 PM	58	<p>Can animal welfare assessment at the farm be a good tool to control pork quality variation? <i>L. M. Rocha^{*1,2}, A. Dalmau³, A. Velarde³, L. Saucier² and L. Faucitano^{1,2}, ¹Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, ²Université Laval, Quebec, QC, Canada, ³IRTA, Animal Welfare Group, Monells, Spain</i></p>
12:15 PM	59	<p>Relationships between sow body condition with subsequent reproductive performance. <i>M. Bryan[*] and M. Knauer, North Carolina State University, Raleigh</i></p>

**BREEDING AND GENETICS SYMPOSIUM: ANALYSIS OF
NEXT GENERATION SEQUENCING (NGS) DATA**

Chair: Juan P. Steibel, Michigan State University

308-309

1:30 PM		Introductory Remarks
1:40 PM	20	(Invited) Utilization of Sequence on Relatives to Improve Analysis of Individuals' Low-coverage NGS data. <i>R. M. Thallman^{*1} and T. S. Kalbfleisch², ¹USDA, Agricultural Research Service, U.S. Meat Animal Research Center, Clay Center, NE, ²Intrepid Bioinformatics, Louisville, KY</i>
2:25 PM	21	(Invited) Applications of High-Throughput Sequencing for Fertility, Demography, and Genome Improvement. <i>J. E. Decker[*], R. D. Schnabel and J. F. Taylor, University of Missouri, Columbia</i>
3:10 PM		Break
3:25 PM	22	(Invited) HMM-ASE: A Hidden Markov algorithm for Ascertaining cSNP Genotypes from RNA Sequence Data in Presence of Allelic Imbalance. <i>H. Wang[*], Michigan State University, East Lansing</i>
4:10 PM	23	(Invited) Computational resources to facilitate variant discovery and analysis. <i>J. M. Reecy^{*1}, C. Baes^{2,3}, E. Fritz-Waters¹, J. E. Koltes¹, M. Dolezal¹, B. Bapst³, C. Flury², H. Signer-Hasler², C. Stricker⁵, R. L. Fernando¹, D. J. Garrick¹, F. Schmitz-Hsu⁶, B. Gredler² and M. Vaughn⁷, ¹Iowa State University, Ames, ²Bern University of Applied Sciences, Zollikofen, Switzerland, ³Qualitas AG, Zug, Switzerland, ⁴Università degli Studi di Milano, Milano, Italy, ⁵agn Genetics GmbH, Davos, Switzerland, ⁶Swissgenetics, Zollikofen, Switzerland, ⁷Texas Advance Computing Center, University of Texas, Austin</i>

ANIMAL BEHAVIOR, HOUSING AND WELL-BEING I
Chair: Amy L Stanton, University of Wisconsin-Madison
318-319

1:30 PM	6	<p>(Invited ASAS Animal Science Young Scholar) Integrating technology and animal welfare: space and resource use of individual non-cage laying hens. <i>C. L. Daigle*</i>, <i>D. Banerjee</i>, <i>R. A. Montgomery</i>, <i>P. Thompson</i>, <i>J. C. Swanson</i>, <i>S. K. Biswas</i> and <i>J. M. Siegford</i>, <i>Michigan State University, East Lansing</i></p>
2:00 PM	7	<p>Timing of ration delivery regulates periprandial eating behavior of dairy cows. <i>A. Nikkhah*</i>, <i>University of Zanjan, Zanjan, Iran</i></p>
2:15 PM	8	<p>Beta-Agonist Supplementation Does not Affect Movement, Signs of Lameness, or Animal Welfare Measures of Finished Steers at the Feedyard or Packing Plant. <i>B. P. Holland*</i>, <i>M. Corrigan</i>, <i>J. L. Finck</i>, <i>J. M. Hodgen</i>, <i>J. P. Hutcheson</i>, <i>W. T. Nichols</i>, <i>M. N. Streeter</i> and <i>D. A. Yates</i>, <i>Merck Animal Health, DeSoto, KS</i></p>
2:30 PM	9	<p>Heat Stress <i>in utero</i> Affects Piglets Later in Life. <i>B. L. Lynch¹</i>, <i>J. N. Rhoades²</i>, <i>M. C. Lucy²</i> and <i>T. J. Safranski²</i>, ¹<i>College of Wooster, Wooster, OH</i>, ²<i>University of Missouri, Columbia</i></p>
2:45 PM	10	<p>Associations between sow body lesions with body condition and reproductive performance. <i>M. Bryan*</i> and <i>M. Knauer</i>, <i>North Carolina State University, Raleigh</i></p>
3:00 PM	11	<p>Effect of the farm system on the behavioral response preslaughter and on meat quality variation in pigs. <i>L. M. Rocha^{*1,2}</i>, <i>A. Dalmau³</i>, <i>A. Velarde³</i>, <i>L. Saucier¹</i> and <i>L. Faucitano^{1,2}</i>, ¹<i>Université Laval, Quebec, QC, Canada</i>, ²<i>Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada</i>, ³<i>IRTA, Animal Welfare Group, Monells, Spain</i></p>
3:15 PM	12	<p>The impact of pellet quality on production efficiency and pig behavior in heat-stressed and thermoneutral environments. <i>J. M. Langdon II^{*1}</i>, <i>E. van Heugten¹</i>, <i>A. C. Fahrenholz¹</i>, <i>C. R. Stark¹</i>, <i>C. E. Phillips²</i> and <i>M. Knauer¹</i>, ¹<i>North Carolina State University, Raleigh</i>, ²<i>Murphy-Brown LLC, Rose Hill, NC</i></p>

3:30 PM	13	<p>Identifying characteristics of slow-growing pigs from birth to 9 weeks of age and growth performance responses to feeder space post-weaning. <i>Y. He¹, J. Deen¹, G. C. Shurson² and Y. Li³, ¹University of Minnesota, St. Paul, ²University of Minnesota, Saint Paul, ³University of Minnesota, West Central Research and Outreach Center, Morris, MN</i></p>
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EXTENSION – DAIRY SYMPOSIUM: STRATEGIES TO INCREASE FIBER DIGESTIBILITY IN LACTATING DAIRY COWS.

Chairs: Noah B Litherland, University of Minnesota and J. A. Salfer, University of Minnesota

302-303

1:30 PM		<p>Introductory Remarks</p>
1:40 PM	50	<p>(Invited) Agronomic practices that impact the digestibility of fiber by lactating cows. <i>F. N. Owens*, DuPont Pioneer, Johnston, IA</i></p>
2:20 PM	51	<p>(Invited) TTNDFD: A new approach to evaluate forage fiber digestibility. <i>D. K. Combs* and F. Lopes, University of Wisconsin, Madison</i></p>
3:00 PM		<p>Break</p>
3:15 PM	52	<p>(Invited) Measuring forage quality of corn silage and understanding the impacts on rumen fermentation in lactating dairy cattle. <i>P. J. Kononoff*, University of Nebraska-Lincoln, Lincoln</i></p>
3:55 PM	53	<p>(Invited) The Impact of Non-Forage Fiber Sources on Fiber Digestibility. <i>B. Bradford*, Kansas State University, Manhattan</i></p>
4:35 PM		<p>Discussion</p>

EQUINE

Chairs: Rebecca C. Bott, South Dakota State University and Emily Glunk, University of Minnesota

401

1:30 PM	45	<p>(Invited) Developing Equine Professionals in the 21st Century. <i>K. D. Bump*, Cazenovia College, Cazenovia, NY; National Association of Equine Affiliated Academics, Cazenovia, NY</i></p>
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2:15 PM	46	<p>Development of an Undergraduate Online Horse Management Course. <i>K. L. Martinson*, M. Palmer, M. Hathaway and E. Glunk, University of Minnesota, Saint Paul</i></p>
2:30 PM	47	<p>Comparative Analysis of State 4-H Horse Programs. <i>F. C. Camargo¹, A. Lawyer¹, C. Willis¹ and R. C. Bott², ¹University of Kentucky, Lexington, ²South Dakota State University, Brookings, SD</i></p>
2:45 PM	48	<p>(Invited ASAS Animal Science Young Scholar) Influence of Weight Loss on Skeletal Muscle Mitochondrial Function and Metabolism in the Mature Horse. <i>J. L. Zambito¹, H. S. Spooner², C. E. Nichols¹, R. M. Hoffman², J. M. Hollander¹ and K. M. Barnes¹, ¹West Virginia University, Morgantown, ²Middle Tennessee State University, Murfreesboro</i></p>
3:15 PM	49	<p>The Interaction of Grazing Muzzle Use and Grass Species on Forage Intake Of Horses. <i>E. Glunk*, C. C. Sheaffer, M. Hathaway and K. L. Martinson, University of Minnesota, Saint Paul</i></p>

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY, AND MEAT SCIENCE
Chair: Scott N. Carr, Elanco Animal Health
312-313

1:30 PM	108	<p>(Invited ASAS Animal Science Young Scholar) Contribution of the calpain system to muscle protein accretion and growth in cattle and swine models. <i>S. M. Cruzen*, Iowa State University, Ames</i></p>
2:00 PM	109	<p>(Invited ASAS Animal Science Young Scholar) Investigating the role of reactive oxygen species and mitochondria protein profile differences in pigs divergently selected for residual feed intake. <i>J. K. Grubbs*, Iowa State University, Ames</i></p>
2:30 PM	110	<p>(Invited ASAS Animal Science Young Scholar) Gene expression profiling of longissimus dorsi and adipose tissue in pigs with differing post-weaning growth rate. <i>C. M. Pilcher*, C. K. Jones, M. Schroyen, A. J. Severin, J. F. Patience, C. K. Tuggle and J. E. Koltes, Iowa State University, Ames</i></p>

3:00 PM	111	<p>Dietary L-arginine supplementation enhance myofiber hyperplasia. <i>G. Bee^{*1}, C. E. Pardo¹ and M. Kreuzer², ¹Agroscope, Posieux, Switzerland, ²ETH Zurich, Zurich, Switzerland</i></p>
3:15 PM		Break
3:30 PM	112	<p>Effects of Feeding Distillers Grains in a Yearling Beef System on Meat Quality. <i>K. M. Sudbeck^{*1}, J. C. MacDonald¹, C. R. Calkins², G. E. Erickson¹, T. P. Carr¹ and K. Varnold², ¹University of Nebraska-Lincoln, Lincoln, ²University of Nebraska, Lincoln</i></p>
3:45 PM	113	<p>Differential expression of Cyclin G2, Cyclin dependent kinase inhibitor 2C and peripheral myelin protein 22 genes during adipogenesis. <i>J. Zhang[*], Y. Suh, Y. M. Choi, M. E. Davis and K. Lee, The Ohio State University, Columbus</i></p>
4:00 PM	114	<p>Lysozyme as an alternative to antibiotics improves growth performance and tumor necrosis factor-α levels during an indirect immune challenge. <i>W. T. Oliver^{*1}, J. E. Wells¹ and C. V. Maxwell², ¹USDA/ARS U.S. Meat Animal Research Center, Clay Center, NE, ²University of Arkansas, Fayetteville</i></p>
4:15 PM	115	<p>Interactive effects of gestational heat stress, Paylean and lysine improve carcass and pork quality. <i>Z. D. Callahan[*], T. A. Wilmoth, M. C. Shane, T. J. Safranski and B. R. Wiegand, University of Missouri, Columbia</i></p>
4:30 PM	116	<p>In utero heat stress negatively affects the growth performance of barrows. <i>T. A. Wilmoth[*], Z. D. Callahan, M. C. Shane, T. J. Safranski and B. R. Wiegand, University of Missouri, Columbia</i></p>

NONRUMINANT NUTRITION:

FEED PROCESSING, INGREDIENTS, AND ADDITIVES

Chairs: Jonathan R Bergstrom, DSM Nutritional Products, North America and Ryan N. Dilger, University of Illinois

316-317

1:30 PM	147	<p>Effects of different feed enzyme combinations on apparent total tract digestibility of DM, N, phytate, DE, and ME in corn-soybean meal-DDGS based diets fed to pigs. <i>A. A. Passos[*] and S. W. Kim, North Carolina State University, Raleigh</i></p>
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1:45 PM	148	<p>Commercial xylanase-products appear to be more efficient towards degradation of arabinoxylan in wheat than in rye.</p> <p><i>H. N. Lærke¹, S. Arent², K. E. B. Knudsen¹ and S. Dalsgaard², ¹Aarhus University, Department of Animal Science, Tjele, Denmark, ²Dupont, Industrial Biosciences, Brabrand, Denmark</i></p>
2:00 PM	149	<p>Efficacy of a NSP enzyme blend Easyzyme to improve pig performance depends on dietary ME concentration.</p> <p><i>V. G. Perez*, K. T. Soltwedel, T. R. Radke and D. P. Holzgraefe, ADM Alliance Nutrition Inc., Quincy, IL</i></p>
2:15 PM	150	<p>Effects of dietary supplementation of xylanase on apparent ileal digestibility of ADF and NDF, and viscosity of digesta in nursery pigs fed corn and soybean meal based diets.</p> <p><i>A. A. Passos* and S. W. Kim, North Carolina State University, Raleigh</i></p>
2:30 PM	151	<p>Effects of microbial phytase on apparent and standardized total tract digestibility of calcium in calcium supplements fed to growing pigs.</p> <p><i>J. C. Gonzalez-Vega¹, C. L. Walk² and H. H. Stein³, ¹University of Illinois, Urbana, ²AB Vista Feed Ingredients, Marlborough, United Kingdom, ³University of Illinois at Urbana-Champaign, Urbana</i></p>
2:45 PM	152	<p>The Effects of Feeding Diets Supplemented with β-mannanase or β-mannanase and 1,3-glucanase on Apparent Total Tract and Apparent Ileal Digestibilities in Pigs.</p> <p><i>J. S. Radcliffe¹, B. T. Richert¹ and J. E. Ferrel², ¹Purdue University, West Lafayette, IN, ²Elanco Animal Health, Greenfield, IN</i></p>
3:00 PM	153	<p>Impact of level of soybean meal and β-mannanase in nursery diets on two genetic populations of pigs selected for soybean meal allergic response.</p> <p><i>M. Ferreira^{1,2}, A. P. Schinckel³, J. E. Ferrel⁴, B. T. Richert³, J. S. Radcliffe³ and T. S. Stewart³, ¹Federal University of Lavras, Department of Veterinary Medicine, Lavras, Brazil, ²CAPES Foundation, Brasilia, Brazil, ³Purdue University, West Lafayette, IN, ⁴Elanco Animal Health, Greenfield, IN</i></p>
3:15 PM		Break

3:30 PM	154	<p>The Effect of β-mannanase and a β-glucanase Combined with β-mannanase in Corn-Soybean Meal-DDGS Diets on Grower Pig Growth, Feed Intake and Feed Efficiency Performance in a Commercial Setting. <i>J. E. Ferrel* and D. M. Anderson, Elanco Animal Health, Greenfield, IN</i></p>
3:45 PM	155	<p>Concentrations of digestible and metabolizable and net energy in soybean meal produced throughout the United States and fed to pigs. <i>K. M. Sotak¹ and H. H. Stein², ¹University of Illinois at Urbana-Champaign, Champaign, ²University of Illinois at Urbana-Champaign, Urbana</i></p>
4:00 PM	156	<p>Corn grown under drought-stressed conditions does not have lower energy content than corn grown in a previous “normal” year. <i>M. A. Newman*, C. R. Hurburgh and J. F. Patience, Iowa State University, Ames</i></p>
4:15 PM	157	<p>Effects of Conditioning Motor Speed and Diet Form on growth performance of 12-21 kg nursery pigs. <i>L. L. Lewis¹, C. K. Jones¹, A. C. Fahrenholz², C. R. Stark¹, M. A. Goncalves¹ and J. M. DeRouchey¹, ¹Kansas State University, Manhattan, ²North Carolina State University, Raleigh</i></p>
4:30 PM	158	<p>Effects of corn particle size and diet form on growth performance of 6-22 kg nursery pigs. <i>G. E. Bokelman*, C. K. Jones, J. R. Kalivoda, M. D. Tokach, J. M. DeRouchey and C. R. Stark, Kansas State University, Manhattan</i></p>
4:45 PM	159	<p>Influence of the zinc to phytate ratio and superdoses of phytase on piglet growth performance. <i>C. L. Walk¹, J. J. Chewning² and P. Wilcock¹, ¹AB Vista Feed Ingredients, Marlborough, United Kingdom, ²Swine Research Services, Inc., Springdale, AR</i></p>
5:00 PM	160	<p>The effect of feeding β-mannanase in starter diets on nursery pig growth, feed intake and feed efficiency performance in a commercial wean-finish setting. <i>S. A. Crowder¹, T. L. Weeden¹, W. I. Snyder¹, T. A. Meyer¹, C. C. Hankins¹, R. A. Arentson² and J. E. Ferrel², ¹Purina Animal Nutrition LLC, Shoreview, MN, ²Elanco Animal Health, Greenfield, IN</i></p>

**NONRUMINANT NUTRITION: GUT HEALTH AND DISEASE:
NUTRITIONAL AND METABOLIC IMPACTS**

Chairs: Scott Fry, Elanco and Brian J. Kerr, USDA - ARS

314-315

- | | | |
|---------|-----|---|
| 1:30 PM | 161 | <p>Effect of Bacillus-based direct-fed microbial feed supplementation on growth performance, carcass characteristics and fecal microbial enumeration of wean to finish pigs.
 <i>H. Manu¹, X. Yang², D. P. Pangeni², P. Ren¹, W. Meried¹ and S. Baidoo², ¹University of Minnesota Southern Research and Outreach Center, Waseca, ²Southern Research and Outreach Center, University of Minnesota, Waseca</i></p> |
| 1:45 PM | 162 | <p>Diet Complexity Affects Post-weaning Performance and Immune Response to Porcine Circovirus 2 (PCV2) Infection in Nursery Pigs.
 <i>G. A. Mastromano[*], Y. S. Li, H. Tran, J. W. Bundy, D. C. Ciobanu, P. S. Miller and T. E. Burkey, University of Nebraska, Lincoln</i></p> |
| 2:00 PM | 163 | <p>Effect of deoxynivalenol (DON) ingestion on expression of genes involved in intestinal integrity and immune response.
 <i>M. Lessard¹, K. Deschêne¹, C. Savard², F. Guay³, J. Lapointe¹ and Y. Chorfi², ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Université de Montréal, Faculté de médecine vétérinaire, St-Hyacinthe, QC, Canada, ³Université Laval, Quebec, Quebec, QC, Canada</i></p> |
| 2:15 PM | 164 | <p>Characterization of PRRS progression in growing gilts using metabolic, cytokine and complete blood count data.
 <i>N. V. L. Serão¹, T. E. Burkey², G. Gourley³, T. E. Weber⁴, M. FitzSimmons³, K. Schwartz¹, C. Sparks⁵, J. Odle⁶, N. K. Gabler¹ and J. C. M. Dekkers¹, ¹Iowa State University, Ames, ²University of Nebraska, Lincoln, ³Swine Graphics Enterprises, Webster City, IA, ⁴Elanco Animal Health, Greenfield, IN, ⁵Choice Genetics, Ames, IA, ⁶North Carolina State University, Raleigh</i></p> |
| 2:30 PM | 165 | <p>Effects of dietary soybean meal concentration on growth performance and immune response of pigs during a porcine reproductive and respiratory syndrome virus challenge.
 <i>S. J. Rochell¹, L. S. Alexander¹, R. D. Boyd², W. G. Van Alstine³, J. Pettigrew¹ and R. N. Dilger¹, ¹University of Illinois, Urbana, ²The Hanor Company, Inc., Franklin, KY, ³Purdue University, West Lafayette, IN</i></p> |

2:45 PM	166	Relations among enterotoxigenic <i>Escherichia coli</i>, net fluid absorption, and cytokine expression in piglet jejunal segments infused with customized glycans. <i>A. D. Woodward*, X. Chen, M. G. Gänzle and R. T. Zijlstra, University of Alberta, Edmonton, AB, Canada</i>
3:00 PM		Break
3:15 PM	167	Effect of Yeast Rare Earth on Growth Performance, Nutrient Digestibility, Blood Profiles, Meat Quality, and Fecal Microbiota in Finishing Pigs. <i>S. D. Upadhaya, L. Cai and I. H. Kim*, Dankook University, Cheonan, South Korea</i>
3:30 PM	168	Immune System Stimulation of Finishing Pigs is Positively Altered with Vitamin E and Poly Unsaturated Fatty Acid Supplements. <i>S. D. Upadhaya¹, J. C. Kim², J. Pluske³ and I. H. Kim^{*1}, ¹Dankook University, Cheonan, South Korea, ²Department of Agriculture and Food, Western Australia, Australia, ³Murdoch University, Western Australia, Australia</i>
3:45 PM	169	Effects of Dietary Fermented Aged Garlic Supplementation on Growth Performance, Digestibility, Blood Profiles, Gas Emissions and Microbiota in Weanling Pigs. <i>M. M. Hossain, J. H. Cho and I. H. Kim*, Dankook University, Cheonan, South Korea</i>
4:00 PM	170	Evaluation of Lactulose on Growth Performance, Nutrient Digestibility, Hematological Characteristics, Targeted <i>E. coli</i> Colony, Fecal Score, Moisture and Noxious Gas Emissions in Weaning Pigs. <i>M. M. Hossain, J. H. Cho and I. H. Kim*, Dankook University, Cheonan, South Korea</i>

PHYSIOLOGY SYMPOSIUM: A LIFETIME OF METABOLITES

Chair: Lea A. Rempel, USMARC, ARS, USDA

306-307

1:30 PM	192	(Invited) Energy dynamics during fetal to neonatal transition and the influence of perinatal energy stores on early neonatal survival. <i>J. R. Miles*, USDA, ARS, US MARC, Clay Center, NE</i>
2:10 PM	193	(Invited) NutriPhysioGenomics of Dairy Cattle: A Step towards Integrative Systems Physiology. <i>J. J. Loor*, University of Illinois, Urbana</i>

2:50 PM	194	(Invited ADSA Young Dairy Scholar) Metabolic inflammation and immunomodulation in transition dairy cows. <i>K. Yuan* and B. Bradford, Kansas State University, Manhattan</i>
3:20 PM		Break
3:30 PM	195	Impact of two heat stress models on performance and immune parameters of weaned pigs. <i>B. E. Bass*¹, M. Bandrick², J. W. Frank¹, T. Looft², H. K. Allen², T. Casey² and T. B. Stanton², ¹Diamond V, Cedar Rapids, IA, ²USDA National Animal Disease Center, Ames, IA</i>
3:45 PM	196	(Invited) Impact of disease on metabolism. <i>T. E. Burkey* and P. S. Miller, University of Nebraska, Lincoln</i>
4:25 PM	197	(Invited) Vitamin E metabolism in poultry. <i>M. P. Richards¹, D. Perez¹, R. S. Parker², M. E. Berres¹ and M. Sifri³, ¹University of Wisconsin-Madison, Madison, ²Cornell, Ithaca, NY, ³ADM, Quincy, IL</i>

RUMINANT NUTRITION: GENERAL

**Chair: Jon P. Schoonmaker, Purdue University
304-305**

1:30 PM	214	(Invited ADSA Young Dairy Scholar) Use of long-chain saturated fatty acid supplements in lactating dairy cows. <i>P. Piantoni*, A. L. Lock and M. S. Allen, Michigan State University, East Lansing</i>
2:00 PM	215	Effects of rumen-protected choline on plasma, milk yield and composition of middle and late lactation Holstein cows. <i>A. Pineda* and P. Cardoso, University of Illinois at Urbana-Champaign, Urbana</i>
2:15 PM	216	Understanding phage-bacterial interactions and their role in the rumen. <i>C. Anderson¹, M. L. Jolly², G. E. Erickson², T. J. Klopfenstein² and S. C. Fernando*¹, ¹University of Nebraska, Lincoln, ²University of Nebraska-Lincoln, Lincoln</i>

2:30 PM	217	<p>Optimizing Design for Gut Microbe Identification by Sequencing. <i>T. M. Taxis^{*1}, G. C. Conant¹, K. M. Cammack² and W. R. Lamberson¹, ¹University of Missouri, Columbia, ²Department of Animal Science, University of Wyoming, Laramie</i></p>
2:45 PM	218	<p>Evaluating two rates of monensin fed during the grain adaptation period on cattle performance and carcass characteristics. <i>M. E. Harris^{*1}, G. E. Erickson², K. H. Jenkins³ and M. K. Luebbe³, ¹University of Nebraska, Lincoln, ²University of Nebraska-Lincoln, Lincoln, ³University of Nebraska, Scottsbluff</i></p>
3:00 PM	219	<p>Effects of Monensin supplementation on forage intake and performance of steers grazing smooth brome grass. <i>T. L. Hasenauer[*], T. J. Klopfenstein, G. E. Erickson and J. C. MacDonald, University of Nebraska-Lincoln, Lincoln</i></p>
3:15 PM	220	<p>Effects of Diet on Methane, VFA Profile, and Performance of Growing Calves. <i>A. C. Pesta^{*1}, A. K. Watson², S. C. Fernando¹ and G. E. Erickson², ¹University of Nebraska, Lincoln, ²University of Nebraska-Lincoln, Lincoln</i></p>
3:30 PM	221	<p>Growth adjustment to diet improves profitability within the feedlot. <i>N. O. Minton[*], W. J. Sexten and M. Kerley, University of Missouri, Columbia</i></p>
3:45 PM	222	<p>Effects of feeding Next Enhance in finishing diets on performance and carcass characteristics. <i>C. J. Bittner^{*1}, G. E. Erickson¹, K. H. Jenkins², M. K. Luebbe² and M. A. Andersen³, ¹University of Nebraska-Lincoln, Lincoln, ²University of Nebraska, Scottsbluff, NE, ³Novus International, Inc., St. Charles, MO</i></p>
4:00 PM	223	<p>Effect of feeding Enspira™ on fiber digestibility. <i>J. L. Harding[*], A. L. Shreck, M. L. Jolly, J. C. MacDonald and G. E. Erickson, University of Nebraska-Lincoln, Lincoln</i></p>
4:15 PM	224	<p>Evaluation of changes in nutritional quality of corn residue throughout grazing period. <i>M. Jones[*], J. C. MacDonald, T. J. Klopfenstein, G. E. Erickson, K. Glewen and A. K. Watson, University of Nebraska-Lincoln, Lincoln</i></p>

Wednesday, March 19, 2014

POSTER PRESENTATIONS

7:30 – 9:00 AM • Grand Ballroom

PLEASE SEE POSTER MAP ON PAGE 100

ANIMAL BEHAVIOR, HOUSING, & WELL-BEING

- 260 **Impact of Management Systems on Reproductive Performance, Hematological Profiles, Rectum Temperature, Fecal Score and Fecal Microbiota in Primiparous Sows.**
*M. Begum, J. W. Park and I. H. Kim**, Dankook University, Cheonan, South Korea
- 261 **Impact of Management Systems on Reproductive Performance, Hematological Profiles, Rectum Temperature, Fecal Score and Fecal Microbiota in the 2nd Parity Sows.**
*A. Hosseindoust, B. R. Lee and I. H. Kim**, Dankook University, Cheonan, South Korea
- 262 **Effects of social rank on agonistic behaviors and associated injuries of gestating sows at mixing.**
*L. Wang, L. J. Johnston and Y. Li**, University of Minnesota, West Central Research and Outreach Center, Morris
- 263 **What determines the social rank of a sow in a group-housing system?**
*L. Wang, L. J. Johnston and Y. Li**, University of Minnesota, West Central Research and Outreach Center, Morris
- 264 (UGS) **Evaluating changes to lying and standing in lame sows administered flunixin meglumine.**
*M. M. Righi**, *M. D. Pairis-Garcia*, *S. T. Millman* and *A. K. Butters-Johnson*, Iowa State University, Ames
- 265 **Method of sprinkling trailers during hot weather and effects on transport losses of market weight pigs.**
R. K. Kephart¹, *A. K. Butters-Johnson^{*1}*, *K. J. Stalder¹*, *T. W. Huiatt¹*, *A. Sapkota²* and *J. J. McGlone³*, ¹Iowa State University, Ames, ²Purdue University, West Lafayette, IN, ³Texas Tech University, Lubbock
- 266 **Effects of ractopamine level on the growth performance, carcass and meat quality, and blood acid-base and catecholamine responses to handling and transport procedures in finishing pigs.**
*C. L. Puls^{*1}*, *M. Ellis¹*, *M. J. Ritter²*, *W. E. Trout²* and *S. N. Carr²*, ¹University of Illinois, Urbana, ²Elanco Animal Health, Greenfield, IN

- 267 **Impact of providing shade on the growth performance of grazing dairy heifers.**
*M. W. Sahar**, *T. S. Dennis*, *J. E. Tower*, *A. M. Mosiman* and *T. D. Nennich*, *Purdue University, West Lafayette, IN*
- 268 **Drylot vs. pasture beef cow/calf production.**
*V. L. Anderson*¹, *B. Ilse*² and *C. L. Engel*³, ¹*North Dakota State University, Carrington*, ²*Big Horn County Extension, Montana State University, Hardin*, ³*Carrington Research Extension Center, North Dakota State University, Carrington*

BREEDING AND GENETICS

- 271 **Characterization of the endometrial transcriptome in pregnant and non-pregnant sows.**
*D. Gonzalez-Peña Fundora*¹, *K. Caetano-Anollés*¹, *M. B. Wheeler*² and *S. L. Rodriguez Zas*¹, ¹*University of Illinois at Urbana-Champaign, Urbana*, ²*University of Illinois, Urbana*
- 272 **Effect of feeding level on the growth performance of growing-finishing pigs from two genetic lines.**
*N. Grohmann*¹, *B. Peterson*², *B. F. Wolter*² and *M. Ellis*³, ¹*University of Illinois, Champaign-Urbana*, ²*The Maschhoffs, Carlyle, IL*, ³*University of Illinois, Urbana*
- 273 (GS-PHD) **Combined effect of sow deep intrauterine insemination and boar frozen semen on economic indicators.**
*D. Gonzalez-Peña Fundora*¹, *R. V. Knox*², *J. Pettigrew*² and *S. L. Rodriguez Zas*¹, ¹*University of Illinois at Urbana-Champaign, Urbana*, ²*University of Illinois, Urbana*
- 274 **Prediction of Porcine Reproductive and Respiratory Syndrome Virus Serum Viral Level Phenotype from Gene Expression Profiles.**
*D. Vélez-Irizarry*¹, *C. W. Ernst*¹, *J. K. Lunney*², *N. E. Raney*¹ and *J. P. Steibel*¹, ¹*Michigan State University, East Lansing*, ²*USDA, ARS, BARC, APDL, Beltsville, MD*
- 275 (UGS) **Effect of Pre-Breeding Boar Exposure on Gilt Estrus.**
T. Kelsay^{*}, *M. D. Lindemann*, *H. J. Monegue* and *J. S. Monegue*, *University of Kentucky, Lexington*
- 276 **Factors Associated with Digestibility in Nursery Pigs under PRRS Infection.**
*L. C. Hardie*¹, *N. V. L. Serão*¹, *R. R. Rowland*², *J. F. Patience*¹, *J. C. M. Dekkers*¹ and *N. K. Gabler*¹, ¹*Iowa State University, Ames*, ²*Kansas State University, Manhattan*
- 277 **Effect of Low Energy, High Fiber Diets on Divergent Residual Feed Intake Lines in Swine.**
E. D. Mauch^{*}, *J. M. Young*, *J. F. Patience*, *N. K. Gabler* and *J. C. M. Dekkers*, *Iowa State University, Ames*

EXTENSION - SWINE

- 284 **Influence of storage bin design on flowability of DDGS-based pig diets.**
A. M. Hilbrands¹, K. A. Rosentrater², G. C. Shurson³ and L. J. Johnston⁴, ¹University of Minnesota, Morris, ²Iowa State University, Ames, ³University of Minnesota, Saint Paul, ⁴University of Minnesota, West Central Research and Outreach Center, Morris
- 285 **Stocking density and feeder space effects on growth and carcass quality of PIC359 sired pigs.**
S. Jungst¹, D. Hanson², B. Fields¹, J. N. Matthews¹, M. Semler¹, C. Booher¹, T. Dreadin¹, A. Sosnicki¹, C. R. Neill², S. Dee², B. Kerkaert², L. Minion² and J. Nerem², ¹Genus PIC, Hendersonville, TN, ²Pipestone Systems, Pipestone, MN
- 286 **Changes on intestinal microbial fermentation pattern of piglets fed diets including different components.**
K. Escobar¹, T. Reis¹, G. Mariscal², A. Aguilera¹, G. Bernal¹, S. Rubio¹, J. Gómez¹ and S. Correa³, ¹Universidad Autónoma de Querétaro, Querétaro, Mexico, ²Instituto Nacional de Investigación Forestal, Agrícola y Pecuaria, Querétaro, Mexico, ³synBios SA de CV, Querétaro, Mexico
- 287 (GS-MS) **The effect of cross fostering on PRRS transmission and litter performance.**
B. Mason¹, J. L. Seate², A. E. DeDecker³ and M. F. Billing², ¹University of Illinois, Champaign, IL, ²Murphy Brown LLC, Rose Hill, NC, ³Murphy-Brown LLC, Rose Hill, NC
- 288 **Effect of artificial insemination method and semen dose volume on reproductive performance of multiparous sows.**
L. M. Gesing¹, J. E. Estrada¹, B. A. Peterson², D. Hentges² and M. Ellis³, ¹University of Illinois, Champaign-Urbana, ²The Maschhoffs, Carlyle, IL, ³University of Illinois, Urbana
- 289 **Evaluation of the growth performance, feeding and activity patterns, and aggressive behavior of barrows mixed twice during the finishing period.**
L. E. Ochoa¹, L. M. Gesing², B. Peterson³ and M. Ellis⁴, ¹The University of Illinois, Urbana, ²University of Illinois, Champaign-Urbana, ³The Maschhoffs, Carlyle, IL, ⁴University of Illinois, Urbana
- 290 **Performance evaluation of barrows and gilts of three different sire lines.**
C. A. P. Garbossa^{1,2}, A. P. Schinckel², B. T. Richert², R. L. Cutshaw Jr.², B. Zhou², E. C. Allen², W. Steyn³ and J. M. Eggert⁴, ¹Federal University of Lavras, Lavras, Brazil, ²Purdue University, West Lafayette, IN, ³TOPIGS, Helvoirt, Netherlands, ⁴TOPIGS USA, Demotte, IN

- 291 **Evaluation of the compositional growth and predicted lysine requirements of pigs by three sire lines.**
C. A. P. Garbosa¹, A. P. Schinckel², B. T. Richert², R. L. Cutshaw Jr.², B. Zhou², E. C. Allen², W. Steyn³ and J. M. Eggert⁴, ¹Federal University of Lavras, Lavras, Brazil, ²Purdue University, West Lafayette, IN, ³TOPIGS, Helvoirt, Netherlands, ⁴TOPIGS USA, Demotte, IN

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY, AND MEAT SCIENCE

- 292 **Growth Performance of Pigs Receiving Generic Ractopamine (Engain 9[®] – Zoetis).**
S. L. Wood-Follis¹, R. W. Miller¹, H. B. Vanimisetti¹, C. Puls², M. Ellis², A. L. Schroeder¹ and W. M. Moseley¹, ¹Zoetis, Inc., Kalamazoo, MI, ²University of Illinois, Urbana
- 293 **Can samples be powdered to determine sarcomere length?**
R. M. Dolazza and C. L. Lorenzen, University of Missouri, Columbia*
- 294 **Carcass and Meat Quality Characteristics of Pigs Receiving Generic Ractopamine (Engain 9[®] – Zoetis).**
S. L. Wood-Follis¹, R. W. Miller¹, H. B. Vanimisetti¹, R. Herrick², A. C. Dilger³, A. L. Schroeder¹ and W. M. Moseley¹, ¹Zoetis, Inc., Kalamazoo, MI, ²University of Illinois, Urbana, ³University of Illinois at Urbana-Champaign, Urbana
- 295 **Effect of gender/castration status on color and lipid oxidation stability of long-term chilled lamb muscles.**
Y. H. B. Kim^{1,2}, A. Stuart³ and G. MacLennan¹, ¹AgResearch Ltd, Hamilton, New Zealand, ²Purdue University, West Lafayette, IN, ³AgResearch Ltd., Hamilton, New Zealand, ⁴Alliance Group Ltd., Invercargill, New Zealand
- 296 **Effects of Breed on Chemical Composition, Quality Attributes and Texture Characteristics of One-Humped Camel Meat.**
A. N. Al-Owaimer, G. M. Suliman and E. S. O. S. Hussein, King Saud University, Riyadh, Saudi Arabia*
- 297 **Precision of Dual-Energy X-Ray Absorptiometry Measurements Obtained on Pork Half-Carcasses.**
M. Kipper^{1,2}, C. Pomar² and M. Marcoux², ¹Universidade Federal de Santa Maria, Santa Maria, Brazil, ²Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada
- 298 **Effect of dietary zinc and Ractopamine-HCl on pork chop tenderness and shelf-life characteristics.**
C. B. Paulk¹, M. D. Tokach¹, J. L. Nelssen¹, D. D. Burnett¹, K. J. Phelps¹, M. A. Vaughn¹, S. S. Dritz¹, J. M. DeRouchey¹, R. D. Goodband¹, T. A. Houser¹, K. D. Haydon² and J. M. Gonzalez¹, ¹Kansas State University, Manhattan, ²Elanco Animal Health, Greenfield, IN

- 299 **Effects of Source and Level of Added Zinc on Muscle Fiber Diameter and Skeletal Muscle Protein Turnover of Finishing Pigs Fed Ractopamine HCl.**
C. B. Paulk^{*1}, M. D. Tokach¹, J. L. Nelssen¹, D. D. Burnett¹, M. A. Vaughn¹, K. J. Phelps¹, S. S. Dritz¹, J. M. DeRouche¹, R. D. Goodband¹, T. A. Houser¹, K. D. Haydon² and J. M. Gonzalez¹, ¹Kansas State University, Manhattan, ²Elanco Animal Health, Greenfield, IN
- 300 **Influence of Rendement Napole (RN) genotype on growth performance and expression of metabolic genes in crossbred Ossabaw pigs fed different levels of dietary fat.**
H. Lu^{*}, M. G. Ward, T. S. Stewart, L. Adeola and K. M. Ajuwon, Purdue University, West Lafayette, IN
- 301 (UGS) **Expression Patterns of ABLIM1 and ATF4 During Skeletal Muscle Development of Yorkshire-Landrace Crossbred Pigs.**
M. A. Woodward^{*}, K. R. Perry, N. E. Raney, Y. L. Bernal Rubio, V. D. Rilington and C. W. Ernst, Michigan State University, East Lansing
- 302 **Comparison of red meat versus high carbohydrate diet using the gilt biomedical model: liver and muscle energy use.**
C. H. Pereira^{*1,2}, K. R. Wellnitz³, L. Prezotto¹, F. E. Doscher³, E. P. Berg¹ and K. C. Swanson³, ¹North Dakota State University, Fargo, ²Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, ³North Dakota State University, Fargo
- 303 **Comparison of red meat versus high carbohydrate diet using the gilt biomedical model: Body composition.**
K. R. Wellnitz^{*1}, J. D. Crosswhite¹ and E. P. Berg², ¹North Dakota State University, Fargo, ²North Dakota State University, Fargo
- 304 (GS-MS) **Comparison of red meat versus high carbohydrate diet using the gilt biomedical model: Blood chemistry.**
L. L. Baranko^{*1}, K. R. Wellnitz¹, K. A. Vonnahme¹ and E. P. Berg², ¹North Dakota State University, Fargo, ²North Dakota State University, Fargo
- 305 **Effects of dietary forage concentration in finishing diets on growth and carcass characteristics of beef steers.**
K. L. Sorensen^{*1}, V. L. Anderson², K. R. Maddock-Carlin¹, C. L. Engel², C. S. Schauer³, K. C. Olson¹ and R. J. Maddock¹, ¹North Dakota State University, Fargo, ²Carrington Research Extension Center, North Dakota State University, Carrington, ND, ³Hettinger Research Extension Center, North Dakota State University, Hettinger, ND, ⁴South Dakota State University, Rapid City, SD
- 306 **Fatty acid composition and iodine value of pork fat from 3 sampling locations in the carcass.**
J. E. Estrada^{*1}, M. Ellis¹, S. J. Hardman¹, A. M. Gaines², B. A. Peterson² and O. F. Mendoza², ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL

- 307 **Comparison of red meat versus high carbohydrate diet using the gilt biomedical model: Myofiber and adipocyte molecular biology.**
M. Alkhuriji¹, P. P. Borowicz¹, L. L. Baranko¹, K. R. Wellnitz¹ and E. P. Berg², ¹North Dakota State University, Fargo, ²North Dakota State University, Fargo
- 308 **Effects of feeding dried distiller grains with solubles (DDGS) to immunologically castrated pigs harvested at 5, 7, or 9 weeks post-second dose of Improvest on lean quality.**
E. K. Harris¹, C. Calhoun², L. J. Johnston³, R. Cox¹ and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²Zoetis, Inc, Florham Park, NJ, ³West Central Research and Outreach Center, University of Minnesota, Morris, MN
- 309 (UGS) **Temporal Postmortem RNA Degradation in Subcutaneous Adipose Tissue in Swine.**
E. K. Hogan^{}, D. L. Clark and A. C. Dilger, University of Illinois at Urbana-Champaign, Urbana*
- 310 **Effect of the Porcine IGF2 Intron3-G3072A Substitution on Carcass Cutability and Meat Quality.**
D. L. Clark^{}, J. E. Beever and A. C. Dilger, University of Illinois at Urbana-Champaign, Urbana*
- 311 **Pork quality characteristics of loins from pigs divergently selected for residual feed intake on high or low energy diets.**
E. K. Arkfeld¹, J. E. Berger¹, E. R. Hamman¹, J. M. Young¹, R. C. Johnson², J. F. Patience¹, J. C. M. Dekkers¹, N. K. Gabler¹, S. M. Lonergan¹ and E. Huff-Lonergan¹, ¹Iowa State University, Ames, ²Farmland Foods, Denison, IA
- 312 **Effects of time from second Improvest dose to end of growth period on growth performance of immunologically-castrated barrows in comparison to physically-castrated barrows and gilts.**
C. L. Puls¹, M. Ellis¹, M. A. Mellencamp², W. Beckman², A. L. Schroeder², F. K. McKeith¹, B. A. Peterson³, A. M. Gaines³ and C. F. Shipley¹, ¹University of Illinois, Urbana, ²Zoetis, Kalamazoo, MI, ³The Maschhoffs, Carlyle, IL

NONRUMINANT NUTRITION: GROW-FINISH NUTRITION AND MANAGEMENT

- 337 **Influence of a superdose of phytase on finishing pig performance and carcass characteristics.**
J. R. Flohr^{}, R. D. Goodband, M. D. Tokach, K. B. Langbein, S. S. Dritz, J. M. DeRouchey and J. Woodworth, Kansas State University, Manhattan*

- 338 **Influence of copper sulfate and tribasic copper chloride on feed intake preference in finishing pigs.**
K. F. Coble¹, J. M. DeRouche¹, M. D. Tokach¹, J. Woodworth¹, R. D. Goodband¹, S. S. Dritz¹, J. L. Usry² and K. Card¹, ¹Kansas State University, Manhattan, ²Micronutrients, Social Circle, GA
- 339 **Effects of dietary level of distillers dried grains with solubles (DDGS) and pig removal program at harvest on the growth performance, carcass characteristics, and fat quality of growing-finishing pigs.**
S. J. Hardman¹, A. Gaines², C. Puls¹, J. E. Estrada¹, B. Peterson² and M. Ellis¹, ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL
- 340 **Effect of feeding diets containing 40% distillers dried grains with solubles (DDGS) and supplemented with minimally refined cottonseed oil or crude glycerol on growth performance and carcass composition of growing-finishing pigs.**
C. C. E. J. Villela¹, R. Cox¹, G. C. Shurson¹, K. M. Compart¹, P. E. Urriola¹ and L. J. Johnston², ¹University of Minnesota, Saint Paul, ²University of Minnesota, West Central Research and Outreach Center, Morris, MN
- 341 (GS-MS) **Effect of adding minimally refined cottonseed oil or crude glycerol to diets containing 40% distillers dried grains with solubles (DDGS) on carcass fat firmness of growing-finishing pigs.**
C. C. E. J. Villela¹, R. Cox¹, G. C. Shurson¹, K. M. Compart¹, P. E. Urriola¹ and L. J. Johnston², ¹University of Minnesota, Saint Paul, ²University of Minnesota, West Central Research and Outreach Center, Morris
- 342 **Prebiotic Effects on Growth Performance and Immune Health in Nursery Pigs.**
G. A. Mastromano^{}, Y. S. Li, H. Tran, J. W. Bundy, P. S. Miller and T. E. Burkey, University of Nebraska, Lincoln*
- 343 (GS-MS) **Selenium-Enriched Probiotics Improves Antioxidant Status and Immune Function of Piglets Raised in a High-Temperature Environment.**
*F. Gan¹, N. Regmi^{*2}, X. Chen¹, C. Lv¹, F. Ren¹, G. Ye¹, C. Pan¹, J. Shi¹, X. Shi¹, H. Zhou¹, S. F. Liao² and K. Huang¹, ¹Nanjing Agricultural University, Nanjing, Jiangsu, China, ²Mississippi State University, Mississippi State*
- 344 **Liquid feeding of ethanol industry co-products on growth performance of wean to finish pigs.**
S. Baidoo^{}, J. Jendza, X. Yang and L. Anil, Southern Research and Outreach Center, University of Minnesota, Waseca*
- 345 **Evaluation of pineapple byproduct in finishing pigs feeding.**
*U. D. S. Ruiz^{*1}, T. S. Vasconcelos¹, M. C. Thomaz², V. V. Almeida², F. R. Castellini², D. J. Rodrigues², R. K. Ono¹, G. F. Ramos¹ and J. A. Oliveira¹, ¹Univ. Estadual Paulista - UNESP, Dracena, Brazil, ²Univ. Estadual Paulista - UNESP, Jaboticabal, Brazil*

NONRUMINANT NUTRITION: NUTRITION AND MANAGEMENT OF SOWS

- 346 **The perinatal transfer of vitamins and trace elements from sows to piglets.**
*J. J. Matte**, *I. Audet* and *C. L. Girard*, *Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada*
- 347 **Effects of the combination of 50 ppm L-carnitine and 200 ppb chromium from chromium picolinate on sow reproductive performance, progeny growth performance and carcass quality.**
T. C. Tsai¹, *H. J. Kim^{*1}*, *J. R. Bergstrom²*, *J. J. Chewning³*, *J. K. Apple¹* and *C. V. Maxwell¹*, ¹*University of Arkansas, Fayetteville*, ²*DSM Nutritional Products, North America, Marshall, MO*, ³*Swine Research Services, Inc., Springdale, AR*
- 348 **Effects of Rapeseed Meal Supplementation in Gestation Diets on Reproductive Performance and Thyroid Hormones in Sows.**
*H. B. Choi**, *S. S. Jin*, *S. W. Jung* and *Y. Y. Kim*, *Seoul National University, Seoul, South Korea*
- 349 **Relationship between backfat thickness of sows at d 109 of gestation and performance of sows and suckling pigs.**
*J. Kim^{*1,2}*, *S. Baidoo¹* and *X. Yang¹*, ¹*Southern Research and Outreach Center, University of Minnesota, Waseca*, ²*Department of Animal Resource Science, Kangwon National University, Chuncheon, South Korea*

NONRUMINANT NUTRITION: WEANED PIG NUTRITION AND MANAGEMENT

- 351 **Influence of increasing pharmacological ZnO dose to 3500 ppm and superdoses of phytase on piglet growth performance and fecal scores from d 0 to 21 post-weaning.**
C. L. Walk¹, *I. J. Wellock^{*2}*, *P. Toplis²*, *J. J. Chewning³* and *P. Wilcock¹*, ¹*AB Vista Feed Ingredients, Marlborough, United Kingdom*, ²*Primary Diets, Melmerby, United Kingdom*, ³*Swine Research Services, Inc., Springdale, AR*
- 352 **Effects of hydrolyzed vegetable protein or hydrolyzed vegetable and meat protein blend on nursery pig performance.**
*M. A. D. Goncalves**, *J. M. DeRouchev*, *S. S. Dritz*, *M. D. Tokach*, *R. D. Goodband* and *J. C. Woodworth*, *Kansas State University, Manhattan*
- 353 **The effects of a combination of a xylanase and multi enzyme non-starch polysaccharide product on growth performance of 12 to 22 kg nursery pigs.**
*E. D. Fruge^{*1}*, *E. Hansen¹*, *S. Hansen¹*, *D. M. Compart²* and *J. R. Bergstrom³*, ¹*Hubbard Feeds, Inc., Mankato, MN*, ²*Compart's Boar Store, Nicollet, MN*, ³*DSM Nutritional Products, North America, Marshall, MO*

- 354 **Effect of protease on growth performance, intestinal morphology, and inflammatory response of nursery pigs fed corn-soybean meal based diets.**
*J. Guo^{*1}, P. Biggs² and S. W. Kim¹, ¹North Carolina State University, Raleigh, ²BioResource International, Inc., Durham, NC*
- 355 **Effects of fine grinding corn or dried distillers grains with solubles (DDGS) and diet form on growth performance and caloric efficiency of 11- 22-kg nursery pigs.**
J. A. De Jong^{}, J. M. DeRouche^y, M. D. Tokach, R. D. Goodband and S. S. Dritz, Kansas State University, Manhattan*
- 356 **Effects of feeding increasing levels of a proprietary yeast blend on growth performance of commercial nursery pigs.**
R. Song^{}, K. W. Purser; R. E. Musser and C. D. Hagen, NUTRIQUEST, Mason City, IA*
- 357 **The effect of increasing dietary betaine concentration on starter pig performance.**
P. Wilcock^{}, C. L. Walk, C. L. Bradley and T. Santos, AB Vista Feed Ingredients, Marlborough, United Kingdom*
- 358 **Effects of reducing the particle size of corn on growth performance of weanling pigs.**
O. J. Rojas^{} and H. H. Stein, University of Illinois at Urbana-Champaign, Urbana*
- 359 **Effect of dietary inclusion of a beta-mannanase enzyme on growth performance of nursery pigs.**
*C. L. Puls^{*1}, L. E. Ochoa¹, M. Ellis¹, J. E. Swan², J. D. Muegge² and P. D. Matzat³, ¹University of Illinois, Urbana, ²Blue River Research Service, Carthage, IN, ³Elanco Animal Health, Greenfield, IN*
- 360 **Influence of protein sources on nursery pig performance.**
*K. Moran^{*1}, E. van Heugten¹, D. Funderburke² and C. Funderburke², ¹North Carolina State University, Raleigh, ²Cape Fear Consulting, LLC, Warsaw, NC*

RUMINANT NUTRITION

- 373 **Timing of feeding orchestrates periprandial rhythms of circulating glucose in dairy cows.**
A. Nikkhah^{}, University of Zanjan, Zanjan, Iran*
- 374 **Peripheral lactate circadian rhythmicity in dairy cows fed in evening vs. morning.**
A. Nikkhah^{}, University of Zanjan, Zanjan, Iran*
- 375 (UGS) **Effects of Corn Silage Diets on Intestinal Morphology in Dairy Calves.**
T. J. Pogreba^{} and S. I. Kehoe, University of Wisconsin-River Falls, River Falls*

- 376 **Seasonal Variation in Vitamin D Status of Beef Cattle Reared in the Midwest and Fed to NRC Recommendations.**
*E. Casas*¹, T. A. Reinhardt¹, J. D. Lippolis¹ and L. A. Kuehn², ¹USDA, ARS, National Animal Disease Center, Ames, IA, ²USDA-ARS, Clay Center, NE*
- 377 **Conjugated linoleic acid in lamb meat as influenced by quebracho tannin and/or sunflower oil.**
S. N. Al-Dobaib, M. A. Shehab-El-Deen and H. M. Kamel, Qassim University, Buraidah, Saudi Arabia*
- 378 (GS-MS) **Effects of maternal nutrient restriction and rumen-protected arginine supplementation of ewes on carotid artery hemodynamics during gestation and lamb birth weights.**
*J. L. Peine*¹, K. R. Wellnitz¹, G. Q. Jia¹, A. M. Meyer², L. P. Reynolds¹ and J. S. Caton¹, ¹North Dakota State University, Fargo, ²Division of Animal Sciences, University of Missouri, Columbia*
- 379 **Impact of diet and arginine supplementation on pancreatic mass and digestive enzyme activity in non-pregnant ewes.**
F. E. Doscher, C. Bass, A. Grazul-Bilska, S. Kaminski, D. A. Redmer, J. Kirsch and K. C. Swanson, North Dakota State University, Fargo*
- 380 **Influence of feed restriction and feeding time to growing calves on growth performance and feeding behavior.**
L. Prezotto, T. C. Gilbery, A. Islas, M. L. Bauer and K. C. Swanson, North Dakota State University, Fargo*
- 381 (UGS) **Performance by Katahdin Ewes Supplemented With Different Levels of Raw Whole Soybeans While Grazing Stockpiled Tall Fescue - One Year Summary.**
K. A. Vandeloecht, J. D. Caldwell, B. C. Shanks and A. L. Bax, Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO*
- 382 **Effects of reduced fat distillers grains with solubles and condensed distillers solubles on beef steer performance and carcass characteristics.**
*P. M. Walker*¹, R. L. Atkinson², B. R. Wiegand³, L. A. Forster⁴, M. Faulkner¹ and J. L. Veracini¹, ¹Illinois State University, Normal, ²Southern Illinois University - Carbondale, Carbondale, ³University of Missouri, Columbia, ⁴ADM, Decatur, IL*
- 383 (UGS) **Effects of Dietary Glycerin on Rumen Metabolism of Beef Cattle Fed 50% Dried Distillers Grains with Solubles.**
C. J. Long and T. L. Felix, University of Illinois at Urbana-Champaign, Urbana*
- 384 **Effects of Diet on Intake and Methane Emissions of Beef Steers.**
B. E. Lehman, A. R. Green, T. L. Felix, B. C. Ramirez, L. F. Rodriguez and D. W. Shike, University of Illinois at Urbana-Champaign, Urbana*

- 385 (UGS) **Effects of Pyrethroid and Pyrethrin Insecticides on Beef Bull Reproductive Parameters.**
*S. C. Jimenez Poveda**, J. L. Stewart, C. F. Shipley, V. L. Jarrell, E. J. Navis, F. A. Ireland, T. L. Felix and D. W. Shike, *University of Illinois at Urbana-Champaign, Urbana*
- 386 **Effect of diet on microbial community composition, and methane emission in growing beef cattle.**
A. L. Knoell¹, C. L. Anderson¹, A. C. Pesta¹, G. E. Erickson², T. J. Klopfenstein² and S. C. Fernando¹, ¹*University of Nebraska, Lincoln*, ²*University of Nebraska-Lincoln, Lincoln*
- 387 **The effects of Cellulo-Gest supplement on forage digestibility and feedlot performance for growing steer calves.**
*V. L. Anderson^{*1}*, C. L. Engel² and R. A. Dvorak³, ¹*North Dakota State University, Carrington*, ²*Carrington Research Extension Center, North Dakota State University, Carrington*, ³*Old Mill-Troy, Inc., Overland Park, KS*
- 388 (UGS) **Determination of forage quality and in situ digestibility of miscanthus over time.**
*N. F. Reitz**, E. J. Sacks and T. L. Felix, *University of Illinois at Urbana-Champaign, Urbana*
- 389 **The effects of two dietary protein levels and pen bedding in a summer growing and finishing feedlot trial on steer performance, carcass traits, and pen surface temperatures.**
*C. L. Engel^{*1}* and V. L. Anderson², ¹*Carrington Research Extension Center, North Dakota State University, Carrington*, ²*North Dakota State University, Carrington*
- 390 **Protection of cottonseed meal protein from rumen degradation using dextrin to create Maillard-type reactions.**
*N. F. Johnson** and M. Kerley, *University of Missouri, Columbia*
- 391 **Effect of Pelletting on Digestibility of Encapsulated Nutrients Embedded in a Fat Matrix.**
*K. J. Herrick^{*1}*, D. A. Sapienza², F. R. Valdez¹ and K. E. Griswold¹, ¹*Kemin Industries, Inc., Des Moines, IA*, ²*Sapienza Analytica, LLC, Slater, IA*
- 392 **Use of treated corn residues in growing diets.**
*S. J. Peterson^{*1}*, B. L. Nuttelman², D. B. Burken², J. C. MacDonald² and G. E. Erickson², ¹*University of Nebraska, Lincoln*, ²*University of Nebraska-Lincoln, Lincoln*
- 393 **Performance Comparisons of Finishing Systems for Yearling Heifers.**
*J. M. Mracek^{*1}*, J. M. Warner¹, B. R. Wetovick¹, D. E. Bauer², T. T. Marston³, J. C. MacDonald⁴ and R. J. Rasby¹, ¹*University of Nebraska, Lincoln*, ²*University of Nebraska, Ainsworth*, ³*University of Nebraska, Norfolk*, ⁴*University of Nebraska-Lincoln, Lincoln*

- 394 **Effects of plane of nutrition and arginine supplementation on kidney and liver mass.**
C. H. Pereira^{1,2}, C. Bass², A. Grazul-Bilska³, S. L. Kaminski³, F. E. Doscher³, D. A. Redmer³, J. Kirsch³ and K. C. Swanson³, ¹Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, ²North Dakota State University, Fargo, ³North Dakota State University, Fargo*
- 395 **Effect of StoverCal, corn silage, and corn stover in diets containing 60% distillers grains on performance and carcass characteristics of feedlot steers.**
J. P. Schoonmaker, M. C. Claeys and R. P. Lemenager, Purdue University, West Lafayette, IN*
- 396 **Effect of zinc and copper source on finishing steer feedlot performance and incidence of footrot.**
*F. H. Hilscher*¹, G. E. Erickson¹, S. B. Laudert², D. J. Jordon³, B. D. Dicke³, R. J. Cooper³ and T. L. Scott³, ¹University of Nebraska-Lincoln, Lincoln, ²Micronutrients, Indianapolis, IN, ³Cattlemen's Nutrition Services, LLC, Lincoln*
- 397 **Effect of supplementing gestating and lactating beef cows with supranutritional concentrations of vitamin D on feedlot performance and carcass characteristics of the progeny.**
*J. P. Schoonmaker*¹, M. A. Engstrom² and R. P. Lemenager¹, ¹Purdue University, West Lafayette, IN, ²DSM, Eden Prairie, MN*
- 398 **Influence of forage source on growth performance and feeding behavior in finishing steers.**
Z. E. Carlson, T. C. Gilbery, A. Islas, M. L. Bauer and K. C. Swanson, North Dakota State University, Fargo*
- 399 **Pre- and post weaning performance and health of calves fed texturized calf starters with different additives during the nursery phase.**
*H. Chester-Jones*¹, B. Ziegler², D. Schimek² and D. Ziegler¹, ¹University of Minnesota Southern Research and Outreach Center, Waseca, ²Hubbard Feeds Inc., Mankato, MN*
- 400 (UGS) **The Effects of Fenceline Weaning With or Without the Presence of Companion Goats on Performance and Behavior Measurements of Fall-Born Calves.**
*E. G. Goose*¹, J. D. Caldwell¹, B. C. Shanks¹, C. A. Clifford-Rathert¹, E. A. Backes², C. L. Boeckmann¹ and C. A. DeOrnellis¹, ¹Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, ²University of Arkansas, Fayetteville*
- 401 **Innovative probiotic and prebiotic combination for early-lactation multiparous cows improves production and starch digestibility.**
W. L. Braman and J. E. Kurtz, Chr. Hansen Animal Health and Nutrition, Milwaukee, WI*

- 402 (GS-MS) **Effects of postruminal amino acid supply on growth performance and feed cost of beef steers.**
*M. M. Masiero**, *M. S. Kerley* and *W. J. Sexten*, *University of Missouri, Columbia*
- 403 **Serum amino acid concentrations in high and low efficiency finishing steers.**
*Z. T. L. Gray*¹, *H. C. Cunningham*¹, *K. W. Christensen*¹, *S. I. Paisley*¹, *W. J. Means*¹ and *A. M. Meyer*², ¹*Department of Animal Science, University of Wyoming, Laramie*, ²*Division of Animal Sciences, University of Missouri, Columbia*

Wednesday, March 19, 2014
SYMPOSIA AND ORAL PRESENTATIONS

BREEDING AND GENETICS II

Chair: Catherine W. Ernst, Michigan State University
306-307

9:00 AM	24	<p>Validation of the Effects of a SNP on SSC4 Associated with Viral Load and Weight Gain in Piglets Experimentally Infected with PRRS virus. <i>A. Hess</i>^{*1}, <i>N. Boddicker</i>², <i>R. R. Rowland</i>³, <i>J. K. Lunney</i>⁴ and <i>J. C. M. Dekkers</i>¹, ¹<i>Iowa State University, Ames</i>, ²<i>Genesis, Oakville, MB, Canada</i>, ³<i>Kansas State University, Manhattan</i>, ⁴<i>USDA, ARS, BARC, APDL, Beltsville, MD</i></p>
9:15 AM	25	<p>Identification of Genomic Regions Associated With Sow Lactation Performance in Yorkshire Pigs. <i>D. M. Thekkoot</i>^{*1}, <i>R. A. Kemp</i>², <i>M. F. Rothschild</i>¹, <i>G. Plastow</i>³ and <i>J. C. M. Dekkers</i>¹, ¹<i>Iowa State University, Ames</i>, ²<i>Genesis Inc, Oakville, MB, Canada</i>, ³<i>University of Alberta, Edmonton, AB, Canada</i></p>
9:30 AM	26	<p>Meta-analysis genome-wide association of pork quality traits: ultimate pH and shear force. <i>Y. L. Bernal Rubio</i>^{*1,2}, <i>J. L. Gualdrón Duarte</i>², <i>R. O. Bates</i>¹, <i>C. W. Ernst</i>¹, <i>D. Nonneman</i>³, <i>G. A. Rohrer</i>⁴, <i>A. King</i>³, <i>S. D. Shackelford</i>³, <i>T. L. Wheeler</i>³, <i>R. J. C. Cantel</i>² and <i>J. P. Steibel</i>¹, ¹<i>Michigan State University, East Lansing</i>, ²<i>Department of Animal Science, University of Buenos Aires, Buenos Aires, Argentina</i>, ³<i>USDA/ARS, Clay Center, NE</i>, ⁴<i>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE</i></p>

9:45 AM	27	<p>AVPR1A alleles are pleiotropic sources of variation in age at puberty and reproductive longevity in sows. <i>M. D. Trenhaile¹, K. L. Lucot¹, J. K. Tart¹, J. W. Bundy¹, J. F. Thorson², E. M. Keuter¹, J. R. Wood¹, M. F. Rothschild³, G. A. Rohrer², P. S. Miller¹, M. L. Spangler⁴, C. A. Lents², R. K. Johnson⁴, S. D. Kachman⁴ and D. C. Ciobanu¹, ¹University of Nebraska, Lincoln, ²USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, ³Iowa State University, Ames, ⁴University of Nebraska-Lincoln, Lincoln</i></p>
10:00 AM	28	<p>Variation in host genetics influences PCVAD susceptibility. <i>T. B. Engle^{*1}, E. E. Jobman¹, T. W. Moural¹, A. M. McKnite¹, S. Y. Barnes¹, E. H. Davis¹, J. W. Bundy², T. P. Johnson¹, J. K. Qiu¹, J. A. Galeota¹, S. P. Harris¹, M. F. Rothschild³, R. K. Johnson¹, G. S. Plastow⁴, S. D. Kachman¹ and D. C. Ciobanu², ¹University of Nebraska-Lincoln, Lincoln, ²University of Nebraska, Lincoln, ³Iowa State University, Ames, ⁴University of Alberta, Edmonton, AB, Canada</i></p>
10:15 AM		Break
10:30 AM	29	<p>Genomic prediction of age at puberty in sows using Bayesian methods. <i>K. L. Lucot[*], M. L. Spangler, S. D. Kachman and D. C. Ciobanu, University of Nebraska, Lincoln</i></p>
10:45 AM	30	<p>Variance component estimates for alternative litter size and piglet mortality traits. <i>A. M. Putz^{*1}, K. A. Gray² and M. Knauer¹, ¹North Carolina State University, Raleigh, ²Smithfield Premium Genetics, Rose Hill, NC</i></p>
11:00 AM	31	<p>Divergent selection for age at puberty impacts sow reproduction. <i>C. L. Ferring[*] and M. Knauer, North Carolina State University, Raleigh</i></p>
11:15 AM	32	<p>Estimates of variance components for swine litter quality traits. <i>E. B. Cook^{*1}, M. T. See¹, K. A. Gray² and M. Knauer¹, ¹North Carolina State University, Raleigh, ²Smithfield Premium Genetics, Rose Hill, NC</i></p>
11:30 AM	33	<p>Genetic Relationships and Inbreeding Coefficients of Swine Breeds. <i>K. Roberts[*] and W. R. Lamberson, University of Missouri, Columbia</i></p>

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND MEAT SCIENCE: METABOLISM IN MUSCLE IN RESPONSE TO SELECTION FOR IMPROVED GROWTH, USE OF GROWTH PROMOTING AGENTS, AND IN THE CASE OF INFECTION

Chair: Bryon Wiegand, Missouri State University
316/317

9:00 AM	Introduction <i>B. R. Wiegand, University of Missouri, Columbia.</i>
9:10 AM	(Invited) Muscle Metabolism in Response to Selection for Improved Growth <i>D. E. Gerrard, Virginia Tech, Blacksburg.</i>
9:40 AM	(Invited) Muscle Metabolism in Response to the Use of Growth Promoting Agents <i>A. C. Dilger, University of Illinois, Urbana-Champaign.</i>
10:10 AM	(Invited) Muscle Metabolism in Response to Infection <i>A. Rakhshandeh, Texas Tech University, Lubbock.</i>

**HARLAN RITCHIE BEEF SYMPOSIUM:
TODAY'S AND TOMORROW'S BEEF INDUSTRY**
Chair: Maynard Hogberg, Iowa State University
Sponsor: Harlan Ritchie Appreciation Club, ASAS Foundation
304-305

9:00 AM	Introduction <i>M. Hogberg, Iowa State University</i>
9:10 AM	(Invited) Today's and Tomorrow's Application of DNA Genomics <i>K. Andersen, Zoetis Animal Genetics</i>
9:55 AM	(Invited) Tomorrow's Feedlot Industry <i>T. Brink, formerly of JBS Five Rivers Cattle Feeding</i>
10:40 AM	(Invited) Future Applications of Reproductive Technologies in the Beef Industry <i>G. Seidel, Colorado State University</i>
11:25 AM	(Invited) Current State of Distillers Utilization <i>G. Erickson, University of Nebraska-Lincoln</i>

NONRUMINANT NUTRITION: CO-PRODUCTS

Chairs: Ferdinando N. Almeida, University of Illinois
and Nicholas W. Shelton, Kansas State University

312-313

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| 9:00 AM | 171 | <p>Effect of corn ethanol co-products in a liquid feed system on growth performance of wean to finish pigs.
<i>W. G. Meried¹, D. Hansen², P. Ren¹, H. Manu¹, D. P. Pangen³, X. Yang³ and S. Baidoo³, ¹University of Minnesota Southern Research and Outreach Center, Waseca, ²Big Dutchman, Inc, Holland, MI, ³Southern Research and Outreach Center, University of Minnesota, Waseca</i></p> |
| 9:15 AM | 172 | <p>(Invited ASAS Animal Science Young Scholar) Feeding dried distiller grains with solubles (DDGS) to immunologically castrated pigs.
<i>E. K. Harris¹, C. Calhoun², M. A. Mellencamp², R. Cox¹, L. J. Johnston³ and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²Zoetis, Inc, Florham Park, NJ, ³University of Minnesota, West Central Research and Outreach Center, Morris</i></p> |
| 9:45 AM | 173 | <p>Identifying dietary fiber components that best predict nutrient digestibility and energy content in 9 corn co-products fed to growing pigs.
<i>N. A. Gutierrez¹, N. V. L. Serão¹, B. J. Kerr², R. T. Zijlstra³ and J. F. Patience¹, ¹Iowa State University, Ames, ²USDA - ARS, Ames, IA, ³University of Alberta, Edmonton, AB, Canada</i></p> |
| 10:00 AM | 174 | <p>Digestible Energy, ME, and DM and CP Digestibility Values of Dried Distillers Grains with Solubles (DDGS) Estimated from Corn-soybean Meal or Barley-canola Meal Basal Diets and Using Different Collection Methods.
<i>Y. S. Li¹, G. A. Mastromano¹, H. Tran¹, J. W. Bundy¹, T. E. Burkey¹, B. J. Kerr², M. K. Nielsen¹ and P. S. Miller¹, ¹University of Nebraska, Lincoln, ²USDA - ARS, Ames, IA</i></p> |
| 10:15 AM | 175 | <p>Evaluation of different corn oil sources on nursery pig growth performance.
<i>K. E. Jordan[*], M. A. Goncalves, M. D. Tokach, R. D. Goodband, S. S. Dritz, J. M. DeRouchev and J. C. Woodworth, Kansas State University, Manhattan</i></p> |
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10:30 AM	176	<p>Digestibility of energy and nitrogen retention of diets with increasing proportions of co-product ingredients and formulated using the NE system.</p> <p><i>J. A. Acosta Camargo¹, R. D. Boyd² and J. F. Patience¹, ¹Iowa State University, Ames, ²The Hanor Company, Inc., Franklin, KY</i></p>
10:45 AM		Break
11:00 AM	177	<p>Effects of condensed distillers solubles to wet distillers grains ratio on the growth performance and carcass characteristics of growing-finishing pigs.</p> <p><i>S. Baidoo, X. Yang*, J. Jendza and D. Hansen, Southern Research and Outreach Center, University of Minnesota, Waseca</i></p>
11:15 AM	178	<p>Effects of potato chip co-product on starter pig growth.</p> <p><i>D. Chamberlin*, N. Martinec, A. Rogers, E. L. Karcher, D. W. Rozeboom, S. N. Woodruff, C. Ylioja, C. V. Vanderson, E. First, K. M. Trottier, A. L. Meyers, B. C. Oglesby, J. M. Lubbers, A. J. Anderson and N. L. Trottier, Michigan State University, East Lansing</i></p>
11:30 AM	179	<p>Effect of feeding increasing inclusion of extruded-pressed Brassica juncea canola meal on growth performance and diet nutrient digestibility in weaned pigs.</p> <p><i>A. M. H. Le¹, J. L. Landero¹, E. Beltranena^{1,2} and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ²Alberta Agriculture and Rural Development, Edmonton, AB, Canada</i></p>
11:45 AM	180	<p>Swine energy value of corn germ meal and hominy feed increased in the presence of liquid ingredient corn steep liquor.</p> <p><i>V. G. Perez*, T. R. Radke and D. P. Holzgraefe, ADM Alliance Nutrition Inc., Quincy, IL</i></p>
12:00 PM	181	<p>Diet nutrient digestibility and growth performance of weaned pigs fed field pea.</p> <p><i>J. L. Landero¹, E. Beltranena^{1,2} and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ²Alberta Agriculture and Rural Development, Edmonton, AB, Canada</i></p>
12:15 PM	182	<p>Evaluation of in vitro dry matter digestibility (IVDMD) of high fiber feed ingredients for monogastrics.</p> <p><i>Z. Huang*, I. J. Salfer, P. E. Urriola, M. D. Stern and G. C. Shurson, University of Minnesota, Saint Paul</i></p>

NONRUMINANT NUTRITION: MINERALS AND VITAMINS

Chair: Brian T. Richert, Purdue University

Sponsor: Harlan Ritchie Appreciation Club, ASAS Foundation
308-309

9:00 AM	183	<p>Effect of Zinc Amino Acid Complex and Ractopamine on Skeletal Muscle Gene and Protein Expression. <i>Z. J. Rambo^{*1,2}, M. Ferreira^{3,4}, B. T. Richert², J. Waddell², M. E. Wilson¹ and J. L. Torrison¹, ¹Zinpro Corporation, Eden Prairie, MN, ²Purdue University, West Lafayette, IN, ³Federal University of Lavras, Department of Veterinary Medicine, Lavras, Brazil, ⁴CAPES Foundation, Brasilia, Brazil</i></p>
9:15 AM	184	<p>(Invited ASAS Animal Science Young Scholar) Effects of Added Zn in Diets with Ractopamine HCl on Growth Performance, Carcass Characteristics, Zn Concentrations in Plasma, Loin, and Liver, and Ileal Mucosal Inflammation mRNA Expression of Finishing Pigs. <i>C. B. Paulk^{*1}, M. D. Tokach¹, J. L. Nelssen¹, J. M. Gonzalez¹, J. M. DeRouchey¹, R. D. Goodband¹, S. S. Dritz¹, G. M. Hill² and K. D. Haydon³, ¹Kansas State University, Manhattan, ²Michigan State University, East Lansing, ³Elanco Animal Health, Greenfield, IN</i></p>
9:45 AM	185	<p>The effects of copper source (tribasic copper chloride or copper sulfate) on growth performance, carcass characteristics, and pen cleanliness in finishing pigs. <i>K. F. Coble^{*1}, S. S. Dritz¹, M. D. Tokach¹, J. M. DeRouchey¹, J. L. Usry² and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Micronutrients, Social Circle, GA</i></p>
10:00 AM	186	<p>Multi-trial analysis of the effects of copper level and source on performance in nursery pigs. <i>Y. Ma[*], G. I. Zanton, J. Zhao, J. Escobar and M. Vazquez-Anon, Novus International Inc., St. Charles, MO</i></p>
10:15 AM	187	<p>Effects of cation-anion balance in diets for newly weaned nursery pigs. <i>I. Park[*] and S. W. Kim, North Carolina State University, Raleigh</i></p>
10:30 AM	188	<p>Effect of reduced dietary level of available phosphorus on performance and bone parameters in growing pigs. <i>B. B. Pokharel^{*1}, C. M. Nyachoti¹ and W. K. Kim², ¹Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, ²Department of Poultry Science, University of Georgia, Athens</i></p>

10:45 AM	189	<p>The effects of dietary supplementation with a stabilized form of vitamin C (Rovimix® Stay-C® 35) on the growth performance and concentrations of plasma ascorbate and serum vitamin D3 metabolites of nursery pigs. <i>J. R. Bergstrom¹ and M. S. Edmonds², ¹DSM Nutritional Products, North America, Marshall, MO, ²Kent Nutrition Group Inc, Muscatine, IA</i></p>
11:00 AM	190	<p>Effect of phosphorus and calcium depletion and repletion sequences on growth performance, bone mineralization and endogenous phosphorus losses in pigs. <i>E. Gonzalo¹, M. P. Létourneau Montminy², A. Narcy³, J. F. Bernier² and C. Pomar¹, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Université Laval, Québec, QC, Canada, ³INRA, Tours, France</i></p>
11:15 AM	191	<p>Effects of increasing the dietary level of vitamin E, without and with a low inclusion level of aspirin, on systemic responses of weaned pigs challenged with haemolytic <i>E. coli</i>. <i>J. C. Kim¹, B. Mullan¹ and J. Pluske², ¹Department of Agriculture and Food, Western Australia, Australia, ²Murdoch University, Western Australia, Australia</i></p>

PHYSIOLOGY

Chair: Rodney D. Geisert, University of Missouri - Columbia
 314-315

9:00 AM	198	<p>(Invited ASAS Animal Science Young Scholar) Impacts of beef cow nutrition on conceptus development. <i>L. E. Camacho¹, C. O. Lemley², K. C. Swanson¹ and K. A. Vonnahme¹, ¹North Dakota State University, Fargo, ²Mississippi State University, Mississippi State</i></p>
9:30 AM	199	<p>Physiological response of beef heifers after receiving a reused CIDR processed with different heat-treating methods. <i>C. R. Dahlen¹, S. I. Klein¹, G. C. Lamb², V. R. G. Mercadante³ and P. L. Steichen¹, ¹North Dakota State University, Fargo, ²University of Florida, Marianna, ³University of Florida - NFREC, Gainesville</i></p>

9:45 AM	200	<p>Global Changes in Uterine Protein Secretion Are Associated With Differences in the Number of Antral Follicles in Heifers.</p> <p><i>J. L. Vallet^{*1}, R. A. Cushman¹, A. K. McNeel¹, E. C. Wright¹, E. Larimore², J. R. Miles³, C. C. Chase¹, C. A. Lents¹, J. R. Wood⁴, A. S. Cupp⁵ and G. A. Perry², ¹USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, ²South Dakota State University, Brookings, ³USDA, ARS, US MARC, Clay Center, NE, ⁴University of Nebraska, Lincoln, ⁵University of Nebraska - Lincoln</i></p>
10:00 AM	201	<p>Dietary bacitracin (Albac[®] and BMD[®]) improves ADG and FE in pigs in routine production environments (subjected to mixing and crowding stress).</p> <p><i>A. J. Moeser^{*1}, L. L. Edwards¹ and D. A. Nelson², ¹North Carolina State University, Raleigh, ²Zoetis, Howard Lake, MN</i></p>
10:15 AM	202	<p>(Invited ASAS Animal Science Young Scholar) Combined effect of sow deep intrauterine insemination and boar frozen semen on economic indicators.</p> <p><i>D. Gonzalez-Peña Fundora^{*1}, R. V. Knox², J. Pettigrew² and S. L. Rodriguez Zas¹, ¹University of Illinois at Urbana-Champaign, Urbana, ²University of Illinois, Urbana</i></p>
10:45 AM	203	<p>Single fixed-time insemination following OvuGel[®] administration in postpartum sows.</p> <p><i>D. K. Bishop^{*1}, M. E. Johnston², S. G. Buysse², M. E. Swanson² and S. K. Weibel³, ¹Pike Pig Systems, Pittsfield, IL, ²JBS United, Inc., Sheridan, IN, ³JBS United, Baylis, IL</i></p>
11:00 AM	204	<p>Use of PG-600[™] and OvuGel[™] in summer weaned first parity sows.</p> <p><i>B. L. Allen[*], M. R. Ellersieck and T. J. Safranski, University of Missouri, Columbia</i></p>

RUMINANT NUTRITION SYMPOSIUM: AMINO ACIDS

Chair: Phil Cardoso, University of Illinois at Urbana-Champaign

Sponsor: Vetagro, Inc.

302-303

9:00 AM		Introductory Remarks
9:05 AM	225	<p>(Invited) Rumen protected amino acids for dairy cows: past, present and future.</p> <p><i>C. G. Schwab[*], Schwab Consulting, LLC, Boscobel, WI</i></p>

9:50 AM	226	<p>(Invited) Varied effects of multifunctional amino acids on reproduction in lactating dairy cows. <i>M. C. Wiltbank¹, M. Z. Toledo¹, P. D. Carvalho¹, A. H. Souza², F. Peñagaricano¹, G. M. Baez¹, R. V. Barletta¹, H. Khatib¹, D. Luchini³ and R. D. Shaver¹, ¹University of Wisconsin - Madison, Madison, ²University of California, Agriculture and Natural Resources, Tulare, ³Adisseo, Naperville, IL</i></p>
10:35 AM	227	<p>(Invited) Rumen protected methionine and the genome: Nutrigenomics and beyond. <i>J. J. Loor[*], University of Illinois, Urbana</i></p>

**MIDWESTERN SECTION ASAS POST-MEETING SYMPOSIUM:
 EVALUATING, OPTIMIZING AND UTILIZING TECHNOLOGIES
 TO IMPROVE PIG PERFORMANCE**

Chair: Marnie Mellencamp, Zoetis

Sponsor: Zoetis

Grand Ballroom

11:30 AM		<p>Introduction and presentation of gift to World Food Prize Foundation <i>Gloria Basse, Vice President US Pork Business, Zoetis</i></p>
11:45 PM		<p>Lunch and Keynote speaker (Invited) Importance and Value of Technology Across the Globe <i>Kenneth M. Quinn, Former Ambassador to Cambodia; current President of World Food Prize Foundation</i></p>
12:15 PM		<p>(Invited) A View of Technology from the Pig <i>Adam Moeser, Associate Professor of Gastrointestinal Biology and Swine Medicine, NCSU</i></p>
12:45 PM		<p>(Invited) A View of Technology from the Producer <i>Beau Peterson, Director R&D, The Maschhoff's</i></p>
1:15 PM		<p>(Invited) What Did the FDA Say About Antibiotics in Food Animals? <i>Jim Pettigrew, Professor Emeritus, University of Illinois</i></p>
1:30 PM		<p>(Invited) A View of Technology from the Packer <i>Roger Johnson, Farmland Foods, Inc.</i></p>
2:00 PM		<p>(Invited) A View of Technology from the Retailer <i>David Weaber, Delhaize America</i></p>
2:30 PM		<p>(Invited) A View of Technology from the Economist <i>Brian Buhr, Professor and Interim Dean of the College of Food, Agricultural and Natural Resource Sciences, University of Minnesota</i></p>
3:00 PM		<p>(Invited) A View of Technology from 30,000 ft <i>Ron Prestage, Prestage Farms and Incoming President of NPPC</i></p>

MIDWEST SECTION ADSA/ASAS

Committee Assignment

PROGRAM COMMITTEES

Animal Behavior, Housing and Well Being

J. M. Siegford, Chair
B. R. Wiegand
Y. Li
J. L. Salak-Johnson

Breeding and Genetics

M. G. Gonda, Chair
C.W. Ernst
J. M. Rumph

Extension - Beef/Small Ruminant

N. A. Pyatt, Chair
J. W. Waggoner
A. E. Radunz

Extension - Dairy

J. A. Salfer, Chair
N. B. Litherland
K. F. Kalscheur
M. M. Schutz

Extension - Equine

R. C. Bott, Chair
K. L. Martinson
P. Miller

Extension - Swine

D. J. Newman, Chair
K. J. Stalder
B. T. Richert
G. M. Hill

Growth, Development, Muscle Biology, and Meat Science

S. N. Carr, Chair
D. Boler
D. Hamilton
R. Hinson
F. McKeith
J. Rickard

Graduate Student Program Committee

W. J. Powers
C. Pilcher
K. McClellan
L. Prezotto
A. E. Radunz
B. R. Wiegand

Nonruminant Nutrition

Z. Rambo, Chair
J. W. Frank
R. N. Dilger

Odor and Nutrient Management

E. van Heugten, Chair

Ruminant Nutrition

S. L. Hansen, Chair
J. P. Schoonmaker
P. Cardoso

Teaching and Undergraduate Education

J. M. Siegford, Chair

Physiology

L. A. Rempel, Chair
R. D. Geisert
L. H. Baumgard

SPECIAL COMMITTEES

ADSA Nominations

D. P. Casper
K. K. Kalscheur
L. H. Baumgard

ASAS Nominations

B. R. Wiegand
N.R. Merchen
J. Patience

Academic Quadrathlon

P. M. Walker
C. T. Jobsis
T. E. Burkey
M. E. Wilson
S. I. Kehoe
B. D. Banks
A. Cobb
A. J. Seykora
K. E. Fike
G. W. Onan
S. L. Hansen
K. Carlin
M. E. Persia
J. N. Tembei
B. D. Whitaker
A. Woodward
T. J. Safranski
P. S. Kuber

Public Policy

H. Chester-Jones

COMPETITIVE RESEARCH PAPER COMMITTEES

ASAS Midwestern Section Graduate Student Paper Competition

M. E. Wilson
K. A. Vonnahme

ASAS Midwestern Section Undergrad Student Paper Competition

P. M. Walker

AWARD COMMITTEES

Ad Hoc Awards

J. Patience
J. S. Radcliffe
L. Baumgard
K. Klascheur
M. Brouk

Agribusiness

D. H. Kleinschmit
J. D. Spencer
W. J. Powers
A. M. Gaines

Innovation in Dairy Research Award

M. Brouk
D. R. Mertens
S. M. Fredin
D. J. Schingoethe
D. E. Graugnard

Extension

A. Wertz-Lutz
C. L. Wright
A. D. Garcia
G. A. Perry
P. C. Hoffman
D. J. Illg

National Pork Board Award Swine Innovation

D. Illg
C. Hostetler
H. H. Stein
J. E. Pettigrew
M. E. Wilson
A. L. Currie

Research

T. Nennich
M. B. Hall
J. DeRouchey
S. S. Donkin
N. R. Merchen
B. R. Wiegand

Tim. S. Stahly Award

D. Carlson
P. K. Brown
M. G. Hogberg
R. Hinson
J. R. Bergstrom

Teaching

A. Mathew
K. A. Vonnahme
H. A. Maiga
S. C. Kelm
S. A. Wagner
B. R. Wiegand

PREVIOUS RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vathauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. Nelssen, Kansas State University
1993	A. P. Schinckel, Purdue University
1994	D. A. Funk, University of Wisconsin, Madison
1995	G. C. Shurson, University of Minnesota
1996	R. D. Shaver, University of Wisconsin, Madison
1997	R. D. Goodband, Kansas State University
1998	Not given
1999	M. D. Tokach, Kansas State University
2000	J. F. Smith, Kansas State University
2001	W. O. Herring, University of Missouri
2002	M. J. Brouk, Kansas State University
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
2009	P. S. Kuber, The Ohio State University
2010	C. L. Wright, South Dakota State University
2011	G. A. Perry, South Dakota State University
2012	W. J. Sexten, University of Missouri
2013	R. L. Weaver, 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
2009	G. E. Erickson, University of Nebraska
2010	J. DeRouchey, Kansas State University
2011	K. A. Vonnahme, North Dakota State University
2012	G. A. Perry, South Dakota State University
2013	J. P. Steibel, Michigan 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
2009	B. R. Wiegand, University of Missouri
2010	K. A. Vonnahme, North Dakota State University
2011	S. A. Wagner, North Dakota State University
2012	J. M. Kouba, Kansas State University
2013	J. Minick Bormann, Kansas State University T. A. Strauch, University of Missouri

OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD

1995	P. L. Houghton, Heartland Cattle Co.
1996	J. A. Barmore, Vita Plus Corp.
1997	D. E. Dill, Dairy Strategies
1998	C. M. Luhman, Land O'lakes Research Farm
1999	Not Given
2000	D. L. Hancock, Elanco Animal Health
2001	J. M. Lynch, Heartland Cattle Co.
2002	Not Given
2003	J. M. Campbell, APC, Inc.
2004	D. M. Webel, United Feeds
2005	T. A. Rathje, Danbred North America
2006	T. E. Sauber, Pioneer, A Dupont Company
2007	M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008	J. C. Woodworth, Lonza Inc.
2009	Not given
2010	D. H. Kleinschmit, Agri-King, Inc.
2010	J. Spencer, JBS United Inc.
2011	A. M. Gaines, The Maschhoffs
2012	C. R. Schwab, National Swine Registry
2013	T. Loy, Adams Land and Cattle, Co.

INNOVATION IN DAIRY RESEARCH AWARD

2007	D. B. Carlson, University of Illinois
2008	A. Bettegowda, Michigan State University
2009	R. A. Natikov, Iowa State University
2010	S. Fredin, University of Wisconsin – Madison
2011	D. E. Graugnard, University of Illinois
2012	Not given
2013	J. S. Osorio, University of Illinois

NATIONAL PORK BOARD INNOVATION AWARD

- 2006 M. C. Brumm, University of Nebraska*
N. L. Berry, Iowa State University**
T. V. Serenius, Iowa State University**
- 2007 T. Safranski, University of Missouri*
J. S. Bates, University of Nebraska**
G. Xu, University of Minnesota**
- 2008 S. A. Cutler, Iowa State University**
G. Xu, University of Minnesota**
- 2009 P. V. Anderson, Iowa State University**
N. Boddicker, Iowa State University**
P. J. Lammers, Iowa State University*
- 2010 E. Kiarie, University of Manitoba**
M. E. Johnston, The Hanor Company**
M.T. See, North Carolina State University*
- 2011 Education Not Given
A. E. DeDecker, University of Illinois**
M.-P. L. Montminy, Agriculture and Agri-Food Canada**
- 2012 Y. Liu, University of Illinois, Champaign-Urbana*
- 2013 K. J. Stalder, Iowa State University*
N. J. Boddicker, Iowa State University**
L. J. Johnston, University of Minnesota**

*Education

** Research

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
2009	H. L. Frobose, Kansas State University
2010	S. I. Fry, North Dakota State University
2011	R. L. Wangler, Michigan State University
2012	E. A. Nore, North Dakota State University
2013	B. Abramovitz, University of Missouri

UNDERGRADUATE STUDENTS - POSTER

2009	E. I. Ince, University of Wisconsin
2010	D. P. Strassburg, University of Wisconsin
2011	S. J. Morine, Iowa State University
2012	E. J. Cretney, University of Wisconsin
2013	Z. E. Carlson, North Dakota 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. McDanel, 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**
2009 L. A. Lekatz, North Dakota State University*
D. M. Gorbach, Iowa State University**
2010 H. L. Evans, University of Missouri*
R. C. Sulabo, Kansas State University**

- 2011 J. Bishop, North Carolina State University*
Y. Zhao, North Carolina State University**
- 2012 J. Flohr, Kansas State University*
J. K. Farney, Kansas State University**
- 2013 K. L. Gillespie, University of Nebraska*
D. B. Burken, University of Nebraska**

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**
- 2009 P. Gunn, Purdue University*
C. O. Lemley, West Virginia University**
- 2010 N. S. Schmetz, Purdue University*
L. Senaratne, University of Nebraska**
- 2011 K. E. Boesche, Purdue University*
P. J. Gunn, Purdue University*
- 2012 M. Berg, University of Wisconsin-Madison*
X. J. Li, University of Minnesota**
- 2013 B. M. Bohrer, The Ohio State University*
L. E. Camacho, North Dakota State University**

*M.S. Division

**Ph.D. Division

PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION

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

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. Bettgowda, 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
- 2009 R. A. Nafikov, Iowa State University
- 2010 B. J. Heins, University of Minnesota
C. O. Lemley, West Virginia University
C. D. Mikolayunas, University of Wisconsin
K. Mjoun, South Dakota State University
- 2011 M. J. Aguerre, University of Wisconsin – Madison
N. M. Bello, Kansas State University
G. L. Golombeski, University of Minnesota
D. E. Graugnard, University of Illinois
H. M. White, Indiana University School of Medicine
- 2012 M. Akins, University of Wisconsin
M. Osman, Iowa State University
S. Ranathunga, South Dakota State University
- 2013 R. Cabral, University of New Hampshire
K. Herrick, South Dakota State University
J. Anderson, South Dakota State University
H. Tucker, Purdue University
J. Farney, Kansas State University
D. Koltes, Iowa State University
E. Castillo Lopez, University of Nebraska
J. Osorio, University of Illinois

ASAS ANIMAL SCIENCE YOUNG SCHOLARS

- 2010 J. Atkins, University of Missouri
T. M. Che, University of Illinois
S. Hooda, University of Alberta
J. A. Jendza, Purdue University
J. S. Jennings, South Dakota State University
V. G. Perez, University of Illinois
R. Poletto, Purdue University
- 2011 J. R. Bergstrom, Kansas State University
D. D. Boler, University of Illinois
A. E. DeDecker, University of Illinois
M. R. P. Elmore, University of Illinois
A. M. Meyer, North Dakota State University
B. W. Neville, North Dakota State University
C. E. Phillips, University of Minnesota
P. E. Urriola, Cargill Animal Nutrition
- 2012 R. Leach, USDA-ARS, US Meat Animal Research Center
J. Kelzer, University of Minnesota
R. Manjarin, Michigan State University
M. Song, University of Illinois
Y. Liu, University of Illinois
I. S. Choi, USDA
S. Cervantes-Pahm, University of Illinois
M. Weber, Cargill
- 2013 Y. Shen, North Carolina State University
L. Mack, Purdue University
F. Almeida, University of Illinois
A. Hanson, University of Minnesota
E. Bobeck, Iowa State University
A. Summers, University of Nebraska
D. Brake, Kansas State University
N. Boddicker, Iowa State University

BENTLEY LECTURER'S

- 2013 D. Kelly, University of Aberdeen

**TIM S. STAHLY OUTSTANDING SWINE NUTRITION
MIDWEST GRADUATE STUDENT AWARD**

2009	T. M. Che, University of Illinois
2010	R. Hinson, University of Missouri
2011	J. R. Bergstrom, Kansas State University
2012	Cassandra Jones, Iowa State University
2013	S. Monegue, University of Kentucky

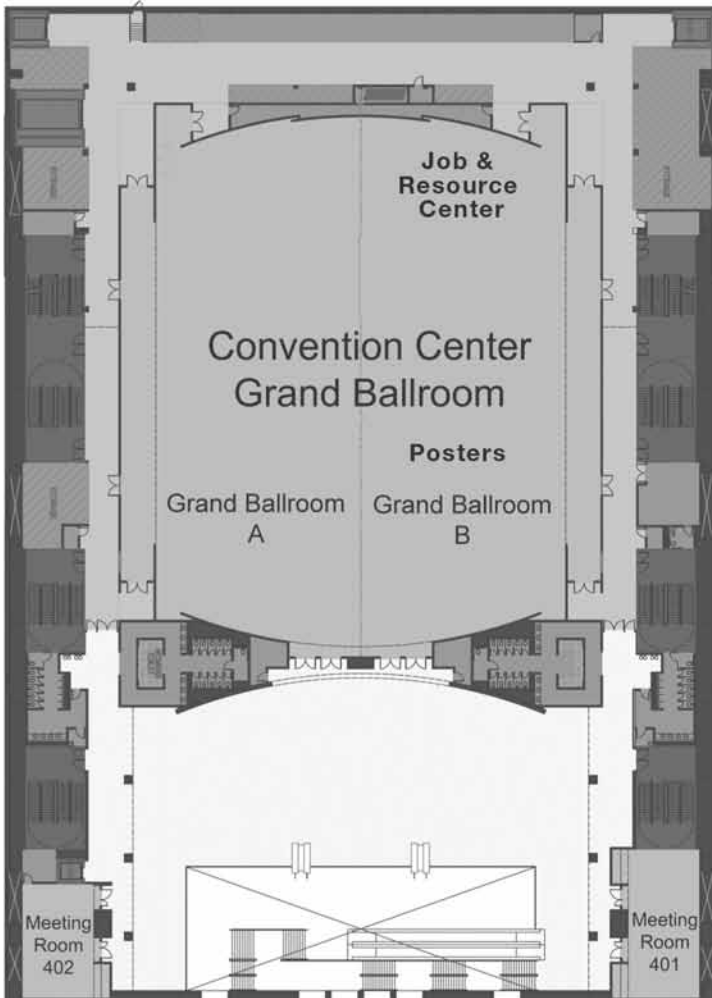
ASAS MIDWESTERN SECTION PRESIDENTS

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
1996	D. L. Meeker, National Pork Producers Council
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
2007	R. L. Moser, JBS United, Inc.
2008	M. K. Nielsen, University of Nebraska
2009	M. E. Spurlock, Iowa State University
2010	T. D. Crenshaw, University of Wisconsin
2011	C.W. Ernst, Michigan State University
2012	J. S. Radcliffe, Purdue University
2013	J. F. Patience, Iowa State University
2014	B. R. Wiegand, University of Missouri

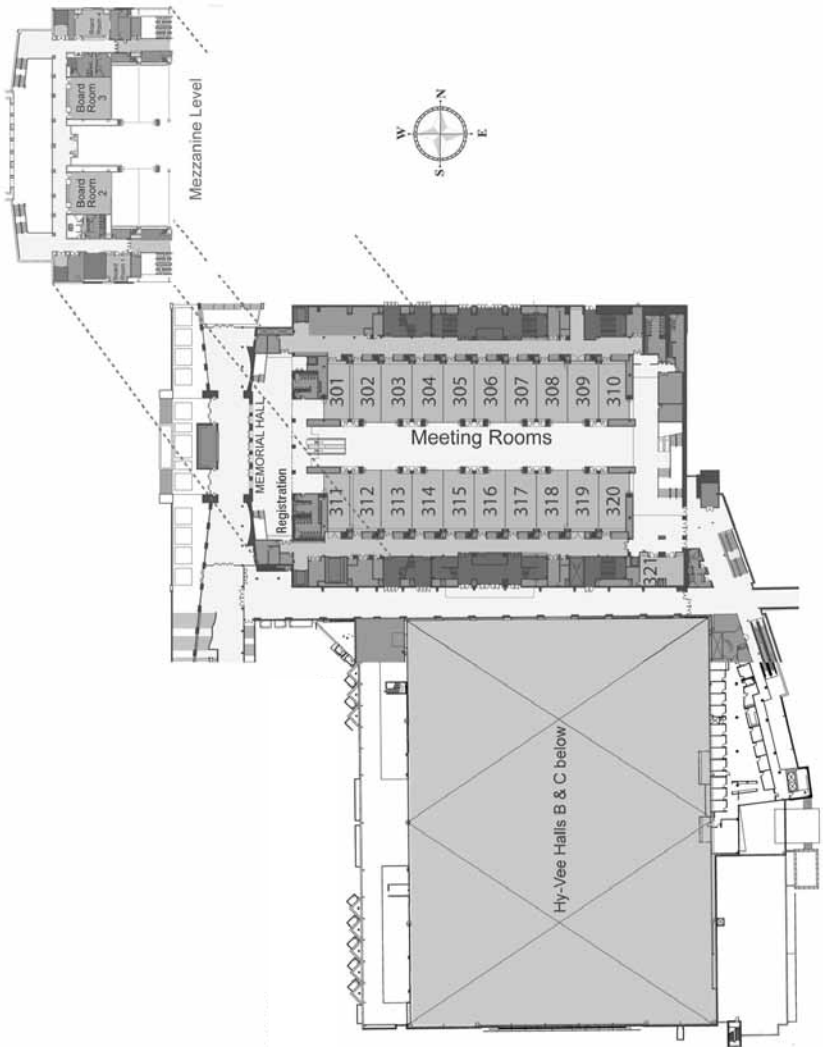
ADSA MIDWEST BRANCH PRESIDENTS

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
2009	C. M. Luhman, Long View Animal Nutrition
2010	H. Chester-Jones, University of Minnesota
2011	D.P. Casper, South Dakota State University
2012	K. F. Kalscheur, South Dakota State University
2013	L. H. Baumgard, Iowa State University
2014	M. J. Brouk, Kansas State University



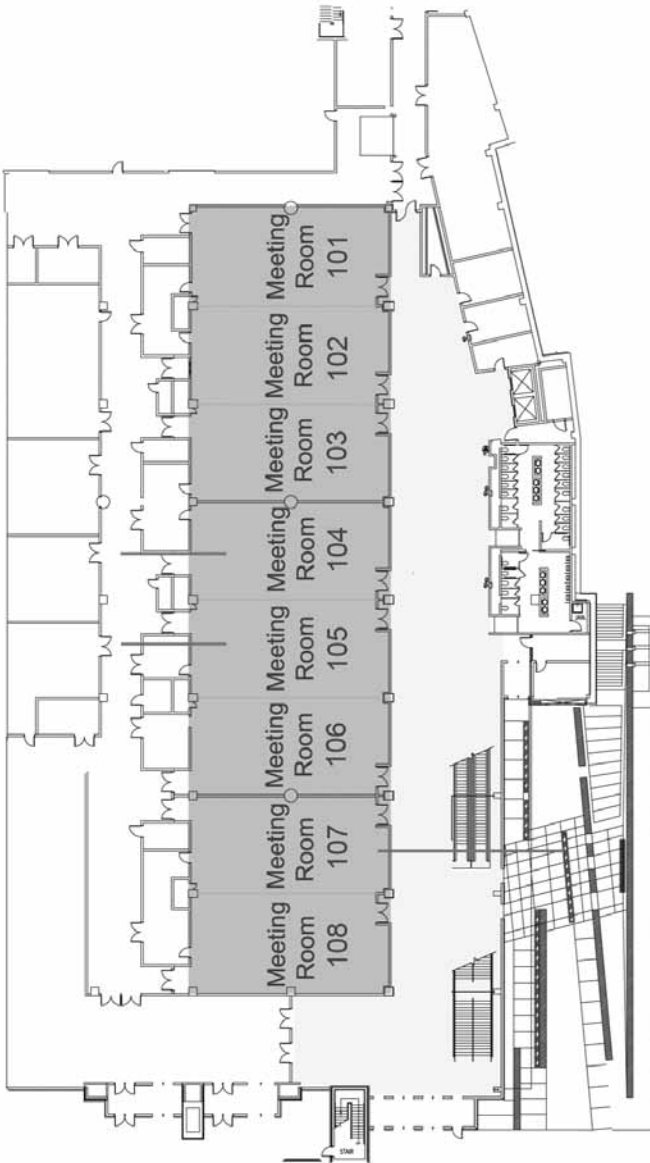
LEVEL 3

Meeting Room Level Community Choice Credit Union Convention Center



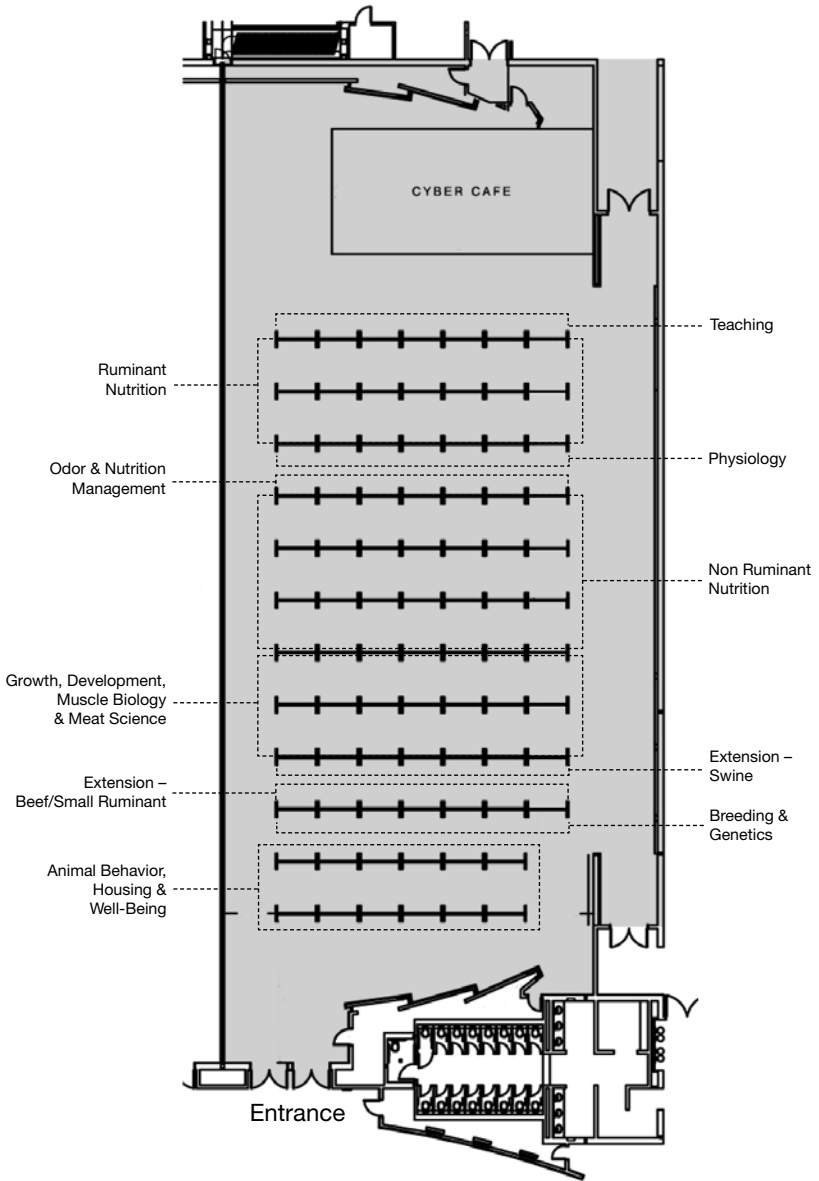
LEVEL 1

Meeting Room Level Hy-Vee Hall



POSTER MAP

Grand Ballroom



NOTES

NOTES



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