

Forty-fifth MEETING

Midwestern Sectional
Scientific Sessions
and
Business Meeting

March 19–21, 2012



Iowa Events Center
Des Moines, Iowa

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TABLE OF CONTENTS

2011–2012 Officers of ASAS and	
ASAS Midwestern Section	Page 1
2011–2012 Officers of ADSA and	
ADSA Midwest Branch	Page 2
Job Resource Center	Page 7
Schedule of Events.....	Page 8
Poster Schedule.....	Page 10
2012 Sponsors.....	Page 12
Oral Presentation Guidelines	Page 13
Scientific Session Program	Page 14
2011–2012 Committees	Page 51
Past Recipients of Awards for	
Young Animal Science Leaders.....	Page 56
Past Winners of Invitational	
Competitive Research Paper Awards	Page 59
Past Midwestern Section Presidents	Page 62
Floor Plans	Page 64

REGISTRATION

Iowa Events Center, Lobby
 Monday, March 19, 7:30 am – 7:30 pm
 Tuesday, March 20, 7:00 am – 4:00 pm
 Wednesday, March 21, 9:00 am – 11:00 am

	Before February 23	After February 23
ADSA/ASAS Member	\$120	\$170
Undergraduate Student	\$20	\$20
Graduate Student Member	\$40	\$60
Postdoctoral Fellow Member	\$50	\$70
ADSA/ASAS Fellow	Free	Free
*Nonmember (ASAS Membership)	\$255	\$305
**Nonmember (ADSA Membership)	\$230	\$280
*Graduate Student Nonmember (ASAS)	\$60	\$80
**Graduate Student Nonmember (ADSA)	\$50	\$70
*Postdoctoral Fellow Nonmember (ASAS)	\$115	\$135
**Postdoctoral Fellow Nonmember (ADSA)	\$105	\$125

***Includes membership dues for ASAS**
****Includes membership dues for ADSA**

Cancellation Policy: To be eligible for a 90% refund of meeting registration fees, requests must be received in writing before February 23, 2012. No refunds will be issued on ticketed events.

IMPORTANT PHONE NUMBERS

Renaissance Savery:..... 515.244.2151
 Embassy Suites: 515.244.1700
 Holiday Inn Downtown:..... 515.283.0151
 Des Moines Marriott (Downtown):..... 515.245.5500

Registration and housing forms can be
 found on the web.
<http://adsa.asas.org/midwest/2012.asp>

e-Career Tool and the Job Resource Center



The ASAS Midwestern Section and ADSA Midwest Branch are pleased to use the E-Career Tool. This tool facilitates communication between employers and potential employees prior to the 2012 ADSA/ASAS Midwest Meeting by making it easier to arrange contact in Des Moines. The tool is available at http://www.asas.org/ecareer/index.asp?id_meeting=13

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

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

Continuing in 2012: The traditional Job Resource Center will be located in the Exhibit Hall (Ballroom) of the Iowa Events 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 companies, universities, and governmental agencies are represented each year at the Midwest Meeting. Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

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

Job descriptions and résumés can be posted at the Job Resource Center in Des Moines beginning at noon on Monday, March 19, 2012.

SCHEDULE OF EVENTS

Monday, March 19

- 7:30 am 2012 Breakfast to kick off Academic Quadrathlon (AQ) Activities, Iowa Events Center, 308–309
- 8:00 am AQ Written Exams, Iowa Events Center
- 8:30 am ADSA-ASAS Midwest Board of Directors, Renaissance Savery Hotel
- 8:30 am Allele Symposium: Science in Practice, 318–319
- 9:00 am AQ Quiz Bowl Preliminary Rounds, Iowa Events Center
- 1:00 pm David H. Baker Symposium, 318–319
- 1:00 pm Graduate Student Competitive Research Papers, MS Oral Division, 312–313
- 1:15 pm Graduate Student Competitive Research Papers, PhD Oral Division, 304–305
- 1:30 pm Undergraduate Student Competitive Research Papers, Oral Division, 316–317
- 4:30 pm Poster Presentations, Iowa Events Center, Grand Ballroom
- 5:30 pm Reception, Iowa Events Center, Grand Ballroom
- 7:00 pm Keynote Speaker: Richard Sellers, American Feed Industry Association, Sponsored by ARPAS, 318–319
- 7:30 pm Final AQ Quiz Bowl Competition and Awards Presentation Iowa Events Center, 318–319
- 9:00 pm Program Committee Reception, Renaissance Savery Hotel

Tuesday, March 20, morning

- 8:00 am Animal Behavior, 402
- 8:00 am Breeding and Genetics, 312–313
- 8:00 am Extension Dairy—Applying Technologies for Precision Dairying, 302–303
- 8:00 am Extension Swine, 304–305
- 8:00 am Nonruminant Nutrition: Sow Nutrition and Management, 318–319
- 8:00 am Physiology, 316–317
- 8:00 am Ruminant Nutrition: By-Products, 314–315
- 8:00 am Ruminant Nutrition: Dairy and Forages, 306–307
- 8:00 am Teaching, 401
- 10:00 am Nonruminant Nutrition: Feed Ingredients and Additives, 318–319
- 10:30 am Nonruminant Nutrition: Growing-Finishing Nutrition and Management, 304–305

- 11:30 am Graduate Student Lunch and Learn
 11:30 am Box Lunch, Iowa Events Center, Grand Ballroom
 A box lunch will be served in the Exhibit Hall for those individuals who ordered and paid for it on the registration form (ticket will be with badge).

Tuesday, March 20, afternoon

- 1:00 pm Equine, 402
 1:00 pm Extension—Beef/Small Ruminant: Tools for Improving Beef Production Systems, 302–303
 1:00 pm Growth, Development, Muscle Biology, and Meat Science, 316–317
 1:00 pm Nonruminant Nutrition: Amino Acids, 314–315
 1:00 pm Nonruminant Nutrition: Grain Co-Products, 318–319
 1:00 pm Physiology Symposium: Physiology of Heat Stress in Production Animals, 304–305
 1:00 pm Ruminant Nutrition: Impacts on Production, 312–313
 1:00 pm David Schingoethe Appreciation Symposium, 306–307
 4:30 pm Poster Presentations, Iowa Events Center, Grand Ballroom
 5:30 pm Reception, Iowa Events Center, Grand Ballroom

Wednesday, March 21, morning

- 6:45 am Breakfast, Business Meeting, and Awards Program, Iowa Events Center, Grand Ballroom
 9:00 am Nonruminant Nutrition: Minerals, 318–319
 9:00 am Nonruminant Nutrition: Nursery Pig and Management, 304–305
 9:00 am Symposium: Nutritional and Non-Nutritional Influences on Pork Quality Attributes, 316–317
 9:00 am Ruminant Nutrition: Beef-Feeding Management, 312–313
 9:00 am Symposium: Teaching/Animal Welfare Symposium: Responding to Animal Welfare Concerns, 402
 12:00 pm ADSA/ASAS Midwest Board of Directors, Renaissance Savery Hotel

Camera, Video Camera, and Cell Phone Policy

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

Poster Schedule

*All posters will be in the Exhibit Hall 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 4:30 pm to 6:00 pm. Posters entered in Graduate and Undergraduate Research Paper Competitions have been incorporated into their appropriate disciplinary sections. Judging of competition posters will take place on Monday afternoon.*

Monday, March 19

All authors present from 4:30 pm to 6:00 pm

Graduate Student Competitive Research Papers, MS
Graduate Student Competitive Research Papers, PhD
Undergraduate Student Competitive Research Papers
Breeding and Genetics
Odor and Nutrient Management
Physiology

Tuesday, March 20

All authors present from 4:30 pm to 6:00 pm

Amino Acids
Extension: Beef/Small Ruminant
Extension: Dairy
Extension: Swine
Growth, Development, Muscle Biology, and Meat Science
Nonruminant Nutrition
Ruminant Nutrition

A SPECIAL THANK YOU

From the American Society of Animal Science Midwestern Section and the American Dairy Science Association Midwest Branch to the following companies for support of the 2012 meeting:

Outstanding Young Scientist Awards

Extension Award – Land O’Lakes Purina Feed LLC
Research Award – DSM Nutritional Products Inc.
Teaching Award – Archer Daniels Midland Company

National Pork Board Swine Innovation (Abstract) Awards

Research – National Pork Board
Research – National Pork Board
Education – National Pork Board

Innovation in Dairy Research Award

Land O’Lakes Purina Feed LLC

Agribusiness Award

BASF Plant Science

Student Competition Paper Awards

Graduate Oral, PhD – Akey
Graduate Poster, MS – Cargill Animal Nutrition
Graduate Poster, PhD – Cargill Animal Nutrition
Undergraduate Oral – Ralco Nutrition Inc.
Undergraduate Poster – ADSA ASAS MW Board

The Tim S. Stahly Outstanding Swine Nutrition

Midwest Graduate Student Award

The Tim S. Stahly Memorial and Tribute Fund

2012 Midwest Meeting Sponsors

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Elanco Animal Health
Zinpro Performance Minerals

Bronze Level

American Dairy Science Association
Greater Des Moines Convention and Visitors Bureau
Iowa State University
JBS United Inc.
Lucta

PREPARATION GUIDELINES FOR ORAL PRESENTATIONS

Each session room will be equipped with a laptop computer configured with Microsoft PowerPoint 2007, an LCD projector, a podium microphone, and a lavalier microphone. The use of personal laptop computers for presentations in the session rooms is not permitted.

Presenters can use one of two methods to submit presentation files:

1. PRE-MEETING UPLOAD

We will once again be offering presenters the ability to upload presentation files before the meeting. Avoid the on-site rush and upload your presentation on your own schedule.

The web site is available 24 hours a day from now until 11:59 pm CDT on March 13, 2012, at:

http://www.fass-abstracts.org/invited_papers/?meetingcode=194

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

http://www.fass-abstracts.org/invited_papers/?meetingcode=194

2. ON-SITE UPLOAD

Need more time to work on your presentation? Files can be delivered to the Preload Room (Room 301) of the Iowa Events Center on the day prior to the scheduled presentation time. Deadlines for on-site uploads are as follows:

All **Monday** presentations must be submitted by Monday at 10:00 am

All **Tuesday** presentations must be submitted by Monday at 5:00 pm

All **Wednesday** presentations must be submitted by Tuesday at 4:00 pm

Once all presentations have been collected, they will be electronically sent to the session room 30 minutes prior to the start of the session. Please note:

All PowerPoint presentations must be loaded in advance of each session.

No presentations will be accepted or modified in the session rooms.

No presentations will be loaded while the session is in progress, between presentations, or during breaks.

Monday, March 19

SYMPOSIA AND ORAL SESSIONS

Allee Symposium: Science in Practice

Chair: Joel Spencer, JBS United Inc.

318–319

Sponsored by ASAS Foundation

- 8:30 AM **Introduction.**
J. D. Spencer.
- 8:45 AM 1 **(Invited) Science shaping an industry: Past, present, future.**
G. L. Allee*, *University of Missouri, Columbia.*
- 9:15 AM 2 **(Invited) Vitamin D deficiency in pigs—Fad, fiction, and facts.**
T. D. Crenshaw* and L. A. Rortvedt, *University of Wisconsin, Madison.*
- 9:45 AM **Table Discussions**
- 10:35 AM **Break**
- 10:50 AM 3 **(Invited) China swine production: A personal observation.**
G. R. Stoner*, *CP Group—China Operations, Beijing, P. R. China.*
- 11:20 AM 4 **(Invited) Using science and a system-based approach to innovate a modern swine production business.**
B. A. Peterson*, *The Maschhoffs, Carlyle, IL.*
- 11:50 AM **Closing Remarks.**
G. L. Allee.

David H. Baker Symposium

Chair: Brian Kerr, USDA, ARS

318–319

Sponsored by ASAS Foundation

- 1:00 PM **Introduction.**
B. J. Kerr.
- 1:10 PM 5 **(Invited) Current lysine:calorie ratio recommendations and their use in diet formulation.**
R. D. Goodband*, M. D. Tokach, S. S. Dritz, J. M. DeRouche, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 1:45 PM 6 **(Invited) Effects of reducing crude protein level and replacement with crystalline amino acids on growth performance, carcass composition, and fresh pork quality of finishing pigs fed Paylean.**
J. K. Apple*¹, C. V. Maxwell¹, J. W. S. Yancey¹, R. L. Payne², and J. Thomson²,
¹*Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville,* ²*Evonik-Degussa Corp., Kennesaw, GA.*

- 2:00 PM 7 **(Invited) How to feed pigs without whole grains and soybean meal.**
H. M. J. van Hees*¹, P. J. L. Ramaekers¹, and A. Pharazyn², ¹Nutreco Swine Research Centre, St Anthonis, the Netherlands, ²Nutreco Canada Agresearch, Guelph, Ontario, Canada.
- 2:30 PM 8 **Effect of a branched-chain amino acid imbalanced supply on voluntary feed intake and the postprandial plasma kinetics of branched-chain amino acids in piglets.**
M. Gloaguen*^{1,3}, N. Le Floc'h^{1,2}, E. Corrent³, Y. Primot³, and J. van Milgen^{1,2}, ¹INRA, UMR1079, SENAH, Saint-Gilles, France, ²Agrocampus Ouest Rennes, UMR 1079, SENAH, Rennes, France, ³Ajinomoto Eurolysine s.a.s., Paris, France.
- 2:45 PM **Break**
- 3:00 PM 9 **(Invited) Nutritional aspects of animal health and oxidative stress.**
T. E. Burkey*¹, T. E. Weber², and N. K. Gabler³, ¹University of Nebraska, Lincoln, ²USDA-ARS, Ames, IA, ³Iowa State University, Ames.
- 3:35 PM 10 **Influence of deoxynivalenol and L-Trp supplementation on weight gain, feed intake, and immune responses of nursery pigs.**
Y. B. Shen*, A. C. Chaytor, and S. W. Kim, North Carolina State University, Raleigh.
- 3:50 PM 11 **The effects of supplemental nucleotides on growth and health of piglets.**
A. C. Chaytor* and S. W. Kim, North Carolina State University, Raleigh.
- 4:05 PM **Closing Remarks.**
B. J. Kerr.

Graduate Student Oral Competition—MS Division
Chair: Kim Vonnahme, North Dakota State University
312–313
Sponsored by Akey

- 1:00 PM 12 **The effects of orally supplemented vitamin D₃ on serum 25(OH)D₃ concentrations and growth of pre-weaning and nursery pigs.**
J. R. Flohr*¹, M. D. Tokach¹, S. S. Dritz¹, S. C. Henry², M. L. Potter², L. M. Tokach², J. P. Goff³, R. L. Horst⁴, J. C. Nietfeld¹, D. M. Madson³, S. M. Ensley³, R. D. Goodband¹, J. L. Nelssen¹, J. R. Bergstrom¹, J. M. DeRouchey¹, ¹Kansas State University, Manhattan, ²Abilene Animal Hospital, Abilene, KS, ³Iowa State University, Ames, ⁴Heartland Assays Inc., Ames, IA.
- 1:15 PM 13 **Hepatic mitochondrial efficiency in lines of mice differing in feed intake.**
T. W. Murphy*¹, J. M. McDonald², and M. K. Nielsen¹, ¹University of Nebraska, Lincoln, ²Newsham Choice Genetics, West Des Moines, IA.
- 1:30 PM 14 **Dietary cation-anion difference alters feed intake of group-housed replacement gilts.**
S. J. Gasca*¹, A. E. Schumacher¹, J. P. Holt¹, P. M. Walker¹, and R. Hall², ¹Illinois State University, Normal, ²Animal Feed and Nutrition, Franklin, IN.
- 1:45 PM 15 **The effect of myostatin genotype on body temperature during extreme temperature events.**
J. T. Howard*, M. K. Nielsen, T. Mader, and M. L. Spangler, University of Nebraska, Lincoln.

- 2:00 PM 16 **Effects of lowering dietary NDF levels prior to marketing on finishing pig growth performance, carcass characteristics, carcass fat quality, and intestinal weights.**
M. D. Asmus*, J. M. DeRouchey, J. L. Nelssen, M. D. Tokach, S. S. Dritz, R. D. Goodband, and T. A. Houser, *Kansas State University, Manhattan.*
- 2:15 PM 17 **Equine grazing preference and persistence of cool-season grasses.**
E. Allen*, C. Sheaffer, and K. Martinson, *University of Minnesota, St. Paul.*
- 2:30 PM 18 **Effect of inclusion of a *Saccharomyces cerevisiae* fermentation product in beef cattle feedlot diets with two different sulfur concentrations on nutrient metabolism.**
D. M. Paulus*¹, J. M. Kelzer¹, M. V. Fossa¹, C. Belknap², G. I. Crawford¹, and A. DiCostanzo¹, ¹*University of Minnesota, St. Paul.*, ²*Diamond V, Cedar Rapids, IA.*
- 2:45 PM 19 **Video imaging for real-time performance monitoring of growing-finishing pigs.**
J. E. Love*¹, J. Rheame², J. Squire², and C. F. M. de Lange¹, ¹*University of Guelph, Guelph, ON, Canada.*, ²*Wallenstein Feed and Supply Ltd., Wallenstein, ON, Canada.*
- 3:00 PM **Break**
- 3:15 PM 20 **Thermoregulation in different parity sows in forced air (FA) and evaporatively cooled (EC) farrowing rooms.**
W. R. Martin*, T. J. Safranski, D. E. Spiers, and M. C. Lucy, *University of Missouri, Columbia.*
- 3:30 PM 21 **Effects of alternate day feeding of dried distillers grains plus solubles on intake, ruminal pH and VFA concentrations, and total-tract digestibility in forage-fed steers.**
S. I. Klein*¹, A. M. Meyer², Q. P. Larson¹, M. L. Bauer¹, J. S. Caton¹, and C. R. Dahlen¹, ¹*Department of Animal Sciences, North Dakota State University, Fargo.*, ²*Department of Animal Sciences, University of Wyoming, Laramie.*
- 3:45 PM 22 **Effects of selection for blood serum insulin-like growth factor I (IGF-I) concentration on reproductive performances of female Angus beef cattle.**
X. Zhang* and M. Davis, *The Ohio State University, Columbus.*
- 4:00 PM 23 **Conception rates (CR) in grazing dairy cows treated with 14-d CIDR or 14-d CIDR+PGF₂ for presynchronization before a timed AI (TAI).**
R. C. Escalante*, S. E. Poock, D. J. Mathew, W. R. Martin, E. M. Newsom, S. A. Hamilton, K. G. Pohler, and M. C. Lucy, *University of Missouri, Columbia.*
- 4:15 PM 24 **Impact of starter pig feeding on subsequent growth performance and carcass characteristics.**
D. Skinner*, D. Wey, M. Rudar, C. Levesque, K. De Ridder, C. H. Zhu, and C. F. M. de Lange, *Centre for Nutrition Modelling, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.*

Graduate Student Oral Competition–PhD Division

Chair: Matt Wilson, West Virginia University

304–305

Sponsored by Akey

- 1:15 PM 25 **High sulfur content in dried distillers grains with solubles (DDGS) protects against oxidized lipids in DDGS by increasing sulfur-containing antioxidants in nursery pigs.**
R. Song*¹, C. Chen¹, L. J. Johnston², B. J. Kerr³, T. E. Weber³, and G. C. Shurson¹, ¹*University of Minnesota, St. Paul.*, ²*West Central Research and Outreach Center, Morris, MN.*, ³*USDA-ARS-NLAE, Ames, IA.*

- 1:30 PM 26 **Effect of sample size and method of sampling pig weights on the accuracy of estimating the mean weight of the population.**
C. B. Paulk*, G. L. Highland, M. D. Tokach, J. L. Nelssen, S. S. Dritz, R. D. Goodband, and J. M. DeRouche, *Kansas State University, Manhattan.*
- 1:45 PM 27 **Effect of corn processing on feedlot steers fed sugar beet pulp.**
C. A. Nichols*¹, M. K. Luebke², K. H. Jenkins², G. E. Erickson¹, S. A. Furman², and T. J. Klopfenstein¹, ¹*University of Nebraska-Lincoln, Lincoln*, ²*University of Nebraska-Lincoln Panhandle Research and Extension Center, Scottsbluff.*
- 2:00 PM 28 **Relationship of placental and endometrial vascularity and muscle characteristics of fetal pigs.**
T. A. Wilmoth*¹, E. K. Harris², E. P. Berg², M. E. Wilson¹, and K. A. Vonnahme², ¹*West Virginia University, Morgantown*, ²*North Dakota State University, Fargo.*
- 2:15 PM 29 **Effects of prepartum feeding strategy on reproductive performance and health in dairy cows: A meta-analysis approach.**
F. C. Cardoso*¹, S. J. LeBlanc², M. R. Murphy¹, and J. K. Drackley¹, ¹*University of Illinois, Urbana*, ²*University of Guelph, Guelph, ON, Canada.*
- 2:30 PM 30 **Evaluation of probiotics with different energy and nutrient density on growth performance, nutrient digestibility, blood characteristic, fecal microbial shedding and fecal noxious gas content in growing pigs.**
L. Yan*, S. C. Kim, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 2:45 PM 31 **Sodium salicylate treatment immediately postpartum increases energy-corrected milk yield primarily through an increase in milk fat secretion in dairy cattle.**
J. K. Farney*, L. K. Mamedova, J. E. Minton, J. F. Coetzee, L. C. Hollis, and B. J. Bradford, *Kansas State University, Manhattan.*
- 3:00 PM **Break**
- 3:15 PM 32 **Effect of chronic dietary exposure of deoxynivalenol on serotonin concentration in the hypothalamus and behavior of pigs.**
Y. B. Shen*, A. C. Chaytor, and S. W. Kim, *North Carolina State University, Raleigh.*
- 3:30 PM 33 **Effects of aflatoxin and deoxynivalenol on oxidative stress in pigs.**
A. C. Chaytor* and S. W. Kim, *North Carolina State University, Raleigh.*
- 3:45 PM 34 **Development of an in vitro heat stress model for pig oocyte maturation.**
E. C. Wright*, C. X. Yang, R. Scanlon, C. K. Tuggle, and J. W. Ross, *Iowa State University, Ames.*
- 4:00 PM 35 **Reducing particle size enhances chemical treatment in cattle finishing diets.**
A. L. Shreck*¹, B. L. Nuttelman¹, W. A. Griffin¹, G. E. Erickson¹, T. J. Klopfenstein¹, and M. J. Cecava², ¹*University of Nebraska-Lincoln, Lincoln*, ²*ADM Research, Decatur, IL.*
- 4:15 PM 36 **High levels of dried distillers grains with solubles (DDGS) in sow and nursery diets do not contribute to Mulberry Heart Disease (MHD).**
A. R. Hanson*¹, L. J. Johnston², S. K. Baidoo³, J. L. Torrison⁴, and G. C. Shurson¹, ¹*University of Minnesota, St. Paul*, ²*West Central Research and Outreach Center, Morris, MN*, ³*Southern Research and Outreach Center, Waseca, MN*, ⁴*Veterinary Diagnostic Laboratory, St. Paul, MN.*

Undergraduate Student Oral Competition
Chair: Paul Walker, Illinois State University
316-317

- 1:30 PM 37 **Determining the influence of dietary roughage concentration and source on rumen parameters related to sulfur toxicity.**
 S. J. Morine*, M. E. Drenowski, and S. L. Hansen, *Iowa State University, Ames.*
- 1:45 PM 38 **Effects of feeding PetroAlgae's Lemna Meal to dairy heifers as a top-dress or as a total mixed ration.**
 N. McDonald*¹, D. Wells², M. Rohlfen², and N. B. Litherland¹, ¹*University of Minnesota, St Paul*, ²*PetroAlgae LLC, Melbourne, FL.*
- 2:00 PM 39 **Supplementing glycerol in dairy nursery calf drinking water increases water intake but does not increase energy intake or calf growth.**
 K. Froehlich*, D. N. L. Da Silva, and N. B. Litherland, *University of Minnesota, St. Paul.*
- 2:15 PM 40 **The 2011 South Dakota equitarian survey and reservation equine comparative analysis.**
 A. T. Gebhart*, K. Koch, and R. C. Bott, *South Dakota State University, Brookings.*
- 2:30 PM 41 **The effects of glucuronic acid and N-acetyl-D-glucosamine supplementation on the in vitro production of porcine oocytes.**
 A. L. Buck*, A. R. Clark, and T. M. Donley, *The University of Findlay, Findlay, OH.*
- 2:45 PM 42 **Effects of maternal nutrient restriction and melatonin supplementation on fetal cardiomyocyte maturation and enlargement.**
 E. A. Nere*¹, C. O. Lemley¹, A. M. Meyer², and K. A. Vonnahme¹, ¹*North Dakota State University, Fargo*, ²*University of Wyoming, Laramie.*
- 3:00 PM 43 **Dietary cation-anion difference: Variable levels alter ad libitum feed intake.**
 C. Rashid*¹, S. Gasca¹, P. Walker¹, and R. Hall², ¹*Illinois State University, Normal*, ²*Animal Feed and Nutrition, Franklin, IN.*
- 3:15 PM **Break**
- 3:30 PM 44 **Effect of selection for residual feed intake on sow performance II: Milk composition.**
 A. Rakhshandeh¹, B. M. Adamic*¹, J. M. Young¹, D. M. Thekkoot¹, T. E. Weber², J. C. M. Dekkers¹, M. A. McGuire³, and N. K. Gabler¹, ¹*Iowa State University, Ames*, ²*USDA-ARS, Ames, IA*, ³*University of Idaho, Moscow.*
- 3:45 PM 45 **The effects of N-acetyl-D-glucosamine and a novel N-acetyl-D-glucosamine derivative supplementation on the in vitro production of pig oocytes.**
 L. E. Elsea*, E. Gerken, K. Lemon, R. S. Khupse, and B. D. Whitaker, *University of Findlay, Findlay, OH.*
- 4:00 PM 46 **Relationship of working chute behavior of feedlot cattle to meat quality traits and muscle structure.**
 K. J. Phelps*¹, E. P. Berg¹, N. L. Hall¹, W. L. Keller¹, P. P. Borowicz¹, V. L. Anderson², C. A. Schwartz¹, B. R. Ilse², J. D. Magolski¹, and K. R. Maddock Carlin¹, ¹*North Dakota State University, Fargo*, ²*Carrington Research Extension Center, Carrington, ND.*
- 4:15 PM 47 **Uteroplacental uptake of glucose and fetal liver glycogen in adequately fed or nutrient restricted ewes supplemented with melatonin.**
 M. A. Lein*¹, C. O. Lemley¹, L. E. Camacho¹, A. M. Meyer², and K. A. Vonnahme¹, ¹*North Dakota State University, Fargo*, ²*University of Wyoming, Laramie.*

POSTER PRESENTATIONS

Breeding and Genetics

**Chair: Matt Spangler, University of Nebraska
Ballroom**

- 209P **Relationship between feed efficiency measures taken during heifer development and those taken during first lactation in purebred Angus cattle.**
G. Dahlke* and D. Strohbehn, *Iowa State University, Ames.*
- 210P **Genome-wide association study for age at puberty in maternal line gilts.**
J. K. Tart*¹, J. W. Bundy¹, N. N. Ferdinand¹, A. M. McKnite¹, M. F. Rothschild², D. J. Garrick², P. S. Miller¹, S. D. Kachman¹, R. K. Johnson¹, and D. C. Ciobanu¹, ¹*University of Nebraska-Lincoln, Lincoln*, ²*Iowa State University, Ames.*
- 211P **Effects of sow, boar, and semen traits on sow reproduction.**
S. Park*¹, T. A. Rathje², and R. K. Johnson¹, ¹*University of Nebraska, Lincoln*, ²*Danbred North America, Columbus, NE.*

Graduate Student Poster Competition—MS Division

**Chair: Kim Vonnahme, North Dakota State University
Ballroom**

- 224P **Effects of pelleting sodium metabisulfite (Na₂S₂O₅) or pelleting diets or dried distillers grains with solubles (DDGS) contaminated with deoxynivalenol, on nursery pig performance.**
H. L. Frobose*¹, E. D. Fruge², M. D. Tokach¹, E. L. Hansen², J. M. DeRouchev¹, S. S. Dritz¹, R. D. Goodband¹, and J. L. Nelssen¹, ¹*Kansas State University, Manhattan*, ²*Hubbard Feeds, Mankato, MN.*
- 225P **Feedlot performance of steers fed distillers grains containing 10 to 12% fat.**
RN J. L. Veracini*¹, P. M. Walker¹, R. E. Hall², M. J. Faulkner¹, R. L. Atkinson³, and B. R. Wiegand⁴, ¹*Illinois State University, Normal*, ²*Cooperative Research Farms, Richmond, VA*, ³*Southern Illinois University, Carbondale*, ⁴*University of Missouri, Columbia.*
- 226P **Evaluation of replacing corn and soybean meal in lactating dairy cow diets with field peas (*Pisum sativum*) on ruminal pH, ammonia and volatile fatty acid (VFA).**
RN J. J. Albrecht*, K. F. Kalscheur, A. R. Hippen, and D. J. Schingoethe, *South Dakota State University, Brookings.*
- 227P **Effects of low fat modified wet distillers grain with solubles on beef cow performance.**
RN M. Faulkner*¹, P. Walker¹, R. Atkinson², L. Forster³, J. Carnack¹, and K. Jones², ¹*Illinois State University, Normal*, ²*Southern Illinois University, Carbondale*, ³*Archer Daniels Midland Co, Decatur, IL.*
- 228P **Performance and reproduction measurements by yearling Katahdin ewes grazing tall fescue pastures using continuous or rotational grazing schemes: 1-year summary.**
RE E. A. Backes*^{1,2}, J. D. Caldwell¹, B. C. Shanks¹, M. J. Singer¹, M. D. Schulte¹, L. S. Wilbers¹, C. A. Clifford-Rathert¹, A. N. V. Stewart¹, A. K. Wurst¹, H. A. Swartz¹, D. L. Kreider², and M. L. Looper², ¹*Lincoln University, Jefferson City, MO*, ²*University of Arkansas, Fayetteville.*
- 229P **Effects of prepartum distillers grains supplementation on subsequent steer feedlot performance.**
RN T. B. Wilson*, D. W. Shike, D. B. Faulkner, A. R. Schroeder, T. G. Nash, and F. A. Ireland, *University of Illinois, Urbana-Champaign.*

- 230P
RN **Evaluation of supplemental protein source and endophyte infection on growing calf performance grazing stockpiled tall fescue.**
W. A. Moore*, D. J. Fennewald, C. C. Stith, and W. J. Sexten, *University of Missouri, Columbia.*
- 231P
RN **Influence of ENDOVAC-Bovi vaccine on feedlot steer performance.**
R. M. Harvey* and M. S. Kerley, *Divisions of Animal Sciences, University of Missouri, Columbia.*
- 232P
PHY **Protein supplementation during the last third of pregnancy increases uterine blood flow in the beef cow.**
C. A. Zimprich*, L. E. Camacho, M. L. Bauer, and K. A. Vonnahme, *Department of Animal Sciences, North Dakota State University, Fargo.*
- 233P
PHY **Effects of maternal dietary energy source during mid- to late-gestation on circulating maternal hormones and metabolites in ewes.**
M. A. Berg*¹, J. S. Luther², J. L. Susko-Parrish¹, R. L. Burgett¹, and A. E. Radunz¹, ¹*University of Wisconsin-Madison, Madison*, ²*University of Wisconsin-River Falls, River Falls.*
- 234P
RN **Effects of injectable vitamin and selenium on serum vitamin and selenium concentrations and growth performance in beef calves.**
P. L. Steichen*^{1,2}, B. W. Neville², S. I. Klein¹, R. L. Stuart³, and C. R. Dahlen¹, ¹*Department of Animal Sciences, North Dakota State University, Fargo*, ²*North Dakota State University Central Grasslands Research Extension Center, Streeter*, ³*Stuart Products Inc., Bedford, TX.*

Graduate Student Poster Competition–PhD Division
Chair: Matt Wilson, West Virginia University
Ballroom

- 235P
RN **Identification of risk factors that cause milk fat depression of cows consuming dried distillers grains plus solubles.**
H. A. Ramirez Ramirez* and P. J. Kononoff, *University of Nebraska, Lincoln.*
- 236P
RE **BFNMP\$: A tool for estimating feedlot manure economics.**
A. K. Watson*¹, G. E. Erickson¹, T. K. Klopfenstein¹, R. K. Koelsch¹, R. E. Massey², J. H. Harrison³, and M. K. Luebbe¹, ¹*University of Nebraska, Lincoln*, ²*University of Missouri, Columbia*, ³*Washington State University, Puyallup.*
- 237P
PHY **Sow productivity can influence growth rate, efficiency, and performance of offspring.**
J. D. Magolski*, K. A. Vonnahme, D. J. Newman, and E. P. Berg, *North Dakota State University, Fargo.*
- 238P
RN **Comparison of fermentation end products within continuous culture among steers differing in residual feed intake (RFI) phenotypes.**
N. O. Minton*, J. H. Porter, N. F. Johnson, J. G. Yoder, and M. S. Kerley, *University of Missouri, Columbia.*
- 239P
NR **Effects of feeding low or high oxidized dried distillers grains with solubles (DDGS) to sows on piglet birth weight variation and litter performance.**
X. J. Li*¹, G. C. Shurson¹, D. D. Gallaher¹, J. E. Anderson², S. K. Baidoo^{1,3}, and L. J. Johnston^{1,3}, ¹*University of Minnesota, St. Paul*, ²*University of Minnesota, Morris*, ³*Southern Research and Outreach Center, Waseca, MN*, ⁴*West Central Research and Outreach Center, Morris, MN.*
- 240P
NR **Influence of thermally oxidized oils and fats on growth performance and lipid profile of young pigs.**
P. Liu*¹, B. J. Kerr², T. E. Weber², C. Chen¹, L. J. Johnston^{1,3}, and G. C. Shurson¹, ¹*University of Minnesota, St. Paul*, ²*USDA-ARS, Ames, IA*, ³*West Central Research and Outreach Center, Morris, MN.*

- 241P **Effects of β -mannanase on metabolizable energy of feedstuffs fed to growing pigs.**
NR G. Voilqué*, Y. Zhao, and S. W. Kim, *North Carolina State University, Raleigh.*

Growth, Development, Muscle Biology, and Meat Science
Chair: Eric Berg, North Dakota State University
Ballroom

- 242P **Effect of modified distillers grains with solubles and crude glycerin in finishing diets on fatty acid composition and oxidation of fresh beef.**
K. M. McClelland*, J. P. Jaderborg, D. M. Paulus, J. M. Popowski, G. I. Crawford, A. DiCostanzo, and R. B. Cox, *University of Minnesota, St. Paul.*
- 243P **Synergistic effects of β -adrenergic agonists and zinc supplementation.**
A. A. Baer*, J. C. Jones, K. A. Jones, and A. C. Dilger, *University of Illinois, Urbana.*
- 244P **Effects of sorghum grain and sorghum dried distillers grains with solubles on the composition, quality, and sensory attributes of ground pork.**
G. R. Skaar, T. A. Houser*, R. D. Goodband, B. L. Goehring, A. Stickel, B. M. Gerlach, K. Steele, and K. M. Sotak, *Kansas State University, Manhattan.*
- 245P **Can DNA marker technology improve feedlot growth promotion management decisions to ultimately improve the consumer's beef eating experience?**
K. M. Thompson*¹, J. J. Wagner¹, T. G. O'Quinn¹, D. R. Woerner¹, T. E. Engle¹, R. K. Peel¹, J. K. Ahola¹, B. W. Woodward², and M. N. Streeter³, ¹*Department of Animal Science, Colorado State University, Fort Collins*, ²*Meril Limited, Duluth, GA*, ³*Merck Animal Health, DeSoto, KS.*
- 246P **Predicting beef tenderness using multispectral image texture features.**
X. Sun*, K. Maddock Carlin, V. L. Anderson, A. N. Lepper, C. A. Schwartz, W. L. Keller, B. R. Ilse, J. D. Magolski, and E. P. Berg, *North Dakota State University, Fargo.*
- 247P **Effect of high and low levels of urea in beef cattle finishing diets on shelf life stability of fresh strip steaks.**
K. M. McClelland*, J. E. Johnston, I. Ceconi, G. I. Crawford, and R. B. Cox, *University of Minnesota, St. Paul.*
- 248P **Effects of frequent introduction and removal of dried distillers grains with solubles (DDGS) in growing-finishing swine diets on backfat fatty acid composition.**
K. M. McClelland*¹, A. M. Hilbrands², L. J. Johnston², G. C. Shurson¹, and R. B. Cox¹, ¹*University of Minnesota, St. Paul*, ²*West Central Research and Outreach Center, Morris, MN.*
- 249P **An evaluation of pelvic bone shape in beef carcasses.**
J. Hosch*, C. Calkins, K. Varnold, L. Senaratne-Lenagala, and J. Hergenreder, *University of Nebraska, Lincoln.*
- 250P **Protein oxidation of beef due to high oxygen packaging occurs at a gradient and cannot be controlled by feeding antioxidants.**
L. Senaratne-Lenagala* and C. Calkins, *University of Nebraska, Lincoln.*
- 251P **Relationship between proteolysis and oxidation in *longissimus dorsi* pork loin chops.**
R. M. Punt*, R. M. Smith, J. K. Grubbs, E. Huff-Lonergan, and S. M. Lonergan, *Department of Animal Science, Iowa State University, Ames.*
- 252P **Nutrient differences of beef from different genotypes.**
M. Semler, C. Calkins, and G. Erickson, University of Nebraska, Lincoln.*

- 253P **Impact of restricted feeding on the growth performance of growing-finishing pigs from two genetic lines.**
*N. S. Grohmann**¹, *M. Ellis*¹, *B. A. Peterson*², and *B. F. Wolter*², ¹*University of Illinois, Urbana,*
²*The Maschhoffs, Carlyle, IL.*
- 254P **Time of feeding flaxseed or fish oil on the fatty acid content of trimmed pig bellies and sensory evaluation of bacon.**
*H. R. Martínez-Ramírez**^{1,2}, *L. M. Pivotto*¹, *I. B. Mandell*¹, *J. K. G. Kramer*², and *C. F. M. de Lange*¹, ¹*Centre for Nutritional Modelling, Department of Animal and Poultry Science, Guelph, ON, Canada,* ²*Agriculture and Agri-Food Canada, Guelph, ON, Canada.*
- 255P **Effects of maternal activity, offspring sex, and birth weight on muscle fiber characteristics in newborn piglets.**
*A. Reyaz**, *E. K. Harris*, *V. P. Singh*, *P. P. Borowicz*, *K. R. Maddock Carlin*, *J. D. Magolski*, *K. A. Vonnahme*, and *E. P. Berg*, *Department of Animal Sciences, North Dakota State University, Fargo.*
- Odor and Nutrient Management**
Chair: Mike Brouk, Kansas State University
Ballroom
- 293P **The effect of probiotic (*Bacillus product*) on growth performance and fecal consistency of growing-finishing pigs.**
*S. Nitikanchana**, *M. D. Tokach*, *S. S. Dritz*, *J. M. DeRouchey*, *R. D. Goodband*, and *J. L. Nelssen*, *Kansas State University, Manhattan.*
- 294P **Evaluation of a commercial ozone treatment system to improve swine slurry.**
*P. M. Walker*¹, *A. R. Omer**¹, *M. S. Brewer*², *K. R. Cadwallader*², and *T. R. Kelley*³, ¹*Illinois State University, Normal,* ²*University of Illinois, Urbana-Champaign,* ³*Eastern Carolina University, Greenville.*
- 295P **Effects of sercite supplementation on nutrient digestibility, blood profiles, and noxious gas emission in growing pigs.**
*H. Y. Beak**, *X. Y. Guo*, and *I. H. Kim*, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 296P **Effects of dietary fermented wheat by *Bacillus subtilis* on growth performance, nutrient digestibility, microbial shedding and fecal noxious gas emission in growing pigs.**
*X. Y. Guo**, *S. M. Hong*, and *I. H. Kim*, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 297P **Effect of probiotics on performance, noxious gas emissions and blood profiles in sows and litter performance.**
*J. H. Jung**, *T. X. Zhou*, and *I. H. Kim*, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 298P **Evaluation of a dynamic pig growth model for prediction of manure output.**
*A. B. Strathe**¹, *A. Danfær*², *H. Jørgensen*², and *E. Kebreab*¹, ¹*Department of Animal Science, University of California, Davis,* ²*Department of Animal Science, Faculty of Science and Technology, Aarhus University, Tjele, Denmark.*

Physiology
Chair: Jason Ross, Iowa State University
Ballroom

- 299P **Ultrasound and phenotypic measures of the reproductive tract of prepubertal gilts selected for increased uterine capacity.**
C. A. Lents*, R. A. Cushman, and B. A. Freking, *USDA, ARS, US Meat Animal Research Center, Clay Center, NE.*
- 300P **Effect of melengestrol acetate and growth promotants on oocyte yield, quality, fertilization rate, and developmental competence of in vitro embryo production in beef heifers.**
N. A. Miller*¹, D. M. Greiger¹, K. E. Fike¹, A. Castro², and D. Dean², ¹*Kansas State University, Manhattan*, ²*Sexing Technologies Inc., Navasota, TX.*
- 301P **Effect of birth weight on age at puberty in gilts.**
M. J. Estienne*, *Virginia Tech, Blacksburg.*
- 302P **Effect of selection for residual feed intake on sow performance I: lactation efficiency and reproductive performance.**
B. M. Adamic*¹, A. Rakhshandeh¹, J. M. Young¹, D. M. Thekkoot¹, T. E. Weber², J. C. M. Dekkers¹, and N. K. Gabler¹, ¹*Iowa State University, Ames*, ²*USDA-ARS, Ames, IA.*

Ruminant Nutrition
Chair: Aimee Wertz-Lutz, ADM Alliance Nutrition Inc.
Ballroom

- 303P **The relationship between feed efficiency and pancreatic lipase, α -amylase, and trypsin activity in beef steers.**
B. J. Awda*¹, Y. R. Montanholi¹, S. P. Miller¹, and K. C. Swanson², ¹*University of Guelph, Guelph, ON, Canada*, ²*North Dakota State University, Fargo.*
- 304P **Supplementing diets of early lactation Holstein dairy cows with peas and byproducts.**
J. W. Schroeder*, *North Dakota State University, Fargo.*
- 305P **Periparturient ewe insulin efficiency and energetics: Manipulation via cereal management.**
A. Nikkhah*, *University of Zanjan, Zanjan, Iran.*
- 306P **Feasibility of improving energy metabolism by feeding early-lactation cows less frequently.**
A. Nikkhah*, *University of Zanjan, Zanjan, Iran.*
- 307P **Timing of feed delivery entrains periprandial rhythms of rumen ammonia and peripheral urea in dairy cows.**
A. Nikkhah*, *University of Zanjan, Zanjan, Iran.*
- 308P **Feed presentation time and diet effects on postprandial patterns of peripheral urea in once-daily-fed lactating dairy cows.**
A. Nikkhah*, *University of Zanjan, Zanjan, Iran.*
- 309P **Response of different concentrations and sources of dietary protein on lactating dairy cows.**
I. Acharya*, D. Schingoethe, and K. Kalscheur, *Dairy Science Department, South Dakota State University, Brookings.*

- 310P **The influence of feed intake on hepatic oxygen consumption, citrate synthase activity and protein concentration in pregnant beef cows.**
B. J. Awda*¹, K. M. Wood¹, L. Trouten-Radford¹, B. W. McBride¹, S. P. Miller¹, I. B. Mandell¹, C. J. Fitzsimmons^{2,3}, and K. C. Swanson⁴, ¹*Department of Animal & Poultry Science, University of Guelph, Guelph, Guelph, ON, Canada*, ²*Agriculture & Agri-Food Canada, Edmonton, AB, Canada*, ³*Department of Agriculture, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, ⁴*Department of Animal Sciences, North Dakota State University, Fargo.*
- 311P **Effects of protein intake in late gestation beef cows on progeny postnatal growth and carcass traits.**
A. E. Radunz*², F. L. Fluharty¹, G. D. Lowe¹, and S. C. Loerch¹, ¹*The Ohio State University, Wooster*, ²*University of Wisconsin-Madison, Madison.*
- 312P **The influence of feed intake on pancreatic lipase, α -amylase, and trypsin activities in pregnant beef cows.**
B. J. Awda*¹, K. M. Wood¹, B. W. McBride¹, S. P. Miller¹, I. B. Mandell¹, C. J. Fitzsimmons^{2,3}, and K. C. Swanson⁴, ¹*Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada*, ²*Agriculture & Agri-Food Canada, Edmonton, AB, Canada*, ³*Department of Agriculture, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, ⁴*Department of Animal Sciences, North Dakota State University, Fargo.*
- 313P **Feedlot performance and quality grade of steers subject to two feedlot entry weights following supplementation in the backgrounding period.**
M. C. Westerhold*, W. J. Sexten, M. S. Kerley, J. W. Rickard, and B. R. Wiegand, *University of Missouri, Columbia.*
- 314P **Effect of soy hull inclusion on diet digestibility.**
J. R. Russell*, N. F. Johnson, J. H. Porter, and M. S. Kerley, *University of Missouri, Columbia.*
- 315P **Influence of nutrient restriction and melatonin supplementation of pregnant ewes on maternal and fetal pancreatic α -amylase and trypsin activity.**
K. C. Swanson*¹, A. M. Meyer², C. O. Lemley¹, J. S. Caton¹, and K. A. Vonnahme¹, ¹*North Dakota State University, Fargo*, ²*University of Wyoming, Laramie.*
- 316P **Effects of hay supplementation in corn and dried distillers grains-based diets on performance and rumen metabolism in feedlot cattle.**
L. A. Morrow*¹, T. L. Felix², F. L. Fluharty¹, S. A. Metzger¹, and S. C. Loerch¹, ¹*The Ohio State University, Wooster*, ²*University of Illinois, Urbana.*
- 317P **The responses of animal growth and feed efficiency to diet ammonia-nitrogen and post-ruminal arginine supply.**
Y. Liang*, W. J. Sexten, and M. S. Kerley, *University of Missouri-Columbia, Columbia.*
- 318P **Effect of increasing distillers grains inclusion on performance and carcass characteristics of early-weaned steers.**
J. P. Schoonmaker*, M. C. Claeys, and R. P. Lemenager, *Purdue University, West Lafayette, IN.*
- 319P **Performance and gastrointestinal parasite control by Boer goats offered a synthetic anthelmintic or natural herbs while grazing during the summer.**
H. A. Swartz*, A. N. V. Stewart, J. D. Caldwell, and B. C. Shanks, *Lincoln University, Jefferson City, MO.*
- 320P **Performance and gastrointestinal parasite control by Katahdin hair sheep offered a synthetic anthelmintic or natural herbs while grazing during the summer.**
H. A. Swartz*, A. N. V. Stewart, J. D. Caldwell, and B. C. Shanks, *Lincoln University, Jefferson City, MO.*

- 321P **Performance by Katahdin ram lambs grazing mixed turnip and oat pastures in late spring through early summer using either continuous or rotational grazing schemes: 1-year summary.**
G. T. Otto*, J. D. Caldwell, B. C. Shanks, M. J. Singer, H. A. Swartz, A. N. V. Stewart, E. A. Backes, K. R. Ness, and D. K. Sommerer, *Lincoln University, Jefferson City, MO.*
- 322P **Essential oils effects on rumen fermentation and biohydrogenation.**
A. Ishlak*¹, M. Gunal², and A. AbuGhazaleh¹, ¹*Southern Illinois University, Carbondale, Sileyman Demirel University, Turkey.*
- 323P **Performance by crossbred wether lambs with continuous or rotational access to mixed turnip and oat pastures in late spring through early summer: 1-year summary.**
K. R. Ness*, J. D. Caldwell, B. C. Shanks, M. J. Singer, H. A. Swartz, A. N. V. Stewart, E. A. Backes, G. T. Otto, and D. K. Sommerer, *Lincoln University, Jefferson City, MO.*
- 324P **Drying methods of in situ residue of fat coated butyrate.**
K. J. Herrick*¹, A. R. Hippen¹, S. D. Ranathunga¹, J. L. Anderson¹, K. F. Kalscheur¹, S. C. Moreland², and J. E. van Eys², ¹*South Dakota State University, Brookings, Nutriad Inc., Elgin, IL.*
- 325P **Effect of supplemental fat source on total-tract nutrient digestibility.**
P. L. Redding*, C. L. Wright, and A. E. Wertz-Lutz, *South Dakota State University, Brookings.*
- 326P **Effect of fiber source on ruminal mat consistency in diets for Nellore steers.**
R. S. Goulart*^{1,2}, L. G. Nussio¹, K. Hongyu¹, A. V. Pires¹, J. L. P. Daniel¹, K. C. Swanson², and C. R. Dahlen², ¹*University of Sao Paulo/ESALQ, Piracicaba, SP, Brazil, 2Department of Animal Sciences, North Dakota State University, Fargo.*
- 327P **Adjusted intake based on forage particle length of forage and nonforage fiber sources in diets for Nellore steers.**
R. S. Goulart*^{1,2}, L. G. Nussio¹, K. Hongyu¹, A. V. Pires¹, R. C. Amaral¹, K. C. Swanson², and C. R. Dahlen², ¹*University of Sao Paulo/ESALQ, Piracicaba, SP, Brazil, 2Department of Animal Sciences, North Dakota State University, Fargo.*
- 328P **Ruminal degradable sulfur and ADG in beef cattle finishing diets.**
J. O. Sarturi*, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 329P **Effects of cinnamon oil, tea tree oil, eucalyptus oil, anise oil, and cedar wood oil on rumen fermentation and biohydrogenation in batch cultures.**
A. Ishlak*¹, M. Gunal², and A. AbuGhazaleh¹, ¹*Southern Illinois University, Carbondale, Sileyman Demirel University, Turkey.*

**Undergraduate Student Poster Competition
Chair: Paul Walker, Illinois State University
Ballroom**

- 330P **Effectiveness of pregnancy-specific protein B in pregnancy diagnosis of dairy cows and heifers.**
RN H. E. Arnold*¹, J. P. N. Martins¹, L. Z. Oliveira², R. K. Policelli¹, K. M. Stomack¹, C. Kostasich¹, R. G. Sasser³, and J. R. Pursley¹, ¹*Michigan State University, East Lansing, 2São Paulo State University (UNESP), Jaboticabal, SP, Brazil, 3BioTracking LLC, Moscow, ID.*
- 331P **Effects of supplemented dried distillers grains versus corn on internal parasites and performance in growing beef heifers.**
RE L. R. Welker*, T. L. Felix, F. A. Ireland, and D. B. Faulkner, *University of Illinois, Urbana.*

- 332P
RN **The effects of supplemental protein source on performance of calves fed tall fescue hay.**
N. F. Johnson*, M. S. Kerley, and W. J. Sexten, *University of Missouri, Columbia.*
- 333P
NR **Evaluation of *Rhizopus oligosporus* yeast supplementation on growth performance and nutrient digestibility in nursery pigs.**
D. M. van Sambeek*¹, T. E. Weber², B. J. Kerr², J. van Leeuwen¹, and N. K. Gabler¹, ¹*Iowa State University, Ames*, ²*USDA-ARS, Ames, IA.*
- 334P
ODR **Effect of bedding material on air quality of bedded manure packs in livestock facilities.**
S. J. Abatti*¹, M. J. Spiels¹, T. M. Brown-Brandl¹, D. N. Miller², and D. B. Parker¹, ¹*USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE*, ²*USDA AgroEcosystems Management Research Unit, Lincoln, NE.*
- 335P
PHY **Effects of maternal dietary energy source during mid to late gestation on fetal organ and adipose tissue growth in sheep.**
E. J. Cretney*¹, J. S. Luther², M. A. Berg¹, R. L. Burgett¹, J. Susko-Parrish¹, R. R. Magness¹, and A. E. Radunz¹, ¹*University of Wisconsin-Madison, Madison*, ²*University of Wisconsin-River Falls, River Falls.*
- 336P
RN **The effects of added distillers grains and Fibrozyme to beef finishing diets on in vitro ruminal digestibility and fermentation kinetics.**
C. Kalkowski*^{1,2}, K. Mjoun², and J. Jennings², ¹*South Dakota State University, Brookings*, ²*Alltech Inc., Brookings, SD.*
- 337P
GDM **Effect of high and low levels of urea in beef cattle finishing diets on shelf life stability of fresh ground beef.**
J. E. Johnston*, K. M. McClelland, I. Ceconi, G. I. Crawford, and R. B. Cox, *University of Minnesota, St. Paul.*
- 338P
PHY **Utilization of two dimensional-differential in-gel electrophoresis (2D-DIGE) to evaluate the proteomic profile during oocyte maturation in pigs.**
J. T. Seibert*, E. C. Wright, C. X. Yang, S. M. Lonergan, and J. W. Ross, *Iowa State University, Ames.*
- 339P
PHY **Impact of initiation of standing estrus at time of controlled internal drug releasing device insertion on fertility in beef heifers.**
O. L. Swanson*, J. K. Grant, K. L. Gebhart, L. K. Kill, and G. A. Perry, *Department of Animal Science, South Dakota State University, Brookings.*
- 340P
PHY **Effect of heifer calving date on longevity and lifetime productivity.**
L. K. Kill*¹, E. M. Mouse¹, R. A. Cushman², and G. A. Perry¹, ¹*Department of Animal Science, South Dakota State University, Brookings*, ²*U.S. Meat Animal Research Center, Clay Center, NE.*
- 341P
BEH **Weekly exercise does not influence performance but impacts handling of feedlot cattle.**
G. C. Buus*¹, M. Loewe², and B. P. Holland¹, ¹*South Dakota State University, Brookings*, ²*Opportunities Farm, Lennox, SD.*
- 342P
RN **Quick test for sulfur level in ethanol co-products.**
L. J. Daniels*, M. E. Drewnoski, and S. L. Hansen, *Iowa State University, Ames.*
- 343P
RN **Effects of dietary sulfur source on ruminal pH and hydrogen sulfide of feedlot steers.**
C. J. Brasche*, M. E. Drewnoski, and S. L. Hansen, *Iowa State University, Ames.*

Tuesday, March 20

SYMPOSIA AND ORAL SESSIONS

Animal Behavior, Housing, and Well-Being Chair: Sylvia Kehoe, University of Wisconsin 402

- 8:00 AM 48 **Sorting by parity improves welfare and performance of young sows in a group-housing gestation system.**
Y. Z. Li*, L. H. Wang, L. J. Johnston, A. M. Hilbrands, and X. L. Xie, *West Central Research and Outreach Center, University of Minnesota, Morris.*
- 8:15 AM 49 **The sow body condition caliper—A new, objective tool.**
M. T. Knauer*, K. J. Stalder², D. Baitinger³, and D. C. Kendall⁴, ¹*North Carolina State University, Raleigh*, ²*Iowa State University, Ames*, ³*Baitinger Engineering, Ankeny, IA*, ⁴*Prestage Farms, Clinton, NC.*
- 8:30 AM 50 **The effect of morbidity on longissimus muscle area and subcutaneous and intramuscular adipose deposition in feedlot steers.**
K. M. Thompson¹, J. J. Wagner*, C. M. McAllister¹, B. W. Brigham¹, R. K. Peel¹, H. Van Campen², G. H. Loneragan³, R. L. Weaber⁴, J. L. Salam-Johnson⁵, and C. C. L. Chase⁶, ¹*Department of Animal Science, Colorado State University, Fort Collins*, ²*Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins*, ³*Department of Animal and Food Sciences, Texas Tech University, Lubbock*, ⁴*Department of Animal Science and Industry, Kansas State University, Manhattan*, ⁵*Department of Animal Science, University of Illinois, Urbana*, ⁶*Department of Veterinary and Biomedical Sciences, South Dakota State University, Brookings.*
- 8:45 AM 51 **Willingness to approach (WTA): Live human observation and digital image.**
S. L. Weimer*, A. K. Johnson¹, K. J. Stalder¹, L. A. Karriker¹, and T. J. Fangman², ¹*Iowa State University, Ames*, ²*Boehringer Ingelheim Vetmedica, Ames, IA.*
- 9:00 AM 52 **Behavioral response of nursery pigs to reduced nocturnal temperature.**
Y. Z. Li*, L. H. Wang, L. J. Johnston, A. M. Hilbrands, and X. L. Xie, *West Central Research and Outreach Center, University of Minnesota, Morris.*
- 9:15 AM 53 **Reducing energy consumption in swine nurseries with reduced nocturnal temperature (RNT).**
L. J. Johnston*, M. C. Brumm², S. Moeller³, S. Pohl⁴, M. Shannon⁵, and R. Thaler⁴, ¹*University of Minnesota, West Central Research and Outreach Center, Morris*, ²*Brumm Swine Consultancy, Mankato, MN*, ³*The Ohio State University, Columbus*, ⁴*South Dakota State University, Brookings*, ⁵*University of Missouri, Columbia.*
- 9:30 AM 54 **Using vaginal temperature as an indicator of heat stress in free-ranging dairy animals.**
M. J. Brouk*, J. F. Smith, and J. P. Harner, *Kansas State University, Manhattan.*

Breeding and Genetics
Chair: J. R. Tait, Iowa State University
312–313

- 8:00 AM 55 **(Invited ASAS Animal Science Young Scholar) Identification and evaluation of quantitative trait loci influencing growth, carcass composition, and meat quality traits in pigs.**
 I. Choi*, J. P. Steibel, R. O. Bates, N. E. Raney, and C. W. Ernst, *Michigan State University, East Lansing.*
- 8:30 AM 56 **Comparison of three methods for tagSNP selection.**
 Y. M. Badke*¹, R. O. Bates¹, C. W. Ernst¹, and J. P. Steibel^{1,2}, ¹*Michigan State University, Department of Animal Science, East Lansing,* ²*Michigan State University, Department of Fisheries & Wildlife, East Lansing.*
- 8:45 AM 57 **Genetic parameters for feed consumption, feed conversion ratio and residual feed intake in laying hens.**
 A. Wolc*^{1,2}, J. Arango³, P. Settar³, J. E. Fulton³, N. P. O'Sullivan³, and J. C. M. Dekkers², ¹*Department of Genetics and Animal Breeding, Poznan University of Life Sciences, Poznan, Poland,* ²*Department of Animal Science and Center for Integrated Animal Genomics, Iowa State University, Ames,* ³*Hy-Line International, Dallas Center, IA.*
- 9:00 AM 58 **Genetic architecture of response to experimental porcine reproductive and respiratory syndrome virus infection.**
 N. J. Boddicker*¹, D. J. Garrick¹, J. M. Reecy¹, R. R. R. Rowland², J. K. Lunney³, and J. C. M. Dekkers¹, ¹*Iowa State University, Ames,* ²*Kansas State University, Manhattan,* ³*USDA, ARS, BARC, Beltsville, MD.*
- 9:15 AM 59 **Relationship between purebred and crossbred performance for number born alive and number born dead.**
 C. Abell*¹, K. Stalder¹, and J. Holl², ¹*Iowa State University, Ames,* ²*Smithfield Premium Genetics Group, Rose Hill, NC.*
- 9:30 AM 60 **Identification of genomic regions affecting body weight and hen house production using genomic prediction methods in broiler chickens.**
 C. Wang*¹, D. Habier¹, L. Peiris¹, A. Wolc¹, A. Kranis², K. A. Watson², S. Avendano², D. J. Garrick¹, R. L. Fernando¹, S. J. Lamont¹, and J. C. M. Dekkers¹, ¹*Department of Animal Science, Iowa State University, Ames,* ²*Aviagen Ltd., Newbridge, Midlothian, UK.*
- 9:45 AM 61 **Genetic parameters for growth performance and residual feed intake in a commercial line of Duroc pigs.**
 D. M. Thekkoot*¹, R. A. Kemp², and J. C. M. Dekkers¹, ¹*Iowa State University, Ames,* ²*Genesus Genetics Inc., Canada.*
- 10:00 AM **Break**
- 10:15 AM 62 **(Invited ASAS Animal Science Young Scholar) Discovering regions of the bovine genome associated with variation in the immune response.**
 R. J. Leach*^{1,2}, E. J. Glass², and L. A. Kuehn¹, ¹*USDA-ARS, US Meat Animal Research Center, Clay Center, NE,* ²*The Roslin Institute and Royal (Dick) School of Veterinary Studies, University of Edinburgh, Easter Bush, Midlothian, UK.*
- 10:45 AM 63 **Evaluation of the effect of number after transfer on litter weaning weight, mean pig weaning weight, survival and number weaned.**
 R. L. Cutshaw*¹, A. P. Schinckel¹, J. Fix², and C. Schwab², ¹*Purdue University, West Lafayette, IN,* ²*National Swine Registry, West Lafayette, IN.*

- 11:00 AM 64 **Estimation of genetic parameters for behavioral assessment scores in Labrador Retrievers.**
K. M. Schiefelbein*¹, D. W. Moser¹, J. M. Bormann¹, and E. A. Leighton², ¹*Kansas State University, Manhattan*, ²*The Seeing Eye Inc., Morristown, NJ.*
- 11:15 AM 65 **Analysis of candidate gene SNP on piglet response to experimental infection with PRRSV.**
E. H. Waide*¹, N. Boddicker¹, Z. Jiang², J. J. Michal², R. Rowland³, J. K. Lunney⁴, and J. C. M. Dekkers¹, ¹*Iowa State University, Ames*, ²*Washington State University, Pullman*, ³*Kansas State University, Manhattan*, ⁴*USDA, ARS, BARC, Beltsville, MD.*
- 11:30 AM 66 **Genetic correlations between carcass traits and genomic breeding values in Limousin cattle.**
M. Saatchi*¹, D. Garrick¹, and J. Taylor², ¹*Iowa State University, Ames*, ²*University of Missouri, Kansas City.*

**Extension Dairy Symposium—Applying Technologies
for Precision Dairying
Chair: Tamilee Nennich, Purdue University
302–303**

- 8:00 AM (Invited) **Understanding how robotic milking how changed what we know about cows.**
J. Rodenburg.
- 8:45 AM 67 (Invited) **Understanding the effects of group housing on the development of dairy calves.**
A. D. P. Vieira*, *University of British Columbia, Vancouver, BC, Canada.*
- 9:30 AM 68 (Invited) **Use of technology to improve the accuracy and precision of feeding dairy cattle.**
N. B. Litherland*, *University of Minnesota, St. Paul.*
- 10:15 AM 69 (Invited) **Precision dairy technology: Use of cow-side technologies for improving management.**
M. M. Schutz*¹, J. M. Bewley², and J. R. Townsend¹, ¹*Purdue University, West Lafayette, IN*, ²*University of Kentucky, Lexington.*

**Extension Swine
Chair: Steven Moeller, The Ohio State University
304–305**

- 8:00 AM 70 **Investigation of *Lawsonia intracellularis* serodynamics according to age and annual season using a standardized diagnostic methodology in growing swine.**
G. Anderson, E. Johnson, and J. Husa*, *Boehringer Ingelheim Vetmedica Inc., St. Joseph, MO.*
- 8:15 AM 71 **Effect of supplemental zinc source and ractopamine on grow-finish pig growth performance and carcass characteristics.**
Z. Rambo*¹, A. Schinckel¹, M. Wilson², T. Ward², and B. Richert¹, ¹*Purdue University, West Lafayette, IN*, ²*Zinpro Corporation, Eden Prairie, MN.*

- 8:30 AM 72 **Cull sow knife-separable lean content evaluation at harvest and lean mass content prediction equation development.**
C. Abell*¹, K. Stalder¹, H. Hendricks², S. Lonergan¹, and R. Fitzgerald³, ¹*Iowa State University, Ames*, ²*Utah Pork Producers Association, Providence*, ³*PIC, Hendersonville, TN*.
- 8:45 AM 73 **The effect of temperature and duration of storage of frozen-thawed boar sperm on measures of post-thaw fertility.**
J. M. Ringwelski* and R. V. Knox, *University of Illinois, Champaign-Urbana*.
- 9:00 AM 74 **Effect of thawing temperature and duration of thawing on in vitro fertility measures of boar sperm cryopreserved in 0.5-mL straws.**
K. A. McNamara* and R. V. Knox, *University of Illinois, Champaign-Urbana*.
- 9:15 AM 75 **The effect of insemination interval following AI with frozen-thawed boar sperm on pregnancy rate, litter size, and fetal paternity in mature gilts.**
J. M. Ringwelski*, K. A. McNamara, M. S. Bojko, J. E. Beever, and R. V. Knox, *University of Illinois, Champaign-Urbana*.
- 9:30 AM 76 **Evaluation of lactation feed intake in purebred and crossbred sows.**
C. L. Yoder*¹, J. S. Fix², C. R. Schwab², and T. J. Baas¹, ¹*Iowa State University, Ames*, ²*National Swine Registry, West Lafayette, IN*.
- 9:45 AM 77 **Quantifying deviations from predicted lactation feed intake in sows.**
C. L. Yoder*¹, J. S. Fix², C. R. Schwab², P. M. Dixon¹, and T. J. Baas¹, ¹*Iowa State University, Ames*, ²*National Swine Registry, West Lafayette, IN*.

Nonruminant Nutrition
Growing-Finishing Nutrition and Management
Chair: Buddy Hinson, JBS United Inc.
304–305

- 10:30 AM 78 **The effects of diet form and feeder design on growth the performance of finishing pigs.**
A. J. Myers*, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. M. DeRouche, and J. L. Nelssen, *Kansas State University, Manhattan*.
- 10:45 AM 79 **Impact of a ractopamine feeding strategy on growth, efficiency and carcass traits in finishing pigs.**
G. D. Gerlemann*¹, S. N. Carr², M. J. Ritter², and G. L. Allee¹, ¹*Porktech LLC, Columbia, MO*, ²*Elanco Animal Health, Greenfield, IN*.
- 11:00 AM 80 **Impact of tylosin phosphate and ractopamine hydrochloride alone or in combination on N metabolism in finishing pigs.**
C. M. Pilcher*¹, R. Arentson², and J. F. Patience¹, ¹*Iowa State University, Ames*, ²*Elanco Animal Health, Greenfield, IN*.
- 11:15 AM 81 **Method for validating diet ME versus NE using growth assay and modeling in growing pigs.**
A. P. Schinckel*¹, M. E. Einstein¹, S. Jungst², and R. D. Boyd³, ¹*Purdue University, West Lafayette, IN*, ²*PIC North America, Hendersonville, TN*, ³*The Hanor Company, Franklin, KY*.

Nonruminant Nutrition
Sow Nutrition and Management
Chair: Steven Kitt, Progressive Swine Technologies Inc.
318–319

- 8:00 AM 82 **Composition of porcine colostrum and milk as affected by various production environments.**
G. Voilqué*, Y. Zhao, and S. W. Kim, *North Carolina State University, Raleigh.*
- 8:15 AM 83 **Transitional changes in gestation and lactation serum α -tocopherol, and postpartum colostrum and milk α -tocopherol and fat concentrations in multiparous sows.**
J. S. Jolliff* and D. C. Mahan, *The Ohio State University, Columbus.*
- 8:30 AM 84 **Effects of dietary vitamin E level and source on sow, milk, and piglet levels of α -tocopherol.**
N. W. Shelton*¹, J. L. Nelssen¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouche¹, R. D. Goodband¹, H. Yang², and D. C. Mahan³, ¹*Kansas State University, Manhattan*, ²*ADM Alliance Nutrition, Quincy, IL*, ³*The Ohio State University, Columbus.*
- 8:45 AM 85 **Quantifying time-varying efficiency of utilizing sow's milk for piglet growth.**
A. B. Strathe*¹, A. V. Hansen^{1,2}, E. Kebreab¹, and P. K. Theil², ¹*Department of Animal Science, University of California, Davis*, ²*Department of Animal Science, Faculty of Science and Technology, Tjele, Denmark.*
- 9:00 AM 86 **Dietary protein and amino acid requirements in lactating sows is estimated using population-based factorial approach.**
A. V. Hansen*^{1,2}, A. B. Strathe¹, E. Kebreab¹, and P. K. Theil², ¹*Department of Animal Science, University of California, Davis*, ²*Department of Animal Science, Faculty of Science and Technology, Aarhus University, Tjele, Denmark.*
- 9:15 AM 87 **The evaluation of supplemental L-arginine during gestation on sow reproductive performance.**
L. Greiner*¹, J. L. Usry², C. Neill³, N. Williams³, J. Connor¹, and G. Allee⁴, ¹*Innovative Swine Solutions, LLC, Carthage, IL*, ²*Ajinomoto Heartland, Inc, Chicago, IL*, ³*PIC North America, Hendersonville, TN*, ⁴*PorkTech, LLC, Columbia, MO.*
- 9:30 AM 88 **Arginine supplement in early and late pregnant sows did not improve litter size or birth weight.**
C. E. Zier-Rush¹, A. Kuntzman¹, T. Schmidt¹, J. L. Usry², D. McKilligan³, and R. D. Boyd*¹, ¹*The Hanor Company, Franklin, KY*, ²*Ajinomoto Heartland Inc., Chicago, IL*, ³*TechMix LLC, Stewart, MN.*

Physiology
Chair: Jason Ross, Iowa State University
316–317

- 8:00 AM 89 **Uteroplacental steroid flux in an ovine maternal nutrient restriction model during melatonin supplementation.**
L. E. Camacho*¹, C. O. Lemley¹, A. M. Meyer², D. M. Hallford³, and K. A. Vonnahme¹, ¹*Department of Animal Sciences, North Dakota State University, Fargo*, ²*Department of Animal Sciences, University of Wyoming, Laramie*, ³*Department of Animal and Range Sciences, New Mexico State University, Las Cruces.*

- 8:15 AM 90 **Uteroplacental flux of amino acids (AA) in adequately fed or nutrient restricted ewes supplemented with melatonin.**
C. O. Lemley^{*1}, L. E. Camacho¹, A. M. Meyer², M. Kapphahn¹, J. S. Caton¹, and K. A. Vonnahme¹, ¹*North Dakota State University, Fargo*, ²*University of Wyoming, Laramie.*
- 8:30 AM 91 **Mechanisms of medicinal herbs alleviation heat stress-induced male infertility in boars.**
C. C. Selby^{*}, T. M. Taxis, P. Sutovsky, and W. R. Lamberson, *Division of Animal Sciences, University of Missouri, Columbia.*
- 8:45 AM 92 **Influence of post-AI supplementation on weight change and pregnancy success in beef heifers.**
K. L. Gebhart^{*}, B. L. Perry, J. A. Walker, C. L. Wright, and G. A. Perry, *Department of Animal Science, South Dakota State University, Brookings.*
- 9:00 AM 47 **Uteroplacental uptake of glucose and fetal liver glycogen in adequately fed or nutrient restricted ewes supplemented with melatonin.**
M. A. Lein^{*1}, C. O. Lemley¹, L. E. Camacho¹, A. M. Meyer², and K. A. Vonnahme¹, ¹*North Dakota State University*, ²*University of Wyoming.*
- 9:15 AM 42 **Effects of maternal nutrient restriction and melatonin supplementation on fetal cardiomyocyte maturation and enlargement.**
E. A. Nere^{*1}, C. O. Lemley¹, A. M. Meyer², and K. A. Vonnahme¹, ¹*North Dakota State University*, ²*University of Wyoming.*
- 9:30 AM 28 **Relationship of placental and endometrial vascularity and muscle characteristics of fetal pigs.**
T. A. Wilmoth^{*1}, E. K. Harris², E. P. Berg², M. E. Wilson¹, and K. A. Vonnahme², ¹*West Virginia University*, ²*North Dakota State University.*
- 9:45 AM 34 **Development of an in vitro heat stress model for pig oocyte maturation.**
E. C. Wright^{*}, C. X. Yang, R. Scanlon, C. K. Tuggle, and J. W. Ross, *Iowa State University, Ames.*
- 10:00 AM **Break**
- 10:15 AM 20 **Thermoregulation in different parity sows in forced air (FA) and evaporatively cooled (EC) farrowing rooms.**
W. R. Martin^{*}, T. J. Safranski, D. E. Spiers, and M. C. Lucy, *University of Missouri.*
- 10:30 AM 23 **Conception rates (CR) in grazing dairy cows treated with 14dCIDR or 14dCIDR+PGF2 α for presynchronization before a timed AI (TAI).**
R. C. Escalante^{*}, S. E. Pooch, D. J. Mathew, W. R. Martin, E. M. Newsom, S. A. Hamilton, K. G. Pohler, and M. C. Lucy, *University of Missouri.*

**Ruminant Nutrition
Byproducts
Chair: Pablo Guiroy, Cargill Animal Nutrition
314-315**

- 8:00 AM 106 **Effect of feeding distillers dried grains with solubles during lactation on cow performance, milk composition and pre-weaning progeny performance.**
C. N. Shee^{*}, R. P. Lemenager, M. C. Claeys, and J. P. Schoonmaker, *Purdue University, West Lafayette, IN.*

- 8:15 AM 107 **Metabolism of finishing diets containing condensed distillers solubles and wet distillers grains plus solubles.**
A. C. Pesta*, A. L. Shreck, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 8:30 AM 108 **Feeding condensed distillers solubles in finishing diets containing modified distillers grains plus solubles or Synergy.**
A. C. Pesta*, B. L. Nuttelman, W. A. Griffin, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 8:45 AM 109 **Replacing steam-flaked corn or dry rolled corn with condensed distillers solubles in feedlot finishing diets.**
A. H. Titlow*¹, S. A. Furman², M. K. Luebbe², K. H. Jenkins², A. L. Shreck¹, and G. E. Erickson¹, ¹*University of Nebraska-Lincoln, Lincoln*, ²*University of Nebraska Panhandle Research and Extension Center, Scottsbluff.*
- 9:00 AM 110 **Effects of protein and fat concentration in co-product based growing diets on performance and carcass composition.**
J. R. Segers*, D. W. Shiike, D. B. Faulkner, and K. M. Retallick, *University of Illinois, Urbana.*
- 9:15 AM 111 **Effects of spoilage of wet distillers grains plus solubles on performance of growing steers.**
J. L. Harding*, C. J. Schneider, B. L. Nuttelman, T. J. Klopfenstein, and G. E. Erickson, *University of Nebraska-Lincoln, Lincoln.*
- 9:30 AM 112 **Evaluation of a dried distillers grains with solubles cube using field peas as a binder.**
A. H. Titlow*, J. A. Hansen, M. K. Luebbe, and K. H. Jenkins, *University of Nebraska Panhandle Research and Extension Center, Scottsbluff.*
- 9:45 AM 113 **Effect of urea inclusion in diets containing distillers grains on feedlot cattle performance and carcass characteristics.**
I. Ceconi*, A. DiCostanzo, and G. I. Crawford, *University of Minnesota, St. Paul.*
- 10:00 AM **Break**
- 10:15 AM 114 **Effects of dietary inclusion of manganese oxide in beef cattle feedlot diets containing high dietary concentrations of sulfur.**
G. I. Crawford*, J. M. Kelzer, J. P. Jaderborg, and A. DiCostanzo, *University of Minnesota, St. Paul.*
- 10:30 AM 115 **Effects of dietary sulfur on ruminal hydrogen sulfide concentrations over time.**
S. C. Loerch*¹, F. L. Fluharty¹, L. A. Morrow¹, S. A. Metzger¹, and T. L. Felix², ¹*The Ohio State University, Wooster*, ²*University of Illinois, Urbana.*
- 10:45 AM 116 **(Invited ASAS Animal Science Young Scholar) Effects of supplemental manganese oxide on ruminal hydrogen sulfide concentration, ruminal pH, and feedlot performance of beef cattle fed high-sulfur finishing diets.**
J. M. Kelzer*¹, M. Ruiz-Moreno¹, G. I. Crawford¹, A. DiCostanzo¹, and G. C. Lamb², ¹*University of Minnesota, St. Paul*, ²*North Florida Research and Education Center, University of Florida Extension Regional Center, Marianna.*
- 11:15 AM 117 **Interaction of dietary roughage and sulfur concentration on performance of beef feedlot cattle.**
G. M. Huber*, A. DiCostanzo, and G. I. Crawford, *University of Minnesota, St. Paul.*

- 11:30 AM 118 **Use of crude glycerin in steam-flaked corn-based growing diets.**
R. G. Bondurant^{*1,2}, M. K. Luebbe¹, K. Hales³, N. A. Cole³, and J. C. MacDonald^{1,2},
¹Texas AgriLife Research, Amarillo, ²West Texas A&M University, Canyon, ³USDA-ARS,
Bushland, TX.

Ruminant Nutrition
Dairy and Forages
Chair: Daryl Kleinschmit, Agri-King Inc.
306–307

- 8:00 AM 93 **(Invited ADSA Young Dairy Scholar) Dried distillers grains with solubles as a non-forage fiber source in lactating dairy cow diets.**
S. D. Ranathunga^{*}, K. F. Kalscheur, A. R. Hippen, and D. J. Schingoethe, *South Dakota State University, Brookings.*
- 8:30 AM 94 **(Invited ADSA Young Dairy Scholar) Influence of dietary cobalt supplementation and vitamin B₁₂ injections in dairy cattle.**
M. S. Akins^{*1}, S. J. Bertics¹, M. T. Socha², and R. D. Shaver¹, *University of Wisconsin-Madison, Madison, Zinpro Corporation, Eden Prairie, MN.*
- 9:00 AM 95 **Effect of a novel bovine colostrum-derived immunoglobulin G (IgG) source on serum IgG concentrations of newborn Holstein calves.**
D. B. Carlson^{*1}, C. A. Kost¹, E. Crouzer², R. W. Pelzel², and M. T. Socha², *1Milk Products, Chilton, WI, 2Zinpro Performance Colostrum, Eden Prairie, MN.*
- 9:15 AM 96 **(Invited ADSA Young Dairy Scholar) Probiotics cultures in animal feed: Effects on ruminal fermentation, immune responses, and resistance to infectious diseases.**
M. A. Osman^{*1,2}, J. R. Stabel³, J. M. Hostetter⁴, D. Nettleton⁵, S. E. Dowd⁶, K. Onda⁷, W. Kreikemeier⁸, D. Ware⁸, and D. C. Beitz^{1,9}, *1Department of Animal Science, Iowa State University, Ames, 2Interdepartmental Program of Immunobiology, Iowa State University, Ames, 3USDA-ARS-National Animal Disease Center, Ames, IA, 4Department of Veterinary Pathology, Iowa State University, Ames, 5Department of Statistics, Iowa State University, Ames, 6Research and Testing Laboratory, Lubbock, TX, 7Department of Internal Medicine, Azabu University, Sagami-hara, Kanagawa, Japan, 8Nutrition Physiology Company, Guymon, OK, 9Department of Biochemistry, Biophysics, and Molecular Biology, Iowa State University, Ames.*
- 9:45 AM 97 **Effects of supplementing PetroAlgae's Lemna Meal vs. alfalfa meal on nutrient intake, milk yield and milk fatty acid profile in lactating dairy cows.**
D. N. L. da Silva^{*1}, M. Rohlfesen², D. Wells², and N. B. Litherland¹, *1University of Minnesota, St Paul, 2PetroAlgae LLC, Melbourne, FL.*
- 10:00 AM 98 **Evaluation of feed delivery methods for transitioning prepubertal dairy heifers to higher forage diets.**
T. S. Dennis^{*}, J. E. Tower, and T. D. Nennich, *Purdue University, West Lafayette, IN.*
- 10:15 AM **Break**
- 10:30 AM 99 **Handling techniques of forage diet samples collected using fistulated cattle.**
S. K. Pruitt^{*}, B. L. Nuttelman, C. J. Schneider, J. A. Musgrave, L. A. Stalker, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 10:45 AM 100 **Effects of forage type, storage method, and moisture level in crop residues mixed with modified distillers grains.**
B. M. Weber^{*}, B. L. Nuttelman, K. R. Rolfe, C. J. Schneider, G. E. Erickson, T. J. Klopfenstein, and W. A. Griffin, *University of Nebraska-Lincoln, Lincoln.*

- 11:00 AM 101 **Summer supplementation and subsequent feedlot sorting of yearling steers.**
K. M. Rolfe*, W. A. Griffin, T. J. Klopfenstein, D. R. Mark, B. L. Nuttelman, and G. E. Erickson, *University of Nebraska, Lincoln.*
- 11:15 AM 102 **Stocking system effects on soil and forage characteristics and performance of fall-calving cows grazing tall fescue pastures.**
M. W. Dunn*, J. R. Russell, D. G. Morrical, S. K. Barnhart, and H. J. Sellers, *Iowa State University, Ames.*
- 11:30 AM 103 **Nutritive value and amount of corn plant parts.**
A. L. McGee*, M. C. Johnston, K. M. Rolfe, J. L. Harding, and T. K. Klopfenstein, *University of Nebraska-Lincoln.*
- 11:45 AM 104 **Replacement of grazed forage and animal performance when distillers grains are fed in a bunk or on the ground.**
K. L. Gillespie*, T. J. Klopfenstein, J. A. Musgrave, B. L. Nuttelman, C. J. Schneider, L. A. Stalker, and J. D. Volesky, *University of Nebraska, Lincoln.*
- 12:00 PM 105 **Strategic supplementation of dried distillers grains to yearling steers grazing smooth brome grass pastures.**
S. K. Pruitt*, C. J. Schneider, B. L. Nuttelman, W. A. Griffin, D. B. Burken, T. J. Klopfenstein, G. E. Erickson, and W. H. Schacht, *University of Nebraska, Lincoln.*

Teaching

**Chair: Elizabeth Karcher, Michigan State University
401**

- 8:00 AM 119 **Evaluation of advising procedures for animal science majors at Purdue University.**
M. A. Diekman*, *Purdue University, West Lafayette, IN.*
- 8:15 AM 120 **Using a hybrid course structure to enhance student engagement and learning of swine management and production.**
B. D. Whitaker*, *University of Findlay, Findlay, OH.*
- 8:30 AM 121 **Effect of making an audio recording on writing quality of a student term paper in an introductory animal sciences course.**
W. R. Lamberson^{*2}, A. A. Lannin¹, B. Selting¹, C. A. Chmidling¹, T. M. Taxis², and S. D. McKay², ¹*Campus Writing Program, University of Missouri, Columbia*, ²*Division of Animal Sciences, University of Missouri, Columbia.*
- 8:45 AM 122 **A five-year review of the Graduate Experience Program.**
T. M. Taxis*, E. R. McGill, G. W. Jesse, and W. R. Lamberson, *University of Missouri, Columbia.*

Nonruminant Nutrition

Feed Ingredients and Additives

**Chair: Matt Kocher, Elanco Animal Health
318–319**

- 10:00 AM 123 **Amino acid composition and digestibility of mold damaged corn selected for low mycotoxin content fed to finishing pigs.**
C. M. Pilcher*, A. Greco, C. R. Hurburgh, and J. F. Patience, *Iowa State University, Ames.*

- 10:15 AM 124 **Amino acid digestibility and energy concentration in conventional, high protein, and low oligosaccharide varieties of full fat soybeans fed to growing pigs.**
J. Yoon* and H. H. Stein, *University of Illinois, Urbana.*
- 10:30 AM 125 **Impact of a whole yeast product on sow and litter performance.**
B. Bass*¹, V. Perez², H. Yang², D. Holzgraefe², J. Chewning¹, and C. Maxwell¹, ¹*University of Arkansas, Fayetteville, ²ADM Alliance Nutrition, Inc., Quincy, IL.*
- 10:45 AM 126 **Impact of a whole yeast product (*Pichia guilliermondii*; CitriStim) on weaned pig performance.**
B. Bass*¹, V. Perez², H. Yang², D. Holzgraefe², J. Chewning¹, and C. Maxwell¹, ¹*University of Arkansas, Fayetteville, ²ADM Alliance Nutrition Inc., Quincy, IL.*
- 11:00 AM 127 **(Invited ASAS Animal Science Young Scholar) Effects of plant extracts on immune function and disease resistance in pigs.**
Y. Liu* and J. E. Pettigrew, *University of Illinois, Urbana.*
- 11:30 AM 128 **(Invited ASAS Animal Science Young Scholar) Nutritional values of carbohydrate sources fed to pigs.**
S. K. Cervantes-Pahm* and H. H. Stein, *University of Illinois, Urbana.*
- 12:00 PM 129 **Determination of the effectiveness of a feed grade NSP enzyme (Easyzyme) to improve swine performance in the late-finishing period.**
L. Greiner¹, D. Holzgraefe², V. Perez², and J. Hahn*², ¹*Innovative Swine Solutions LLC, Carthage, IL, ²Archer Daniels Midland Inc., Quincy, IL.*
- 12:15 PM 130 **In vitro fermentation and microscopic matrix of distillers dried grains with solubles following enzyme treatment.**
R. Jha*¹, J. Li¹, M. R. Bedford², C. R. Christensen³, T. Vasanthan¹, and R. T. Zijlstra¹, ¹*University of Alberta, Edmonton, AB, Canada, ²AB Vista Feed Ingredients, Wilts, UK, ³University of Saskatchewan, Saskatoon, SK, Canada.*
- 12:30 PM 131 **(Invited ASAS Animal Science Young Scholar) Effects of spray-dried plasma (SDP), clays, and spray-dried egg (SDE) on productive performance and health of pigs and mice.**
M. Song* and J. E. Pettigrew, *University of Illinois, Urbana.*

Equine

Chair: Peggy Miller, Iowa State University

402

- 1:00 PM **(Invited) Equine obesity: Options for equine weight loss in healthy and diseased horses.**
S. Pratt-Phillips.
- 1:45 PM 132 **Best management practices on horse farms in Minnesota and Wisconsin.**
J. E. Earing*, E. M. Allen, C. C. Shaeffer, J. A. Lamb, and K. L. Martinson, *University of Minnesota, St. Paul.*
- 2:00 PM 133 **Body condition score of horses at two Minnesota shows.**
K. Martinson*¹, J. Earing¹, R. Coleman², and M. McCue¹, ¹*University of Minnesota, St. Paul, ²University of Kentucky, Lexington.*
- 2:15 PM 134 **The effect of soaking on protein and mineral loss from orchardgrass and alfalfa hays.**
K. Martinson*¹, H. Jung^{1,2}, M. Hathaway¹, and C. Sheaffer², ¹*University of Minnesota, St. Paul, ²USDA-ARS, St. Paul, MN.*

2:30 PM 135 **The use of technology to enhance active learning in undergraduate equine nutrition course.**
R. C. Bott*, K. Koch, and C. Delvaux, *South Dakota State University, Brookings.*

2:45 PM **The 2011 South Dakota equitarian survey and reservation equine comparative analysis.**
A. T. Gebhart, *South Dakota State University.*

**Extension–Beef/Small Ruminant
Tools for Improving Beef Production Systems
Chair: Justin Sexten, University of Missouri
302–303**

1:00 PM **Introduction.**
Larry Corah, *Certified Angus Beef.*

1:15 PM 136 **(Invited) DNA markers: What works and how to use them.**
R. L. Weaver*, *Kansas State University, Manhattan.*

2:00 PM 137 **(Invited) System application of sexed semen.**
J. B. Hall* and J. B. Glaze, *University of Idaho, Moscow.*

2:45 PM **Break**

3:00 PM 138 **(Invited) Forage treatment methods to improve nutritive value and digestibility.**
L. L. Berger*, *University of Nebraska, Lincoln.*

3:45 PM 139 **(Invited) Trends in beef consumption: Implications for producers.**
D. L. VanOverbeke*, M. K. Henderson, and G. G. Hilton, *Oklahoma State University, Stillwater.*

4:30 PM 140 **(Invited) Defining and quantifying demand for the Certified Angus Beef brand.**
L. C. Zimmerman*¹, T. C. Schroeder², and M. A. McCully³, ¹*CattleFax, Centennial, CO*, ²*Kansas State University, Manhattan*, ³*Certified Angus Beef LLC, Wooster, OH.*

**Growth, Development, Muscle Biology, and Meat Science
Chair: Eric Berg, North Dakota State University
316–317**

1:00 PM 141 **The impact and economic analysis of dietary inclusion of citrus pulp on the growth performance, efficiency, carcass merit, and lean quality of finishing pigs.**
J. D. Crosswhite*, N. B. Myers, A. T. Adesogan, J. H. Brendemuhl, D. D. Johnson, and C. C. Carr, *University of Florida, Gainesville.*

1:15 PM 142 **Effect of average litter weight on growth performance, carcass characteristics and meat quality of the offspring.**
G. Bee*¹ and C. E. Pardo^{1,2}, ¹*Agroscope Liebefeld Posieux, Posieux, Switzerland*, ²*ETH Zurich, Department of Agricultural and Food Science, Zurich, Switzerland.*

1:30 PM 143 **Effects of immunological castration (Improvst) on changes in dressing percentage and carcass characteristics of finishing pigs.**
D. D. Boler*¹, C. L. Puls¹, D. L. Clark¹, M. Ellis¹, A. L. Schroeder², P. D. Matzat², J. Killefer¹, F. K. McKeith¹, and A. C. Dilger¹, ¹*University of Illinois, Urbana-Champaign*, ²*Pfizer Animal Health, Kalamazoo, MI.*

- 1:45 PM 144 **Impact of the combination of floor and feeder space in the nursery and of grow-finish floor space on the wean-to-finish growth performance and carcass characteristics of pigs in a commercial facility.**
C. M. Shull*¹, M. Ellis¹, B. A. Peterson², B. F. Wolter², and C. M. Peterson², ¹University of Illinois, Urbana, ²The Maschhoffs, Carlyle, IL.
- 2:00 PM 145 **Growth performance of immunologically castrated male pigs (with an anti-GnRF immunological product; Improvest) in comparison to surgical castrates, gilts, and entire males.**
C. L. Puls*¹, A. Rojo¹, M. Ellis¹, D. D. Boler¹, F. K. McKeith¹, J. Killefer¹, A. L. Schroeder², and P. D. Matzat², ¹University of Illinois, Urbana, ²Pfizer Animal Health, Kalamazoo, MI.
- 2:15 PM 146 **Carcass lipid iodine values taken from three carcass sites are affected by dietary fat level and source during the finishing period.**
T. A. Kellner*, K. J. Pruse, and J. F. Patience, Iowa State University, Ames.
- 2:30 PM **Break**
- 2:45 PM 147 **Effects of stocker management system and rate of gain on skeletal muscle developmental characteristics of beef cattle.**
M. A. Vaughn*¹, J. D. Starkey¹, E. D. Sharman², P. A. Lancaster², K. C. Hutton¹, U. DeSilva², G. W. Horn², and C. R. Krehbiel², ¹Texas Tech University, Lubbock, ²Oklahoma State University, Stillwater.
- 3:00 PM 148 **Effects of stocker management system and rate of gain on skeletal muscle satellite cell activity in beef stocker cattle.**
M. A. Vaughn¹, J. D. Starkey¹, K. C. Hutton*¹, E. D. Sharman², P. A. Lancaster², U. DeSilva², G. W. Horn², and C. R. Krehbiel², ¹Texas Tech University, Lubbock, ²Oklahoma State University, Stillwater.
- 3:15 PM 149 **(Invited ASAS Animal Science Young Scholar) Sequential feeding of β -adrenergic agonists to cull beef cows.**
M. J. Weber*¹, M. E. Dikeman¹, J. R. Jaeger¹, J. A. Unruh¹, B. J. Johnson², and L. Murray¹, ¹Kansas State University, Manhattan, ²Texas Tech University, Lubbock.
- 3:45 PM 150 **Combining two proven mechanical tenderness measurements in one steak using two different common cooking methods.**
Z. D. Callahan*¹, R. M. Dolazza¹, Z. T. Robertson¹, E. M. Callahan¹, K. E. Belk², R. K. Miller³, J. B. Morgan⁴, and C. L. Lorenzen¹, ¹University of Missouri, Columbia, ²Colorado State University, Ft. Collins, ³Texas A&M University, College Station, ⁴Oklahoma State University, Stillwater.

Nonruminant Nutrition

Amino Acids

Chair: Ruurd Zijlstra, University of Alberta

314-315

- 1:00 PM 151 **Influence of standardized ileal digestible tryptophan:lysine ratio on growth performance of 6- to 10-kg nursery pigs.**
S. Nitikanchana*¹, M. D. Dolzack¹, S. S. Dritz¹, J. M. DeRouche¹, R. D. Goodband¹, J. E. Nemecheck¹, J. L. Nelssen¹, and J. Usry², ¹Kansas State University, Manhattan, ²Ajinomoto Heartland LLC, Chicago, IL.

- 1:15 PM 152 **Isoleucine requirement in post-weaned piglets.**
M. Gloaguen*^{1,3}, N. Le Floc'h^{1,2}, E. Corrent³, Y. Primot³, and J. van Milgen^{1,2}, ¹*INRA, UMR1079, SENAH, Saint-Gilles, France*, ²*Agrocampus Ouest Rennes, UMR 1079, SENAH, Rennes, France*, ³*Ajinomoto Eurolysine s.a.s., Paris, France*.
- 1:30 PM 153 **Estimation of the ideal tryptophan:lysine ratio in 10- to 20-kg pigs.**
G. I. Petersen* and H. H. Stein, *University of Illinois, Urbana*.
- 1:45 PM 154 **Isoleucine requirement for maintenance in sows.**
S. Moehn*¹, D. Franco¹, J. K. Josephson¹, P. B. Pencharz², and R. O. Ball¹, ¹*Department of Agriculture, Food and Nutritional Sciences, University of Alberta, Edmonton, AB, Canada*, ²*Research Institute, Hospital for Sick Children, Toronto, ON, Canada*.
- 2:00 PM **Break**
- 2:15 PM 155 **Isoleucine requirement of pregnant sows.**
S. Moehn*¹, D. Franco¹, J. K. Josephson¹, P. B. Pencharz², and R. O. Ball¹, ¹*Department of Agriculture, Food and Nutritional Sciences, University of Alberta, Edmonton, AB, Canada*, ²*Research Institute, Hospital for Sick Children, Toronto, ON, Canada*.
- 2:30 PM 156 **Tryptophan requirement of gestating sows.**
S. Moehn*¹, D. Franco¹, J. K. Josephson¹, P. B. Pencharz², and R. O. Ball¹, ¹*Department of Agriculture, Food and Nutritional Sciences, University of Alberta, Edmonton, AB, Canada*, ²*Research Institute, Hospital for Sick Children, Toronto, ON, Canada*.
- 2:45 PM 157 **(Invited ASAS Animal Science Young Scholar) Effect of crystalline amino acid supply in a reduced crude protein diet on amino acid utilization and lactation performance of sows.**
R. Manjarin* and N. L. Trottier, *Department of Animal Science, Michigan State University, East Lansing*.

Nonruminant Nutrition

Grain Co-Products

Chair: Joel Spencer, JBS United Inc.

318–319

- 1:00 PM 158 **Effects of distillers dried grains with solubles (DDGS) on gaseous emissions of finishing pigs.**
H. J. Kim, S. D. Carter*, M. R. Bible, K. F. Coble, and T. M. Walraven, *Oklahoma State University, Stillwater*.
- 1:15 PM 159 **Effects of sorghum dried distillers grains with solubles on finishing pig growth performance, carcass characteristics, and fat quality.**
K. M. Sotak*, T. A. Houser, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. M. DeRouche, J. L. Nelssen, B. L. Goehring, and G. R. Skaar, *Kansas State University, Manhattan*.
- 1:30 PM 160 **Effects of lowering corn dried distillers grains with solubles (DDGS) and wheat middlings (Mids) with or without the addition of choice white grease (CWG) prior to marketing on finishing pig growth performance, carcass characteristics, carcass fat quality, and intestinal weights.**
M. D. Asmus*, J. M. DeRouche, J. L. Nelssen, M. D. Tokach, S. S. Dritz, R. D. Goodband, and T. A. Houser, *Kansas State University, Manhattan*.

- 1:45 PM 161 **Effects of feeding diets containing highly oxidized corn dried distillers grains with solubles (DDGS) with increasing vitamin E levels to wean-finish pigs on growth performance, carcass composition, and pork fat quality.**
R. Song*¹, C. Chen¹, L. J. Johnston², B. J. Kerr³, T. E. Weber³, and G. C. Shurson¹,
¹University of Minnesota, St. Paul, ²West Central Research and Outreach Center, Morris, MN, ³USDA-ARS-NLAE, Ames, IA.
- 2:00 PM 162 **Effects of dietary L-carnitine and dried distillers grains with solubles (DDGS) on growth, carcass characteristics, and loin and fat quality of finishing pigs.**
W. Ying*¹, J. M. DeRouche¹, M. D. Tokach¹, S. S. Dritz¹, T. A. Houser¹, R. D. Goodband¹, J. L. Nelssen¹, and J. C. Woodworth², ¹Kansas State University, Manhattan, ²Lonza Inc., Allendale, NJ.
- 2:15 PM **Break**
- 2:30 PM 163 **Effect of replacing soybean meal (SBM) with corn high protein dried distillers grains with solubles (HPDDGS) on growth performance, carcass characteristics, and carcass fat quality in finishing pigs.**
D. L. Goehring*¹, M. D. Tokach¹, J. M. Nelssen¹, J. M. DeRouche¹, R. D. Goodband¹, S. S. Dritz¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Ajinomoto Heartland LLC, Chicago, IL.
- 2:45 PM 164 **Digestibility of neutral detergent fiber, energy and amino acids in nine corn co-products fed to growing pigs.**
N. Gutierrez*¹, B. J. Kerr², and J. F. Patience¹, ¹Iowa State University, Ames, ²USDA-ARS-NLAE, Ames, IA.
- 3:00 PM 165 **Effect of dietary fiber from corn bran on growth performance and apparent total tract digestibility of dietary energy in growing and finishing pigs.**
N. A. Gutierrez*¹, B. J. Kerr², and J. F. Patience¹, ¹Iowa State University, Ames, ²USDA-ARS-NLAE, Ames, IA.
- 3:15 PM 166 **The effects of sorghum dried distillers grains with solubles on nursery pig performance.**
K. M. Sotak*, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. M. DeRouche, and J. L. Nelssen, Kansas State University, Manhattan.
- 3:30 PM 167 **Effect of increasing levels of corn distillers dried grains with solubles (DDGS) on growth performance of nursery pigs.**
T. C. Tsai, C. R. Dove, P. M. Cline, and M. Azain*, University of Georgia, Athens.
- 3:45 PM 168 **Effects of increasing dietary wheat middlings and corn dried distillers grains with solubles in diets for 7- to 23-kg nursery pigs.**
J. A. De Jong*, J. M. DeRouche, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, Kansas State University, Manhattan.

Invited Symposium: Physiology of Heat Stress in Production Animals

Chair: Jason Ross, Iowa State University

304–305

Sponsored by Elanco

- 1:00 PM 169 **(Invited) Infertility in heat-stressed dairy cattle: Causes and mitigation.**
P. J. Hansen*, University of Florida, Gainesville.
- 1:45 PM 170 **(Invited) Management of heat stress in the livestock industry.**
T. M. Brown-Brandl*, USDA-ARS US Meat Animal Research Center, Clay Center, NE.

- 2:30 PM 171 **(Invited) The physiology of heat stress: A shift in metabolic priorities at the systemic and cellular levels.**
R. P. Rhoads*¹ and L. H. Baumgard², ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*Iowa State University, Ames*.

Ruminant Nutrition
Maternal Nutrition—Impacts on Production
Chair: Aimee Wertz-Lutz, ADM Alliance Nutrition
312–313
Sponsored by ADM Alliance Nutrition

- 1:00 PM 172 **Effects of limit-feeding dried distillers grains during mid- to late-gestation on ewe and progeny performance pre-weaning.**
R. L. Burgett*¹, J. S. Luther², D. M. Schaefer¹, M. A. Berg¹, D. L. Thomas¹, and A. E. Radunz¹, ¹*University of Wisconsin-Madison, Madison*, ²*University of Wisconsin-River Falls, River Falls*.
- 1:15 PM 173 **Influence of prepartum diet type on cow performance and subsequent calf performance.**
T. B. Wilson*, D. W. Shike, D. B. Faulkner, T. G. Nash, and N. Post, *University of Illinois, Urbana-Champaign*.
- 1:30 PM 174 **(Invited) Nutritional programming of the dairy calf and lactation milk yield.**
F. Soberon* and M. E. Van Amburgh, *Cornell University, Ithaca, NY*.
- 2:15 PM 175 **Correlation of feed efficiency and small intestinal growth in finishing cattle born to dams fed varying levels of nutrients during early to mid-gestation.**
A. M. Meyer*¹, K. M. Cammack¹, S. I. Paisley¹, P. Moriel¹, W. J. Means¹, M. Du¹, J. S. Caton², and B. W. Hess¹, ¹*Department of Animal Science, University of Wyoming, Laramie*, ²*Department of Animal Sciences, North Dakota State University, Fargo*.
- 2:30 PM 176 **Effects of nutrient restriction and melatonin supplementation during mid- to late gestation on ewe and fetal lamb small intestinal and hepatic in vitro oxygen (O₂) consumption.**
A. M. Meyer*¹, K. C. Swanson², B. J. Awda³, M. Kappahn², R. D. Yunusova², L. E. Camacho², J. S. Caton², K. A. Vonnahme², and C. O. Lemley², ¹*Department of Animal Science, University of Wyoming, Laramie*, ²*Department of Animal Sciences, North Dakota State University, Fargo*, ³*Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada*.
- 2:45 PM 177 **(Invited) Maternal nutrition and dietary supplements that affect uteroplacental blood flow and fetal development.**
C. O. Lemley*¹, L. E. Camacho¹, C. A. Zimprich¹, L. A. Lekatz¹, J. S. Caton¹, P. Shukla², S. T. O'Rourke², and K. A. Vonnahme¹, ¹*Department of Animal Sciences, North Dakota State University, Fargo*, ²*Department of Pharmaceutical Sciences, North Dakota State University, Fargo*.
- 3:30 PM 178 **(Invited) Impact of maternal nutrition on subsequent steer and heifer progeny.**
R. N. Funston*, *University of Nebraska, North Platte*.
- 4:15 PM 344 **(Invited) Impact of maternal nutrition on expression of genes associated with muscle and adipose tissue growth and tenderness.**
K. Underwood*¹, A. D. Weaver¹, and A. E. Wertz-Lutz², ¹*South Dakota State University, Brookings*, ²*ADM Alliance Nutrition Inc., Quincy, IL*.

Schingoethe Appreciation Symposium
Chair: David Casper, South Dakota State University
306–307
Sponsored by ASAS Foundation

- 1:00 PM **Introduction.**
D. P. Casper.
- 1:05 PM 179 **(Invited) History of amino acid research in lactating dairy cows.**
D. J. Schingoethe*, *South Dakota State University, Brookings.*
- 1:50 PM 180 **(Invited) A review of the ruminally protected amino acid research conducted at South Dakota State University by Dr. Schingoethe.**
D. P. Casper*, *South Dakota State University, Brookings.*
- 2:35 PM 181 **(Invited) Factors affecting mammary blood flow (MBF) and its impact on milk production in dairy cows.**
D. H. Kleinschmit*, *Agri-King Inc., Fulton, IL.*
- 3:20 PM **Break**
- 3:35 PM 182 **(Invited) Predictions of nutrient availability and animal response of dairy diets based on soy proteins and distillers grains using different formulation models.**
K. Mjoun*¹ and K. F. Kalscheur², ¹*Alltech Inc., Brookings, SD*, ²*South Dakota State University, Brookings.*
- 4:20 PM 183 **(Invited) Field observations of using amino acid balancing for lactating dairy cows: What works and what doesn't.**
M. Brouk*, *Kansas State University, Manhattan.*

POSTER PRESENTATIONS

Extension

Beef/Small Ruminant

Chair: Amy Radunz, University of Wisconsin-Madison
Ballroom

- 212P **Effects of pasture size on the efficacy of off-stream water or restricted stream access to alter the spatial/temporal distribution of grazing cows.**
J. Bisinger* and J. Russell, *Iowa State University, Ames.*
- 213P **Low stress cattle working facility.**
V. L. Anderson* and B. R. Ilse, *North Dakota State University, Carrington.*

Extension

Dairy

Chair: Tamilee Nennich, Purdue University
Ballroom

- 214P **Modeling the dynamics of Johne's disease in dairy herd populations.**
B. Olthoff*, Y. Kigeneh, G. De Young, and J. Olthoff, *Dordt College, Sioux Center, IA.*

**Extension
Swine
Chair: Steven Moeller, The Ohio State University
Ballroom**

- 215P **Development of a procedure to reproduce the variance and relationships amongst carcass measurements and the weight of primal and subprimal lean cuts.**
M. R. Lawlor², B. A. Craig², A. P. Schinckel^{*1}, M. E. Einstein¹, S. Jungst², J. O. Matthews², B. Fields², C. Booher², T. Dreadin², C. Fralick³, S. Tabor⁴, A. Sosnicki³, E. Wilson³, and R. D. Boyd⁴, ¹Purdue University, West Lafayette, IN, ²PIC North America, Hendersonville, TN, ³Swine Tek, Convoy, OH, ⁴The Hanor Company, Franklin, KY.
- 216P **Developing a stochastic model to estimate optimum market weight for PIC pigs.**
S. Jungst^{*1}, N. Matthews¹, A. Schinckel², M. Einstein², B. Fields¹, and A. Sosnicki¹, ¹PIC North America, Hendersonville, TN, ²Purdue University, Department of Animal Sciences, West Lafayette, IN.
- 217P **Use of mixed model nonlinear functions to adjust pig growth and measurement data.**
A. P. Schinckel¹, M. E. Einstein¹, D. Marois², and D. N. Hamilton^{*2}, ¹Purdue University, West Lafayette, IN, ²Genetiporc Inc., St. Bernard, Beauce, Canada.
- 218P **Use of a stochastic model to determine the complex relationships between key production inputs of economic importance and optimum market weight of market pigs.**
N. Matthews^{*1}, S. Jungst¹, A. Schinckel², M. Einstein², B. Fields¹, and A. Sosnicki¹, ¹PIC North America, Hendersonville, TN, ²Purdue University Department of Animal Sciences, West Lafayette, IN.
- 219P **Effect of birth weight and weight gain in the first 24 h on preweaning piglet survival.**
P. J. L. Ramaekers^{*1}, I. Huerta², and H. M. J. van Hees¹, ¹Nutreco Swine Research Centre, Boxmeer, the Netherlands, ²Magapor S.L. Technical Services, Zaragoza, Spain.
- 220P **Apparent and standardized ileal amino acid digestibilities in black-seeded *Brassica napus* and yellow-seeded *Brassica juncea* in growing pigs.**
N. Sanjayan^{*}, J. M. Heo, and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada.
- 221P **Use of indirect calorimetry to determine the net energy (NE) content of canola meals in growing pigs.**
J. M. Heo^{*}, D. Ayoade, and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada.
- 222P **Wound score comparison among gestating sows housed in two different group sizes on a commercial swine farm.**
T. A. Guthrie^{*1}, R. O. Bates¹, E. Ferry¹, D. W. Rozeboom¹, G. May¹, and B. Barton², ¹Michigan State University, East Lansing, ²Barton Farm Co., Homer, MI.
- 223P **Assessment of pork producer educational needs for adoption of group sow housing.**
E. A. Ferry^{*}, R. O. Bates, T. A. Guthrie, D. W. Rozeboom, and G. A. May, Michigan State University, East Lansing.

Nonruminant Nutrition
Amino Acids
Chair: Ruurd Zijlstra, University of Alberta
Ballroom

- 256P **Determining the effect of tryptophan to large neutral amino acids (LNAA) ratio on growth performance of finishing pigs.**
S. Nitikanchana*¹, M. D. Tokach¹, S. S. Dritz¹, J. Usry², J. M. DeRouchey¹, R. D. Goodband¹, J. R. Bergstrom¹, and J. L. Nelssen¹, ¹*Kansas State University, Manhattan, ²Ajinomoto Heartland LLC, Chicago, IL.*
- 257P **Influence of dietary SID isoleucine:lysine ratio on the optimal tryptophan:lysine ratio for 6- to 11-kg pigs.**
S. Nitikanchana*¹, A. L. Chipman², M. D. Tokach¹, S. S. Dritz¹, and J. F. Patience², ¹*Kansas State University, Manhattan, ²Iowa State University, Ames.*
- 258P **Determining of the effect of lysine to calorie ratio on growth performance and blood urea nitrogen of growing barrows and gilts in hot season and cool season in a commercial environment.**
T. X. Zhou*, L. Yan, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 259P **Effects of dietary Thr:Lys ratio on growth performance and blood profiles in weaning pigs.**
J. Li*, H. Y. Beak, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*

Nonruminant Nutrition
Ingredients and Additives
Chair: Matt Kocher, Elanco Animal Health
Ballroom

- 260P **Impact of tylosin phosphate on amino acid and energy digestibility of diets fed to growing pigs.**
C. M. Pilcher*¹, R. Arentson², and J. F. Patience¹, ¹*Iowa State University, Ames, ²Elanco Animal Health, Greenfield, IN.*
- 261P **Withdrawn**
- 262P **The effects of Calibrin-Z adsorbent on weanling pigs with no mycotoxin challenge.**
B. R. Wu¹, Z. B. Yang¹, S. L. Johnston*², and F. Chi², ¹*Shandong Agricultural University, Tai'an, Shandong, China, ²Amlan International, Chicago, IL.*
- 263P **Effect of poultry fat and acidulated poultry fat on nutrient digestibility and performance in nursery pigs.**
S. M. Mendoza* and E. van Heugten, *Department of Animal Science, North Carolina State University, Raleigh.*
- 264P **Effects of xylanase in finishing pig diets varying in energy and fiber on growth performance, carcass characteristics, and nutrient digestibility.**
J. A. Barnes*, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- 265P **Effects of dietary supplementation of herb on growth performance, nutrient digestibility, blood profiles and meat quality in finishing pigs.**
J. H. Cho*, J. H. Jung, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*

- 266P **Effect of two probiotics on the performance of weaned piglets.**
I. J. Wellock*¹, P. Toplis¹, and A. Stewart², ¹Primary Diets, Yorkshire, UK, ²Harper Adams University College, Newport, UK.
- 267P **Effect of lipid source and oxidation level on DE, ME, and apparent total-tract digestibility (ATTD) of DM, GE, EE, N, and C in young pigs.**
P. Liu*¹, B. J. Kerr², T. E. Weber², C. Chen¹, L. J. Johnston^{1,3}, and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²USDA-ARS, Ames, IA, ³West Central Research and Outreach Center, Morris, MN.
- 268P **Effect of alcohol-based energy source and animal-based specialty protein sources on nursery pig performance.**
W. Ying*¹, J. M. DeRouche¹, M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, J. L. Nelssen¹, W. E. Schiefelbein², and R. L. Odgaard², ¹Kansas State University, Manhattan, ²XFE Products, Des Moines, IA.
- 269P **Effect of β -mannanase and β -glucanase in diets containing corn-soybean meal-dried distillers grains with solubles on nursery pig performance.**
M. Gandarillas*^{1,3}, S. Yu¹, Z. Rambo¹, D. Kelly¹, B. Richert¹, and J. Ferrel², ¹Purdue University, West Lafayette, IN, ²ChemGen Corp., Gaithersburg, MD, ³Pontificia Universidad Católica de Chile, Santiago, Chile.
- 270P **Effect of two ratios of supplemental β -mannanase to β -glucanase on grower pig growth performance.**
M. Gandarillas*^{1,3}, Z. Rambo¹, D. Kelly¹, J. Ferrel², and B. Richert¹, ¹Purdue University, West Lafayette, IN, ²ChemGen Corp., Gaithersburg, MD, ³Pontificia Universidad Católica de Chile, Santiago, Chile.
- 271P **Effects of XFE Liquid Energy and choice white grease on nursery pig performance.**
W. Ying*¹, J. M. DeRouche¹, M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, J. L. Nelssen¹, W. E. Schiefelbein², and R. L. Odgaard², ¹Kansas State University, Manhattan, ²XFE Products, Des Moines, IA.
- 272P **Determination of digestible and metabolizable energy content of a corn-soybean co-extruded feedstuff for swine.**
K. Koch*, R. C. Bott, R. C. Thaler, and C. Hostetler, *South Dakota State University, Brookings.*

Nonruminant Nutrition
Nursery and Growing-Finishing Nutrition and Management
Chair: Joel Spencer, JBS United Inc.
Ballroom

- 273P **The effects of high-sulfate water and dietary zeolite (clinoptilolite) on nursery pig performance.**
J. R. Flohr*, M. D. Tokach, J. L. Nelssen, S. S. Dritz, J. M. DeRouche¹, R. D. Goodband, and N. W. Shelton, *Kansas State University, Manhattan.*
- 274P **Evaluation of feed budgeting, complete diet blending, and over and under feeding each phase on finishing pig growth performance and carcass characteristics.**
H. L. Frobose*¹, J. M. DeRouche¹, D. Ryder², M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, and J. L. Nelssen¹, ¹Kansas State University, Manhattan, ²Feedlogic Corp., Willmar, MN.
- 275P **Effects of increasing NDF from corn dried distillers grains with solubles (DDGS) or wheat middlings (Midds), individually or in combination, on growth performance, carcass characteristics, and fat quality in finishing pigs.**
M. D. Asmus*, J. M. DeRouche¹, J. L. Nelssen, M. D. Tokach, S. S. Dritz, and R. D. Goodband, *Kansas State University, Manhattan.*

- 276P **Inclusion of corn germ and corn distillers dried grains with solubles in diets fed to growing-finishing pigs.**
J. W. Lee and H. H. Stein*, *University of Illinois, Urbana.*
- 277P **Effects of dietary supplementation of emulsifier on growth performance, nutrient digestibility and blood characteristics in growing-finishing pigs.**
J. P. Wang*, S. M. Hong, and I. H. Kim, *Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.*
- 278P **Effect of altering the dietary n-6 to n-3 fatty acid ratio on the pro-inflammatory responses of newly weaned pigs when challenged with *E. coli* lipopolysaccharide.**
U. Damdinsuren¹, L. Eastwood*^{1,2}, and A. D. Beaulieu^{1,2}, ¹*Prairie Swine Centre Inc, Saskatoon, SK, Canada,* ²*Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.*
- 279P **Effects of dietary distillers dried grains with solubles (DDGS) on growth performance and nutrient excretion of finishing pigs.**
H. J. Kim*, S. D. Carter, M. R. Bible, K. F. Coble, and T. M. Walraven, *Oklahoma State University, Stillwater.*
- 280P **The effects of pelleting, dried distillers drains with solubles source (DDGS), and supplementing sodium metabisulfite (Na₂S₂O₅) in nursery pig diets contaminated with deoxynivalenol.**
H. L. Frobose*¹, M. D. Tokach¹, E. L. Hansen², J. M. DeRouchey¹, S. S. Dritz¹, R. D. Goodband¹, and J. L. Nelssen¹, ¹*Kansas State University, Manhattan,* ²*Hubbard Feeds, Mankato, MN.*

Nonruminant Nutrition
Sow Nutrition and Management
Chair: Steven Kitt, Progressive Swine Technologies Inc.
Ballroom

- 281P **Effect of graded levels of dietary spray-dried plasma on pregnancy rate of mated female mice under transport stress as a model for stressed sows.**
M. Song*¹, J. J. Lee¹, Y. Liu¹, J. A. Soares¹, T. M. Che¹, J. M. Campbell², J. Polo², S. W. Seo³, and J. E. Pettigrew¹, ¹*University of Illinois, Urbana,* ²*APC Inc., Ankeny, IA,* ³*Chungnam National University, Daejeon, South Korea.*
- 282P **Effects of graded levels of dietary spray-dried plasma on growth and fetal characteristics of pregnant mice as a model for sows.**
M. Song*¹, J. A. Soares¹, Y. Liu¹, J. J. Lee¹, T. M. Che¹, J. M. Campbell², J. Polo², S. W. Seo³, and J. E. Pettigrew¹, ¹*University of Illinois, Urbana,* ²*APC Inc., Ankeny, IA,* ³*Chungnam National University, Daejeon, South Korea.*
- 283P **Feeding live *Saccharomyces cerevisiae* boulardii to sows increases immunoglobulin content in colostrum and milk.**
D. Guillou*¹, E. Chevaux², D. Rosener², Y. Le Treut¹, and J. Le Dividich³, ¹*Lallemand SAS, Blagnac, France,* ²*Lallemand Specialties Inc., Milwaukee, WI,* ³*av Kennedy, Breteil, France.*
- 284P **Dietary n-6 to n-3 fatty acid ratio affects body fat mobilization during lactation in high producing sows.**
L. Eastwood*^{1,2}, P. Leterme³, and A. D. Beaulieu^{1,2}, ¹*Prairie Swine Centre Inc, Saskatoon, SK, Canada,* ²*Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada,* ³*Cargill R&D Centre Europe, Havenstraat, Vilvoorde, Belgium.*
- 285P **Predicting milk yield and composition in lactating sows.**
A. V. Hansen^{1,2}, A. B. Strathe¹, E. Kebreab¹, and P. K. Theil¹, ¹*Department of Animal Science, University of California, Davis,* ²*Department of Animal Science, Faculty of Science and Technology, Aarhus University, Tjele, Denmark.*

- 286P **Rationalizing of the dietary Ca levels by the use of phytase and 25OHD₃ in diets for lactating first-litter sows.**
M. A. Perez-Alvarado¹, D. Brana^{*2}, C. A. Mejia^{2,1}, J. Cervantes-Lopez³, and J. A. Cuaron^{2,1},
¹Facultad de Estudios Superiores Cuautitlan, UNAM, Cuautitlan, MEX, Mexico, ²Centro Nacional de Investigacion Disciplinaria en Fisiologia Animal, INIFAP, Queretaro, QRO, Mexico, ³DSM Nutritional Products Mexico, El Salto, JAL, Mexico.

Nonruminant Nutrition Vitamins and Minerals

**Chair: Grant Petersen, JBS United Inc.
Ballroom**

- 287P **Evaluation of the rates of mineral accretion per kilogram body weight gain and net energy intake for two genetic lines of barrows and gilts from 20 to 125 kilograms of body weight.**
A. P. Schinckel¹, D. C. Mahan^{*2}, T. G. Wiseman², and M. E. Einstein¹, ¹Purdue University, West Lafayette, IN, ²The Ohio State University, Columbus.
- 288P **Use of 25OHD₃ favors opportune and sound bone maturation.**
D. Brana^{*1}, J. Gabriel-Landon², J. Cervantes-Lopez³, and J. A. Cuaron^{1,2}, ¹Centro Nacional de Investigacion Disciplinaria en Fisiologia Animal, INIFAP, Queretaro, QRO, Mexico, ²Facultad de Estudios Superiores Cuautitlan, UNAM, Cuautitlan, MEX, Mexico, ³DSM Nutritional Products Mexico, El Salto, JAL, Mexico.
- 289P **Impact of highly oxidized corn dried distillers grains with solubles (DDGS) at increasing dietary vitamin E levels on nutrient digestibility and DE and ME content in diets for growing pigs.**
R. Song^{*1}, C. Chen¹, L. J. Johnston², B. J. Kerr³, T. E. Weber³, and G. C. Shurson¹, ¹University of Minnesota, St. Paul, ²West Central Research and Outreach Center, Morris, MN, ³USDA-ARS-NLAE, Ames, IA.
- 290P **Evaluating the impact of pre-weaning calcium and phosphorus supplementation on mineral status at weaning and growth of low and high birth-weight pigs.**
P. L. Y. C. Chang^{*1}, C. H. Stahl^{1,2}, and E. van Heugten¹, ¹Department of Animal Science, North Carolina State University, Raleigh, ²Laboratory of Developmental Nutrition, North Carolina State University, Raleigh.
- 291P **Dietary calcium in excess of requirement is absorbed and utilized by neonatal pigs.**
Y. Li, B. S. Seabolt, and C. H. Stahl^{*}, North Carolina State University, Raleigh.
- 292P **An oral dose of vitamin D at birth increased serum 25-OH D at weaning but failed to alter bone mineral density in pigs.**
L. A. Rortvedt^{*2}, P. M. Cline¹, C. Ryer¹, B. Frederick¹, K. J. Retallick², D. K. Schneider², and T. D. Crenshaw², ¹Christensen Farms, Sleepy Eye, MN, ²University of Wisconsin, Madison.

Wednesday, March 21

SYMPOSIA AND ORAL SESSIONS

Nonruminant Nutrition

Minerals

Chair: Grant Petersen, JBS United Inc.

318–319

- 9:00 AM 188 **Effect of low dietary micromineral levels fed to grower-finisher pigs on growth, carcass characteristics and meat quality.**
D. W. Gowanlock^{*1}, D. C. Mahan¹, J. S. Jolliff¹, and G. M. Hill², ¹*The Ohio State University, Columbus*, ²*Michigan State University, East Lansing*.
- 9:15 AM 189 **Effect of trace mineral supplementation on metallothionein protein and antioxidant enzyme activity in grow-finish pigs.**
G. M. Hill^{*1}, J. E. Link¹, D. C. Mahan², D. W. Gowanlock², and J. S. Jolliff², ¹*Michigan State University, E. Lansing*, ²*The Ohio State University, Columbus*.
- 9:30 AM 190 **Evaluation of a superdose of a novel *Escherichia coli* phytase and zinc in piglets.**
C. L. Walk^{*1}, S. Srinongkote², and P. Wilcock¹, ¹*AB Vista Feed Ingredients, Marlborough, Wiltshire, UK*, ²*Bangkok Animal Research Center, Bangkok, Thailand*.
- 9:45 AM 191 **The effects of organic zinc, zinc sulfate, and zinc oxide on nursery pig performance.**
J. S. Jolliff^{*1}, D. C. Mahan¹, J. L. Pierce², B. W. James³, and G. M. Hill⁴, ¹*The Ohio State University, Columbus*, ²*Alltech Inc., Nicholasville, KY*, ³*Kalmbach Feeds Inc., Upper Sandusky, OH*, ⁴*Michigan State University, East Lansing*.
- 10:00 AM 192 **Development of a model simulating the metabolic fate of dietary phosphorus and calcium in growing pigs.**
M. P. Létourneau-Montminy^{*1}, A. Narcy², and C. Pomar¹, ¹*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, ²*INRA UR-83, Nouzilly, France*.

Nonruminant Nutrition

Nursery Pig Nutrition and Management

Chair: Brent Frederick, Christensen Farms

304–305

- 9:00 AM 184 **Post-weaning transition ADG can serve as a tool to manage within-barn variation.**
C. K. Jones^{*} and J. F. Patience, *Iowa State University, Ames*.
- 9:15 AM 185 **Effect of Liqueitin on nursery pig performance when administered via the water for 2 days post-weaning.**
R. S. Fry^{*}, S. B. Williams, N. D. Paton, and D. R. Cook, *Provimi North America, Akey Nutrition and Research Center, Lewisburg, OH*.
- 9:30 AM 186 **Effect of phytase source and level to improve nursery pig performance fed corn-soybean meal based diets in a commercial environment.**
D. D. Hall^{*1}, M. U. Steidinger², J. C. Remus³, T. D. Parrott³, and A. J. Veldkamp³, ¹*Hall Farms Consulting LLC, Noblesville, IN*, ²*Swine Nutrition Services, Afton, IL*, ³*Danisco Animal Nutrition, Waukesha, WI*.

- 9:45 AM 187 **Effect of lipid source and oxidation level on metabolic oxidation status of young pigs.**
*P. Liu^{*1}, B. J. Kerr², T. E. Weber², C. Chen¹, L. J. Johnston^{1,3}, and G. C. Shurson¹,
¹University of Minnesota, St. Paul, ²USDA-ARS, Ames, IA, ³West Central Research and Outreach Center, Morris, MN.*

Nutritional and Non-Nutritional Influences on Pork Quality Attributes

Chair: Eric Berg, North Dakota State University;

Joel Spencer, JBS United Inc.

316–317

Sponsored by JBS United Inc. and Lucta

- 9:00 AM 193 **(Invited) Extrinsic and intrinsic factors that influence and dictate adipose tissue deposition in pigs.**
G. J. Hausman^{}, USDA-ARS-RRC, Athens, GA.*
- 9:45 AM 194 **(Invited) Nutritional influences on fat quality of pork products.**
*J. L. Johnston^{*1} and X. Li², ¹University of Minnesota, West Central Research and Outreach Center, Morris, ²University of Minnesota, St. Paul.*
- 10:15 AM **Break**
- 10:30 AM **(Invited) Environmental influences on pork quality.**
R. C. Johnson, Farmland Foods, Denison, IA.
- 11:00 AM 195 **(Invited) Practical implications of diet formulation and swine management on pork carcass fat composition.**
*J. A. Hansen^{*1} and D. C. Kendall², ¹Murphy-Brown LLC, Rose Hill, NC, ²Prestage Farms Inc., Clinton, NC.*
- 11:30 AM 196 **(Invited) How will the consumer of today and tomorrow define pork quality?**
S. J. Moeller^{}, D. D. Boler, and H. N. Zerby, The Ohio State University, Columbus.*

Ruminant Nutrition

Beef-Feeding Management

Chair: Aimee Wertz-Lutz, ADM Alliance Nutrition

312–313

- 9:00 AM 197 **Effect of β -carotene supplementation on plasma vitamin A, growth, performance, and carcass characteristics of feedlot cattle.**
K. N. Condron^{}, R. P. Lemenager, M. C. Claeys, and J. P. Schoonmaker, Purdue University, West Lafayette, IN.*
- 9:15 AM 198 **Use of a complete-feed diet (RAMP) in grain adaptation programs compared to traditional grain adaptation programs.**
C. J. Schneider^{}, B. L. Nuttelman, K. M. Rolfe, W. A. Griffin, T. K. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.*
- 9:30 AM 199 **Use of a complete-feed diet (RAMP) to rapidly transition cattle to a finishing diet.**
C. J. Schneider^{}, B. L. Nuttelman, D. B. Burken, T. J. Klopfenstein, and G. E. Erickson, University of Nebraska, Lincoln.*

- 9:45 AM 200 **Using beet pulp to adapt cattle to finishing diets compared to traditional grain adaptation with alfalfa hay.**
C. J. Schneider*, M. K. Luebbe, K. H. Jenkins, S. A. Furman, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 10:00 AM **Break**
- 10:15 AM 201 **Occurrence of hormonal residues in feedlot cattle waste.**
T. L. Mader¹, L. J. Johnson*¹, S. L. Bartelt-Hunt¹, D. D. Snow¹, W. L. Kranz¹, C. A. Shapiro¹, S. J. Van Donk¹, D. P. Shelton¹, D. D. Tarkalson², T. C. Zhang¹, and S. M. Ensley³, ¹*University of Nebraska, Lincoln*, ²*USDA-ARS, Kimberly, ID*, ³*Iowa State University, Ames.*
- 10:30 AM 202 **Anaerobic digestion of finishing cattle manure with and without distillers grains in the diet.**
A. K. Watson*, T. J. Klopfenstein, G. E. Erickson, S. C. Fernando, J. L. Harding, and A. L. Shreck, *University of Nebraska, Lincoln.*
- 10:45 AM 203 **Effect of dietary crude protein on nitrogen emissions from beef cattle.**
N. Palumbo*, *M. Barbosa-Chiavegato, and W. Powers, Michigan State University, East Lansing.*
- 11:00 AM 204 **Impact of Component TE-S and Component TE-S with Tylan on implant defects and performance in steers implanted under clean and dirty conditions.**
K. M. Retallick*¹, D. B. Faulkner¹, T. G. Nash¹, R. L. Botts², N. A. Pyatt², J. L. Bargaen², and R. Frederickson¹, ¹*University of Illinois, Urbana*, ²*Elanco, Greenfield, IN.*
- 11:15 AM 205 **Research results are dependent on accurate cattle weights.**
A. K. Watson*¹, T. K. Klopfenstein¹, L. W. Lomas², G. E. Erickson¹, and B. L. Nuttelman¹, ¹*University of Nebraska, Lincoln*, ²*Kansas State University, Manhattan.*

Teaching/Animal Welfare Symposium
Teaching the Teachers—Responding to Animal Welfare Concerns
Chair: Elizabeth Karcher, Michigan State University
402

- 9:00 AM 206 **(Invited) Multiple models for teaching animal welfare to college students.**
J. M. Siegford*, *Michigan State University, East Lansing.*
- 9:30 AM 207 **(Invited) Teaching animal welfare in the veterinary curriculum.**
S. T. Millman*, *Iowa State University, Ames.*
- 10:00 AM **Break**
- 10:15 AM **(Invited) The use of technology in undergraduate animal welfare instruction.**
K. D. Vogel, *University of Wisconsin, River Falls.*
- 10:45 AM 208 **(Invited) Animal welfare: Book smarts are good but practice is essential.**
A. K. Johnson*, *Iowa State University, Ames.*
- 11:15 AM **Panel Discussion.**
J. M. Siegford, S. T. Millman, K. D. Vogel, and A. K. Johnson.

Midwest Section ADSA/ASAS Committee Assignment

Program Committees

Billy Day Symposium

T. J. Safranski, Chair
R. K. Christenson

Animal Behavior, Housing, and Well Being

S. I. Kehoe, Chair
S. T. Millman
L. N. Edwards
Y. Li

Breeding and Genetics

M. L. Spangler, Chair
J. Tait
M. G. Gonda

David H. Baker Symposium

B. J. Kerr, Chair
R. N. Dilger
N. R. Augspurger
H. H. Stein

Extension–Beef/Small Ruminant

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

Extension–Dairy

T. D. Nennich, Chair
N. B. Litherland
J. A. Salfer
K. F. Kalscheur

Extension–Equine

P. A. Auwerda, Chair
K. L. Martinson
R. C. Bott
J. A. Reynolds

Extension–Swine

S. J. Moeller, Chair

C. M. Peter

D. J. Newman

Growth, Development, Muscle Biology, and Meat Science

E. P. Berg, Chair

S. N. Carr

R. Cox

Graduate Student Program Committee

W. J. Powers

C. Pilcher

P. J. Gunn

IL–T. L. Felix

WI–A. E. Radunz

Nonruminant Nutrition

J. D. Spencer, Chair

M. Kocher

R. T. Zijlstra

Odor and Nutrient Management

M. J. Brouk, Chair

S. Winterholler

E. van Heugten

Ruminant Nutrition

A. E. Wertz-Lutz, Chair

P. J. Guioy

D. H. Kleinschmit

Teaching and Undergraduate Education

E. L. Karcher, Chair

K. E. Fike

S. I. Kehoe

R. C. Bott

Physiology

J. W. Ross, Chair

G. A. Bridges

L. A. Rempel

Ad Hoc – Review Program Structure

C. W. Ernst
J. E. Minton
K. F. Kalscheur
B. R. Wiegand
T. D. Crenshaw
J. Schroeder

Special Committees

ADSA Nominations

H. Chester-Jones, Chair
C. M. Luhman
D. P. Casper

ASAS Nominations

T. D. Crenshaw, Chair
M. E. Spurlock
C. W. Ernst

Academic Quadrathlon

P. S. Kuber, Chair
P. M. Walker
C. T. Jobsis
T. E. Burkey
M. E. Wilson
A. E. Wertz-Lutz
S. I. Kehoe
T. J. Safranski
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

Competitive Research Paper Committees

ASAS Midwestern Section Graduate Student Paper Competition

M. E. Wilson
K. A. Vonnahme

ASAS Midwestern Section Undergraduate Student Paper Competition

P. M. Walker

Award Committees

Ad Hoc Awards

C. W. Ernst
J. E. Minton
K. F. Kalscheur
B. R. Wiegand
T. D. Crenshaw
J. Schroeder

Agribusiness

P. A. Porter
J. D. Spencer
D. H. Kleinschmit
P. J. Kononoff
K. E. Tjardes

Innovation in Dairy Research Award

D. R. Mertens
R. A. Nafikov
S. M. Fredin
D. J. Schingoethe
D. E. Graugnard
D. P. Casper

Extension

P. S. Kuber
C. L. Wright
A. D. Garcia
G. A. Perry
P. C. Hoffman
M. J. Brouk

National Pork Board Award Swine Innovation

H. H. Stein
J. E. Pettigrew
M. E. Wilson
C. W. Ernst
A. L. Currie

Public Policy

H. Chester-Jones

Research

G. E. Erickson
D. K. Beede
M. B. Hall
W. J. Powers
J. DeRouchey
S. S. Donkin

Tim. S. Stahly Award

G. L. Cromwell
J. C. Weigel
P. K. Brown
M. G. Hogberg
R. Hinson
J. R. Bergstrom

Teaching

B. R. Wiegand
K. A. Vonnahme
H. A. Maiga
J. F. Patience
S. C. Kelm
S. A. Wagner

PAST RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vatthauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. Nelszen, 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

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. Koochmariaie, 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-Loneragan, 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

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

OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD

1995	P. L. Houghton, Heartland Cattle Co., McCook, Nebraska
1996	J. A. Barmore, Vita Plus Corp., Madison, Wisconsin
1997	D. E. Dill, Dairy Strategies, Mendota Heights, MN
1998	C. M. Luhman, Land O'lakes Research Farm, Webster City, IA
1999	Not Given
2000	D. L. Hancock, Elanco Animal Health, Greenfield, IN
2001	J. M. Lynch, Heartland Cattle Co., McCook, NE
2002	Not Given
2003	J. M. Campbell, APC, Inc., IA
2004	D. M. Weibel, United Feeds, IN
2005	T. A. Rathje, Danbred North America, Columbus, NE
2006	T. E. Sauber, Pioneer, A Dupont Company
2007	M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008	J. C. Woodworth, Lonza Inc.
2009	Not given
2010	D. H. Kleinschmit, Agri-King, Inc.
2010	J. Spencer, JBS United Inc.
2011	A. M. Gaines, The Maschhoffs, Carlyle, IL

INNOVATION IN DAIRY RESEARCH AWARD

2007	D. B. Carlson, University of Illinois
2008	A. Bettgowda, Michigan State University
2009	R. A. Natikov, Iowa State University
2010	S. Fredin, University of Wisconsin – Madison
2011	D. E. Graugnard, University of Illinois

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

UNDERGRADUATE STUDENTS - POSTER

2009	E. I. Ince, University of Wisconsin
2010	D. P. Strassburg, University of Wisconsin
2011	S. J. Morine, Iowa State University

GRADUATE STUDENTS - ORAL

1976	D. G. Haugt, 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**

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, The Ohio State University*
 P. J. Gunn, Purdue University**

*MS Division

**PhD 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

ADSA YOUNG DAIRY SCHOLARS

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

ASAS YOUNG ANIMAL 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

- 2011 R. Poletto, Purdue University
 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

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

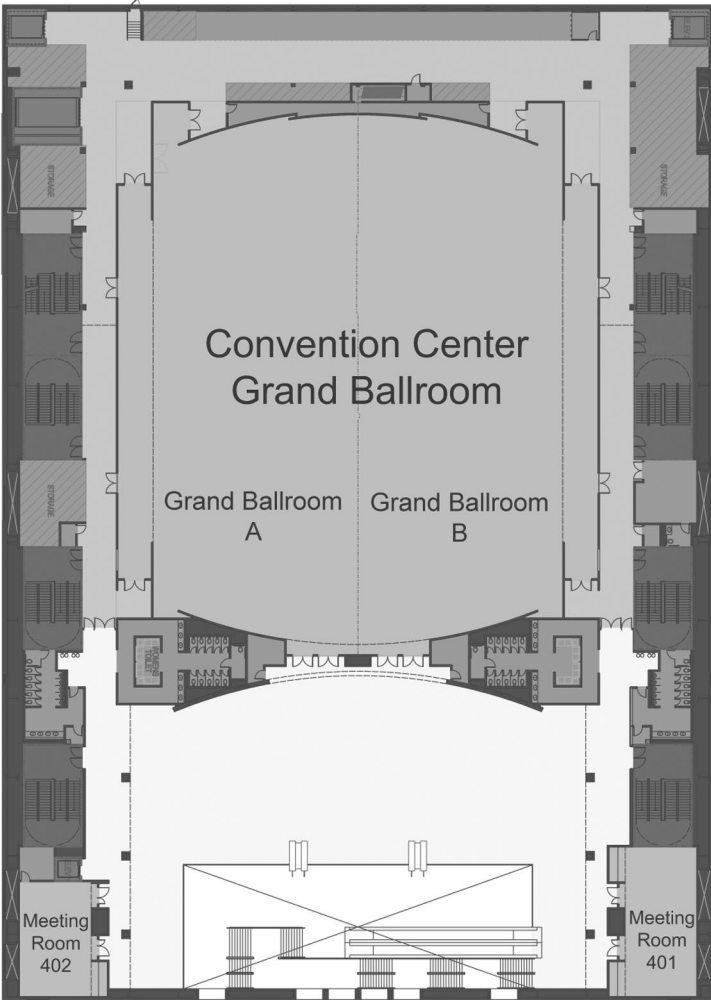
ASAS MIDWESTERN SECTION PRESIDENTS

- 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. Weibel, Purina Mills, Bloomington, IL

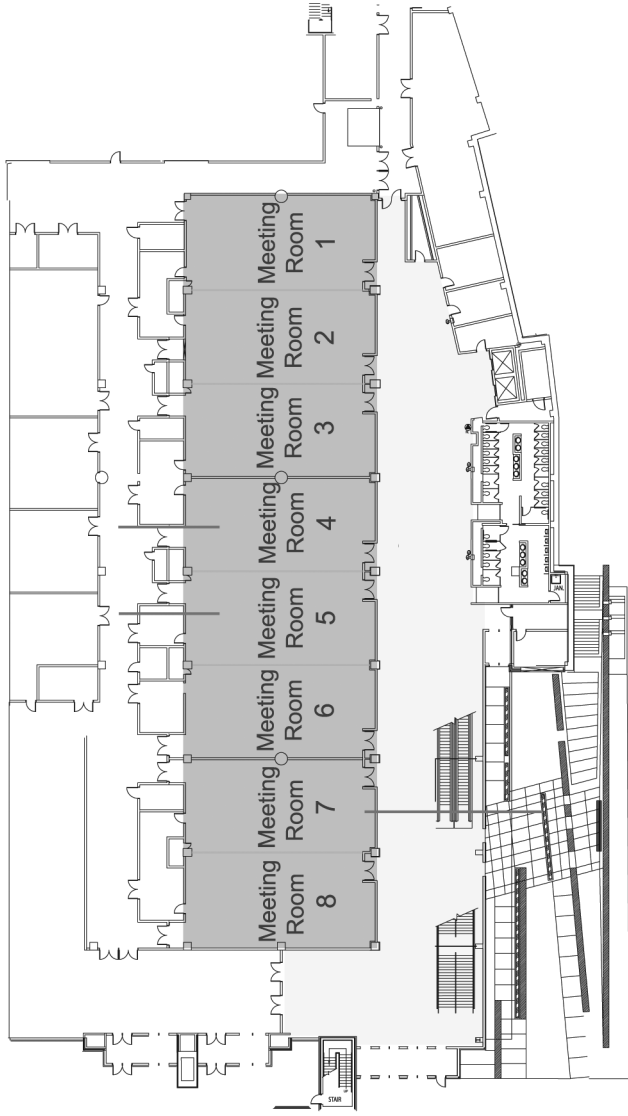
1996	D. L. Meeker, National Pork Producers Council, Des Moines, IA
1997	T. S. Stahly, Iowa State University
1998	R. P. Lemenager, Purdue University
1999	S. P. Ford, Iowa State University
2000	J. R. Males, Oregon State University
2001	M. L. Day, The Ohio State University
2002	R. K. Johnson, University of Nebraska
2003	C. L. Ferrell, USDA, Clay Center
2004	G. C. Shurson, University of Minnesota
2005	A. L. Grant, Purdue University
2006	D. L. Hancock, Elanco Animal Health, Greenfield, IN
2007	R. L. Moser, JBS United, Inc., Sheridan, IN
2008	M. K. Nielsen, University of Nebraska
2009	M. E. Spurlock, Iowa State University
2010	T. D. Crenshaw, University of Wisconsin
2011	J. S. Radcliffe, Purdue University

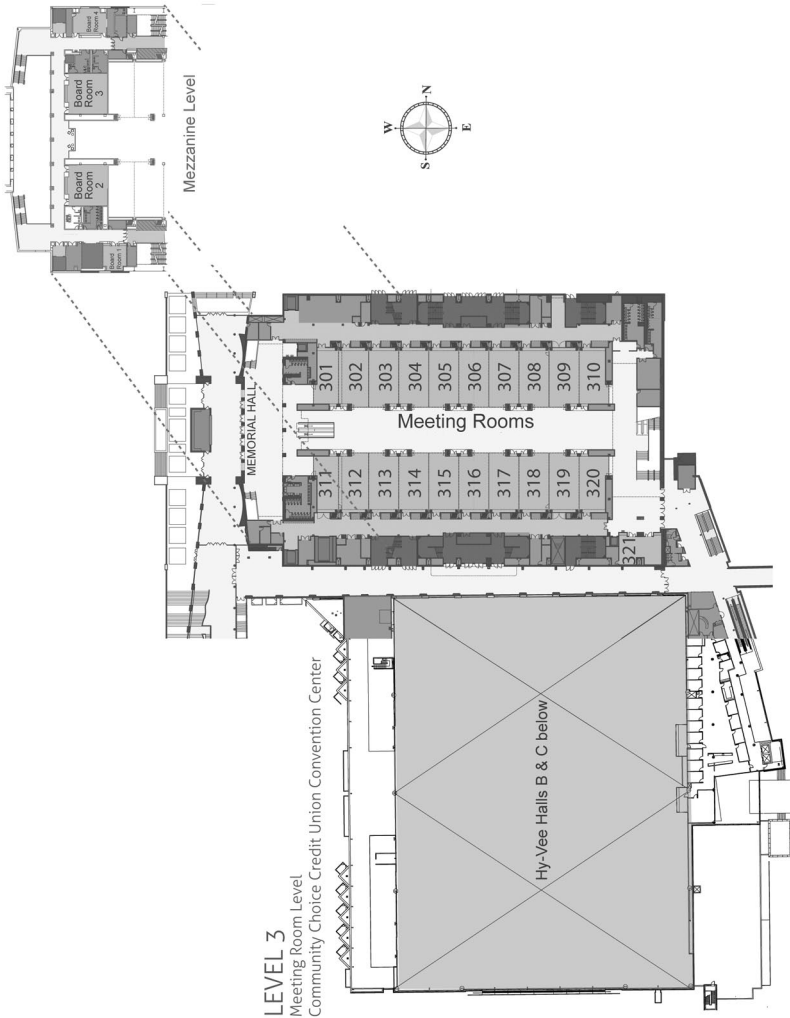
ADSA MIDWEST BRANCH PRESIDENTS

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	K. F. Kalscheur, South Dakota State University



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Hy-Vee Hall





FUTURE MEETINGS

2013 March 18–20

2014 (pending)



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