



MIDWEST SECTION MEETING

March 8–10 • Omaha, Nebraska

2021

RAW ORAL SCIENTIFIC PROGRAM

MONDAY, MARCH 8, 2021: MORNING

Gary Allee Symposium

- Dr. Brian Kerr, USDA-ARS – A Metabolic Understanding of Nutrition
- Kevin Touchette, Ralco Nutrition – Nursery Pig Research Under Dr. Gary Allee
- Dr. Robert D. Goodband, Kansas State University – Protein and Amino Acid Concepts and Use in Swine Nutrition: Gary Allee's Contributions to the Swine Industry
- Dr. Gary R. Stoner, C.P. Group – International Scientific Development and Application
- Dr. Joel D. Spencer, JBS United, Inc. – Dr. Allee's Philosophy on Teaching, Research, and the Swine Industry--A Tribute

MONDAY, MARCH 8, 2021: AFTERNOON

Digestive Physiology of Pigs Lecture & Lunch (DDP) (Noon-1:00 PM)

- Dr. Thomas E. Burkey, University of Nebraska-Lincoln

Graduate Student Oral Competition: PHD

- Assessment of Dry-Aged Beef from Commercial Aging Locations Across the United States
- Comparison of monensin sodium sources for finishing beef cattle
- Effect of feeding vitamin D supplementation on calcium and phosphorus metabolism when piglets are fed a DON contaminated diet
- Effect of late gestational heat stress on placental characteristics in dairy cattle
- Evaluation of compensatory growth of 90-kg finishing pigs previously fed a low lysine diet
- Evaluation of methane and carbon dioxide production in growing and finishing cattle raised in conventional or confinement-based herds
- Evaluation of sorghum phenolic compounds for their antimicrobial activities against liver abscess causing pathogens in feedlot cattle
- Muddy environmental conditions cause conceptus free live weight loss but not a decrease in calf birth weight when compared with cows housed on wood chips
- Novel genomic regions associated with IgG antibody response to PRRSV vaccination revealed by haplotype-based GWAS



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Graduate Student Oral Competition: MS

- A de novo recessive mutation causative of Mandibulofacial Dysostosis in Hereford cattle
- Correlating behavior and feed intake with the thermoregulatory response of replacement gilts exposed to a heat stress challenge
- Dietary supplementation of botanicals enhanced growth performance and disease resistance of weaned pigs experimentally infected with a pathogenic E. coli
- Effect of adding bioactive peptide in combination of pharmaceutical zinc oxide or organic acids on growth performance, hematology profile, and nutrient digestibility in nursery pigs
- Effect of corn silage inclusion rate on live growth performance, carcass characteristics, net energy utilization and beef production per hectare in feedlot finishing steers
- Effects of housing cow-calf pairs on drylots vs pasture on calf performance and behavior through weaning
- Effects of rubber matting on cattle locomotion scores in slatted facilities
- Effects of spring versus fall calving on fetal growth, vigor at birth, and neonatal circulating metabolites in beef calves
- Estimating fetal age using transabdominal ultrasonic measurements in sheep early in gestation
- Extending the Shelf-Life of Beef Bone-In Short Rib Steaks using Acerola Cherry Powder and Rosemary Extract
- Greenhouse gas emissions and a partial life cycle assessment when growing pigs are fed high wheat millrun diets
- In-feed or in-water antibiotic administration did not influence the fecal prevalence and antimicrobial susceptibility profiles of Salmonella in piglets
- Live yeast and yeast extracts with and without pharmacological levels of zinc on nursery pig growth performance and fecal Escherichia coli antimicrobial resistance
- The effect of creep feed composition and form on pre- and post-weaning growth performance of pigs and the utilization of low-quality nursery diets
- Using caloric efficiency to estimate the energy value of expelled, extruded soybean meal relative to dehulled, solvent-extracted soybean meal and its effects on growth performance of nursery pigs



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Undergraduate Student Oral Competition

- Activity and Bone Lesion Analysis on Gilt Retention to the Breeding Herd
- Cow performance and lameness are affected by housing in drylots vs pasture during the summer
- Effects of decreasing corn particle size on metabolizable energy and proportions of fecal volatile fatty acids in gestating sows.
- Effects of grazing management systems on forage quality, forage availability, and cow performance
- Effects of Implants, Clover, and Fescue Variety on Stocker Steers
- Effects of Lactobacillus and Bacillus probiotics on pre-ruminating calf growth performance and efficiency
- Evaluation of antimicrobial activities of phytochemicals against bacterial pathogens that cause liver abscesses in feedlot cattle
- Histomorphologic Analysis of the Effect of Day and Level of Colostrum Intake on Jejunum Development
- Long-term motility of semen following breeding soundness exams for yearling beef bulls
- Observing the effect of creep feeding on calf behavior before and after weaning
- Ovarian follicular profiling of high- and low-immunocrit gilts on postnatal day 14
- Relationships between fecal characteristics, ruminal pH, intake and digestion in feedlot cattle
- Relationships between heat stress and behavioral responses with reproductive traits of maternal-line gilts
- Sow milk lipidome study reveals changes in fatty acyl residues in triglycerides and phosphatidylglycerol, but not in plasma membrane phospholipids across lactation
- The effect of a developmental bacillus direct-fed microbial on nursery pig growth performance and health
- The impact of functional teat number on piglet survival and sow efficiency

David H. Baker Symposium: Form and Function of Supplemental Amino Acids in Swine Nutrition

- Dr. Jaap van Milgen, INRA – Functional Role of Histidine in Diets of Young Pigs
- Dr. So-Young Kim, CJ CheilJedang BIO – Implications of Form of Supplemental Amino Acids for Swine
- Dr. Jesse Goff, Iowa State University – Mechanisms by which Amino Acids May Enhance Mineral Absorption in Animals
- Dr. Karen Wedeking, Novus International – Metal Amino Acid Chelates/Complexes with Emphasis on Molecule, Absorption and Efficacy Differences in Swine



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Nonruminant Nutrition Session I: Minerals

- The Effect of Altering Dietary Manganese and Selenium Levels on the Growth Performance and Blood Manganese-Superoxide Dismutase Activity in Nursery Pigs
- The ash in metacarpals, metatarsals, and tibia is better correlated with total body bone ash than the ash in other bones of growing pigs
- Effect of a novel consensus bacterial 6-phytase variant on mineral digestibility and bone ash in young growing pigs fed diets with different concentrations of phytate
- Effects of reducing the concentration of Ca and P and increasing microbial phytase on gastric pH, fecal score, growth performance, and bone ash of weanling pigs
- Growth performance and mineral status of 6 kg piglets fed reduced levels of dietary calcium
- Effect of a novel consensus bacterial 6-phytase variant on mineral digestibility and bone ash in young growing pigs fed diets with low and high soluble limestone
- Total replacement of inorganic phosphorus by a novel consensus bacterial 6-phytase variant in grower pigs fed corn-soybean meal-based diets
- Evaluation of calcium to phosphorus ratio in spot urine samples as a practical method to monitor phosphorus intake adequacy in sows
- Strategies to improve phosphorus utilization in growing pigs; depletion-repletion protocols

Physiology Session I: Heat Stress

- Direct and Indirect Effects of Heat Stress on the Hepatic and Ovarian Proteome in Gilts
- Use of an electronically-controlled floor cooling pad during heat stress on thermoregulatory and reproductive performance in boars
- Zearalenone Affects the Ovarian Proteome During Heat Stress in Prepubertal Gilts

Physiology Session II: Oocyte Culture

- Methyl donor supplementation alters cytosine methylation and biological processes of cells cultured in divergent glucose media reflecting improvements in mitochondrial respiration and cell growth rate
- MicroRNA574-3p influences porcine oocyte maturation and regulates abundance of proteins critical to early embryo development.
- Aging model in pig oocytes as viewed through DNA epigenetic modification

Ruminant Nutrition Session I: Cow/Calf and Growing Systems

- Evaluation of the CVDS beef cow model to estimate biological efficiency in mature cows
- Relationships among lifetime feed efficiency traits in growing heifers, mature cows and their progeny
- Effect of rate of gain during early gestation on colostrum and milk composition in beef heifers
- Production responses of an alternative beef cow-calf system
- Management of the Young Calf when Dams are Limit-Fed in Confinement
- Growth and health of Limousin crossbred dairy-beef calves in an automated feeding system
- Evaluation of Models Used to Predict Dry Matter Intake in Forage-Based Diets
- Winter Hardy Small Cereal Cover Crops for Grazing and Silage in Nebraska

Ruminant Nutrition Symposium: A New Generation of Feed Additives for Sustainable Cattle Production

- Dr. Sergio Calsamiglia, Universitat Autònoma de Barcelona – Current Status and Future Prospective of the Use of Plant Bioactive Compounds in Dairy and Beef Cattle
- Dr. Karen A. Beauchemin, Agriculture and Agri-Food Canada – Utility of 3-NOP in Beef Production Systems
- Ehsan Khafipour, Diamond V – Next Steps for Microbial-derived Feed Additives
- Dr. Michael Ballou, Texas Tech University – Hidden Mechanisms of Nutraceutical Function

Swine Translational Symposium: How Embracing Technology is Changing the Swine Industry

- Jonathon Hoek, Summit SmartFarms – Equipping Humans--Optimizing Performance: The Role of Technology in Human Capital
- Dr. Caleb Shull, The Maschhoff's – Using Cameras to Predict Estrus and Ovulation
- Dr. Karl Kerns, Iowa State University – Opening the Black Box of Fertility Prediction
- Aidan Connolly, Cainthus – Precision Pig Nutrition: Unlocking the Potential through Digital Data Collection
- Brett Ramirez, Iowa State University – What's a Connected Barn and How Do We Use It?

MONDAY, MARCH 8, 2021: EVENING (7:00–9:00 PM)

Animal Behavior, Health and Well-Being Session I: On-Farm Management Practices

- Vaccination mitigates performance losses during a *Lawsonia intracellularis* experimental challenge
- Effect of post-metaphylactic interval on health and performance of steers administered tildipirosin for the control of bovine respiratory disease
- Effect of number of source litters used to create cross-fostered litters on piglet pre-weaning mortality and weaning weight
- Foundational investigations of tissue dimensions and their relation to captive bolt application sites on cadaver heads from mature swine - A preliminary report
- Effects of a Novel Heat Lamp Compared to Conventional Heat Lamps on Litter Performance
- Comparing methods of raising twin beef calves
- Maternal Programming of the Piglet Microbiome from Birth to Weaning
- Effect of rearing cross-fostered piglets in litters of differing within-litter birth weight variation on pre-weaning growth and mortality

Nonruminant Nutrition Session II: Nursery Nutrition I

- Effects of a functional oils blend on intestinal health and growth performance of nursery pigs
- The effects of dietary crude protein, acidifier, and pharmacological levels of zinc on growth performance of nursery pigs
- Growth performance, bone mineralization, and nutrient digestibility of nursery-grower pigs fed phytase-supplemented calcium and phosphorus-deficient diets
- Nutrient digestibility of toasted soybean meal and untoasted soybean meal extruded at different temperatures by weanling pigs
- Formulating to fermentable protein can affect the health and performance of nursery pigs
- *Buttiauxella* phytase improves growth performance of weanling pigs fed corn, soybean meal, and canola meal-based diets
- Evaluation of IFTA NBS alone and in combination with zinc oxide on antibiotic free programs during nursery
- Hybrid rye may replace corn in diets for nursery pigs without negatively affecting average daily gain, but gain:feed may be reduced

TUESDAY, MARCH 9, 2021: MORNING

Animal Behavior, Health and Well-Being Session II: Innovative Techniques

- Quantifying cortisol in hair as a chronic stress biomarker in group-housed and stall-housed sows during gestation
- Relationships between sow blood glucose levels on day of farrowing and sow and litter parameters
- A Comparison of Local Anesthetic Effectiveness in Reducing Pain Associated with Dehorning in Dairy Calves
- Comparative pharmacokinetics of flunixin meglumine and meloxicam in tilapia (*Oreochromis spp.*)
- Utilization of the NUtrack Livestock Monitoring System to identify changes in general and spatial behaviors of newly weaned nursery exposed to an endotoxin challenge

Genetics, Genomics and Bioinformatics Session

- Antibody response as an indicator trait for improved reproductive performance during a PRRSV outbreak: Genetic correlations of S/P ratio with reproductive traits in Landrace and Duroc sows
- Differences in PRRSV resilience for reproductive performance between Landrace and Duroc sows
- Genomic relationship between PRRSV wild-type infection and PRRSV vaccination for antibody response and reproductive performance
- Utilization of NUtrack to assess variance components and heritability of activity traits
- Zilpaterol hydrochloride and heat stress each alter the cattle adipose transcriptome and predicted to alter molecular pathways after 21 days

Growth, Development, Muscle Biology and Meat Science Session

- Effect of coated and non-coated steroidal implants on growth performance, dietary net energy utilization and carcass traits of feedlot finishing steers
- Improved growth performance in the F1 heterozygous generation of an SSTR2 knockout model in swine.
- Increased growth and carcass attributes in Improvest[®]-treated gilts do not require additional dietary lysine
- Lysine requirement of market gilts immunized against gonadotropin-releasing factor on performance and carcass composition



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Harlan Ritchie Symposium: Beef Industry Infrastructure

- Bill Rishel, Rishel Angus and Donnell Brown, RA Brown Ranch – The Importance of Recognizing Economic Factors Influencing the Beef Industry
- Mark McCully, American Angus Association – How Will the Purebred Association Adapt to a Changing Beef Industry?
- Dr. Bo R. Harstine, Select Sires – Genetics Industry Infrastructure: How are Artificial Insemination Organizations Adapting to Changes in the Beef Industry?
- Dr. Bradley J. Johnson, Texas Tech University – What is the Impact of Dairy Influence Cattle on the Traditional Beef Industry Structure?
- Dr. Derrell S. Peel, Oklahoma State University – The Beef Industry in a Post-Pandemic World

Nonruminant Nutrition Session III: Sow Nutrition

- Impact of a two-phase lactation feeding program on farrowing and weaning performance of sows
- Statistical Analysis Method Counts for Sow Count Data Responses
- A mechanistic model of growth and amino acid deposition in the pregnant sow: model development, evaluation, and application
- Effects of different feeding regimes during wean-to-estrus interval on sow reproductive performance.
- Effects of different feeding levels prior to farrowing on sow and litter performance
- Effects of dietary fiber supplementation in late gestation on farrowing characteristics and sows and litters performance
- Impact of elevating feed amounts in late gestation on sow and litter performance

Nonruminant Nutrition Session IV: Amino Acids I

- Effect of supplemental DL-Met above requirement on performance and serum concentration of amino acids in heat stressed pigs
- Effects of digestible lysine level on growth performance and economics of grow-finish pigs
- Optimal tryptophan:lysine ratio for 25-40 kg growing pigs fed diets containing 35 % distillers dried grains with solubles
- Effects of L-Lys HCl and distillers dried grains inclusion rate on growth performance of finishing pigs
- Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of 12- to 26-kg pigs sired by high index boars
- The effect of standardized ileal digestible isoleucine:lysine in diets containing 20% dried distillers grains with solubles on finishing pig performance and carcass characteristics
- Meta-analysis to determine the standardized ileal digestible lysine requirements of growing-finishing pigs from 11- to 150-kg
- Effects of dietary valine, isoleucine, and tryptophan supplementations to diets containing excess leucine on nitrogen balance of growing pigs
- Effects of dietary valine, isoleucine, and tryptophan supplementations to diets containing excess leucine from corn protein on growth performance of growing pigs

Nonruminant Nutrition Session V: Grow-Finish Nutrition I

- Evaluation of narasin inclusion level on the growth performance and carcass characteristics of growing-finishing pigs
- Effects of increasing soybean meal in corn-based diets on growth performance of late-finishing pigs
- Does feeding an increased level of narasin (Skycis) result in improved growth performance and mortality in a commercial wean-to-finish swine feeding program?
- Influence of Enogen Feed corn and conventional yellow dent corn in pelleted or meal-based diets on finishing pig performance and carcass characteristics
- Relationship between dietary fiber and basal ileal endogenous losses of amino acids in growing pigs
- Evaluation of Proso Millet as a partial or complete replacement for corn in growing-finishing diets for pigs.
- Impact of replacing soybean meal with corn DDGS and crystalline amino acids on performance and carcass characteristics of growing pigs

Nonruminant Nutrition Session VI: Wean to Finish

- Lack of randomization and its impact on statistical power and validity of statistical analyses
- Influence of particle size of Enogen Feed corn and conventional yellow dent corn on nursery and finishing pig performance, carcass characteristics and stomach morphology
- Meta-analysis to determine the effects of particle size on nursery and finishing pig's growth performance and stomach morphology
- Effect of gossypol from cottonseed meal on growth performance, plasma gossypol, and complete blood cell counts in commercial growing pigs: a preliminary study on feral hog control.
- Mycotoxin Contamination in United States Corn and Corn DDGS from 2019 and 2020 Harvest

Nonruminant Nutrition Symposium I: A Sustainable Approach of Reducing Antibiotics in Swine Production

- Crystal Loving, USDA – Why Resist: Harnessing Immune-microbiome Interactions for Improved Swine Gut Health
- John Pulske, Murdoch University, Australia – The Role of Crude Protein in Reducing the need for Antibiotics in the Post-weaning Period
- Hanne Maribo, SEGES – The Danish Perspective to Remove Medicinal Zinc and Reducing the use of Antibiotics in Swine Production
- Dr. Tsung Cheng Tsai, University of Arkansas – Feed Additives that Optimize Nitrogen Bio-availability in Nursery Pigs Fed Reducing Crude Protein Diets
- Dr. Ricardo Ekmay, Arbiom – Agriculture Residues as a Possible Sustainable Approach to Replacing Antibiotics in Animal Nutrition
- Dr. Whitney Lincoln, Smithfield – Raised Without Antibiotics, Lessons Learned
- Dr. Sara Hough, DSM Nutrition Products – A Veterinarian's Perspective on How Health and Nutrition Intersect



AMERICAN SOCIETY OF ANIMAL SCIENCE

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- Dr. Casey L. Bradley, The Sunswine Group LLC – When Too Many Feed Additives is Not a Sustainable Approach to Replacing Feed Antibiotics

Physiology Symposium I: Updates on Frozen Semen Utilization and Associated Technologies across Species

- Dr. Mitch Hockett, ST Genetics – How the Dairy Industry has Capitalized on Advancements in Artificial Insemination
- Dr. Phillip Purdy, USDA National Animal Germplasm Program – What Quality and Fertility Should We Expect When Using Semen Cryopreservation and AI with Livestock? A Comparison Across Species
- Dr. André Furugen Cesar de Andrade, University of Illinois, Urbana-Champaign – Analysis of Cryopreserved Semen Quality: With the Tools Available, What Can Be Interpreted?
- Dr. Brandon Kingsley Hopkins, Washington State University – TBD

Ruminant Nutrition Session II: Vitamins, Minerals and Feed Additives

- Effect of anti-yeast on sugarcane silage gas production
- Effects of monensin and protein type on performance of yearling steers grazing smooth brome
- Effect of Mootral™ and Forage Amount on Methane Emissions, Growth and Carcass Characteristics of Feedlot Steers
- Evaluation of Bacillus subtilis PB6 probiotic (CLOSTAT® 500) on feedlot phase growth performance, efficiency of dietary net energy utilization, and fecal and subiliac lymph node Salmonella prevalence
- Injectable vitamin C prior to transit and transit duration effects on feedlot performance, inflammation, and muscle fatigue of beef steers
- Effects of supplemental Zn source (sulfate or bis-glycinate) on metabolism, apparent absorption, and retention of Zn by lambs
- Increasing concentrations of supplemental zinc influence performance, carcass characteristics, and trace mineral status of non-implanted and implanted steers
- Relative bioavailability of bis-glycinate bound copper in beef steers fed a high antagonist growing diet

Swine Translational Session I

- The effect of pre-farrow meal time on onset of parturition in swine
- Effect of substandard teats on piglet and sow performance
- Association between gilts and sows body condition and reproductive performance
- Effect of within-pen variation in weaning weight on the growth performance of nursery pigs.
- Effects of the immunization against gonadotropin-releasing hormone in gilts and boars under commercial conditions
- Evaluation of hammermill tip speed, air assist, and screen hole diameter on ground corn characteristics



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Teaching and Extension Education Session

- A factorial approach to estimate energy requirements and feeding levels for boars in studs.
- A web application to establish customized feeding program and nutrient specifications for highly prolific sows
- Body weight standardized cull sow non-edible trim loss evaluation
- Characteristics of animal science graduate students associated with their professional interest in statistics and career path
- Efficacy of a virtual Operation Main Street in changing perceptions of pork production
- Opportunities and challenges of teaching laboratory content of a swine discipline-focused course with limited swine access

TUESDAY, MARCH 9, 2021: AFTERNOON

Bentley Lecture and Lunch - Sponsored by National Pork Board (Noon-1:30 PM)

Beef/Small Ruminant Translational Session

- Effect of beef-dairy cross breed description on the sale price of lots of steer calves sold through Superior Livestock Auction in 2020 summer video sales
- Effects of harvest maturity and/or kernel processing on corn silage processing score and particle size of corn silage
- Effects of housing cow-calf pairs on drylots vs pasture on calf performance and behavior during the receiving phase
- Resource Use for Beef Cattle in the North Central Great Plains

Growth, Development, Muscle Biology and Meat Science Symposium: Managing Meat Supply and Animal Growth Amidst A Global Pandemic

- Dr. Bradley Johnson, Texas Tech University – Managing Beef Cattle Growth Amidst A Global Pandemic: Lessons Learned From 2020 And Strategies for the Future
- Dr. Nicolas Gabler, Iowa State University – Managing Swine Supply and Swine Growth Amidst A Global Pandemic: Lessons Learned from 2020 and Strategies for the Future
- Dr. J. Brad Morgan, Colorado State University – Managing Meat Supply Amidst A Global Pandemic at the Packer, Food Industry, and Retail Level: Lessons Learned from 2020 and Strategies for the Future



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Nonruminant Nutrition Session VII: Enzymes and Direct-Fed Microbials

- Application of Hemicell HT™ – a β -mannanase enzyme – retains post-weaned piglet performance in the presence of challenging protein sources
- Substitution of expensive protein sources by soybean meal supplemented with a β -mannanase enzyme results in improved general clinical health score during the post-weaning period
- Efficacy of a multicarbohydrazase containing alpha-galactosidase in lactating sows: impact on progeny weight and uniformity
- Does feeding a protease and probiotic (*Bacillus subtilis*) combination (Syncra® SWI) result in improved growth performance and mortality in a commercial wean-to-finish swine feeding program?
- Effect of exogenous enzyme supplementation and fermentation of oilseed by-products on in vitro digestibility and production of short chain fatty acid.
- Supplementation of *Bacillus amyloquelaciens* on growth performance and diarrhea score of weaned pigs experimentally infected with a pathogenic *E. coli*
- Effects of *Bacillus* spp. on pathogen inhibition in vitro and on growth performance and bacterial shedding in growing finishing pigs

Nonruminant Nutrition Session VIII: Amino Acids II

- A longer adaptation period to a functional amino acid-supplemented diet improves growth performance and attenuates acute-phase response in *Salmonella Typhimurium*-challenged pigs
- A corn protein product has greater concentration of digestible amino acids and energy than low-oil distillers dried grains with solubles when fed to pigs and may be used in diets for weanling pigs
- Conditioning and expansion increases nutritional value of soybean expellers
- Increased Standardized Ileal Digestible Isoleucine to Lysine Ratio Improved Feed Efficiency in Pigs Fed Distillers Dried Grains with Solubles from 11 to 80 kg
- Effects of reducing digestible lysine and tryptophan to lysine ratio on growth performance of grow-finish pigs
- Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of 39- to 119-kg pigs sired by high index boars
- Effect of spray dried plasma on the standardized ileal digestibility of crude protein and amino acids in diets based on different ingredient combinations fed to young pigs
- Effects of dietary protein content and crystalline amino acid supplementation patterns on growth performance of weaned pigs raised under different sanitary conditions
- Ileal digestibility of amino acids is greater in sunflower expellers than in sunflower meal when fed to growing pigs



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Nonruminant Nutrition Session IX: Grow-Finish Nutrition II

- Effect of the Pelleting Process on Diet Formulations with Varying Levels of Crystalline Amino Acids and Reducing Sugars on Digestibility in Growing Pigs
- Effect of long-term feeding of deoxynivalenol (DON) contaminated diets on performance of grower-finisher pigs
- Impact of water flow rate on finishing pig performance
- Plasma isoprostanes, but not thiobarbituric acid reactive substances, are a reliable measure of lipid oxidation in growing pigs fed peroxidized soybean oil.
- Effect of a supplemental water source on performance of growing-finishing pigs
- An investigation into the role of dietary essential fatty acids ratios and linoleic acid level on growth performance and inflammation of grow-finish pigs
- Dietary Strategies to Limit Average Daily Gain of Late Finishing Pigs
- An investigation into the role of dietary essential fatty acids ratios and energy level on growth performance, inflammation, and joint health of grow-finish pigs

Nonruminant Nutrition Session X: Feed Additives

- Effects of protein supplementation on the gut bacterial community composition of Hybrid Striped Bass, *Morone chrysops* x *M. saxatilis*
- Evaluation of AviPlus on growth performance of nursery and growing-finishing pigs
- The impacts of commercial dietary acidifiers on growth performance of nursery pigs
- Effects of a phytogenic feed additive (Aromex® Pro) and narasin (Skycis®) on finishing pig growth performance and carcass characteristics.
- Effects of oligosaccharide-based polymer on growth performance, diarrhea, and fecal β -hemolytic coliforms in weanling pigs experimentally infected with a pathogenic *E. coli*
- Evaluation of alternative summer feeding strategies to optimize performance in high lean genetics using energy, narasin and phytonutrient blend individually, or, in combination

Nonruminant Nutrition Symposium II: Designing and Analyzing Nutrition Trials to Detect Small but Meaningful Differences

- Dr. Nick V. Serão, Iowa State University – Animal Science Research and Statistics: Approaches to Improve Experimental Designs, and Collection and Analysis of Data
- Dr. Mike D. Tokach, Kansas State University – Data Collection Practices to Reduce Variance in Swine Nutrition Trials
- Dr. Neil D. Paton, Cargill Animal Nutrition – The Evolving Statistical Science on P-Values and How My Count Data Methods and P-Values are Affected

Physiology Symposium II: Reproductive Fluids in Fertilization and Early Embryonic Development

- Dr. Sebastian Canovas, University of Murcia, Spain – Female Reproductive Fluids and Epigenetics
- Dr. David J. Miller, University of Illinois – Sperm Retention, Storage and Release from the Oviduct: A Story of Sugars, Steroids, and Channels
- Dr. Rocio Rivera, University of Missouri – In Vitro Production of Embryos and Epigenetics

Swine Translational Session II

- Performance and antibiotic use of piglets vaccinated with an E. coli F4/F18 vaccination for the prevention of F18-ETEC post-weaning diarrhea
- Stable performance with reduced antibiotic use in piglets vaccinated with an E. coli F4/F18 vaccine for the prevention of F18-ETEC post-weaning diarrhea
- Vaccination with an E. coli F4/F18 vaccine for the prevention of F4-ETEC post-weaning diarrhea resulted in reduced post-weaning mortality and antibiotic use
- Body weight and growth in normal cyclic and acyclic gilts
- Research model of colostrum intake to study effect of colostrum bioactive factors on piglets development
- Evaluation of a DFM and OA, alone or in combination, on sow reproductive and litter growth performance
- Evaluation of a DFM and OA, alone or in combination, on sow offspring's nursery growth performance

Teaching and Extension Education Symposium: "I am not bossy" – Professional Women in the Allied Industry

- Dr. Casey M. Owens, University of Arkansas; Julie Harlin, Texas A&M University; Christine Alvarado, Texas A&M University – A Qualitative Exploration of Barriers and Recommendations from Women Leaders in Science and Agriculture
- Dr. Ana Lucia P. De Souza, DuPont – Professional Women in the Allied Industry
- Dr. Kimberly A. Livingston, Elanco – Academia or Industry, which Side of the Fence is Greener
- Lynnea Courtney – How to Develop the Right Mindset–A Journey from Animal Nutrition to Human Nutrition and Well-being
- Dr. Brandi Buzzard Frobose, High Bar Cattle Company – Managing a Career and Hobbies through Mom Guilt
- Dr. Casey L. Bradley, AB Vista – Resiliency for Today's Professional Animal Scientist
- Regina Monteiro, DuPont – Getting Business Done
- Dr. Leanne Brooks, Cape Fear Consulting, LLC – The New Girl
- Dr. Betsy Newton, CSA Animal Nutrition; Dr. Janet Remus, DuPont; Dr. Joy Campbell, APC, Inc.; Dr. Dari Brown, Purina Animal Nutrition LLC – Professional Round Table
- Ashley Owens, Ashley Assists, LLC. – Network Like a Boss

TUESDAY, MARCH 9, 2021: EVENING (7:00–9:00 PM)

Nonruminant Nutrition Session XI: Nursery Nutrition II

- Effects of initial nursery diet budget on growth performance of 5.5- to 23-kg pigs
- Effect of fiber source and crude protein level on nursery pig performance
- Evaluation of cellulose in diets with and without added ZnO on nursery pig performance
- Effects of feeding thermally processed spray-dried egg whites on growth performance, apparent digestibility, and oxidative stress in nursery pigs.
- The effect of feeding low complexity diets contaminated with deoxynivalenol and supplemented with NutraMix™ or fish oil on nursery pig growth performance
- Impact of adding a stimbiotic or sugar beet pulp to nursery pig diets on growth performance and individual injections
- Increasing Structural Fiber Improves Growth Performance of Nursery Pigs

Ruminant Nutrition Session III: Corn Processing and Byproduct Utilization

- Effects of bunk management and bulk density of steam-flaked corn on growth performance, carcass characteristics, and liver score of finishing beef cattle fed diets without tylosin phosphate
- Effects of Roughage Source on Rumination time and Ruminal pH in Steers Fed a Steam-Flaked Corn Finishing Diet
- Effects of increasing urea in corn silage diets and duration of ensiling on the rumen undegradable protein content of corn silage
- Impact of Corn Hybrid Selection for Fiber and Starch Traits on in Vivo Nutrient Digestion in Beef Cattle
- Evaluation of different corn milling methods for high-moisture and dry corn on finishing cattle performance and carcass characteristics
- Evaluation of different corn milling methods for high-moisture and dry corn on nutrient digestion
- Evaluation of replacement of dietary corn with corn bran plus condensed distillers solubles on growth performance and carcass trait responses in finishing beef steers
- Including Sweet Bran in the diet of growing feedlot steers increased body weight and influenced rate of feed disappearance

WEDNESDAY, MARCH 10, 2021: MORNING

Animal Behavior and Well-Being Symposium: On-farm Animal Welfare: Current Considerations, Legislative Impacts, and Perspective for the Future

- Dr. Ivelisse Robles, Monique Pairis-Garcia Laboratory, North Carolina State University – Timely Euthanasia on Farm; Dairy Cattle and Swine
- Dr. Kristina Horback, University of California-Davis – Prop 12 and its Implications for Future On-farm Animal Welfare in the United States
- Dr. Angela Baysinger, Merck Animal Health; Paul Ayers, The Maschhoffs; Stephanie Wisdom, National Pork Board; Dr. Jon Holt, North Carolina State University – Recent Practical Advancements Related to On-farm Animal Welfare in the United States
- Dr. Jennifer Brown, Prairie Swine Centre – Where is On-Farm Animal Welfare in the United States Headed? A Canadian Perspective

Genetics, Genomics and Bioinformatics Symposium: Genome to Phenome--Application to Animal Production

- Dr. David Kenny, Teagasc, Animal & Grassland Research and Innovation Centre, Ireland – Harnessing Proteome and Transcriptome Expression and Network/Interactome Analysis to Better Understand How Nutrition Regulates Sexual Development in Prepubertal Cattle
- Dr. Robert A. Cushman, USDA-ARS – Can We Developmentally Program the Epigenome to Improve Traits Relevant to Production in Cattle?
- Dr. Wellison Jarles Da Silva Diniz, North Dakota State University – Multi-Omics Approaches to Improve Animal Production

Nonruminant Nutrition Session XII: Nursery Nutrition III

- Effects of low dietary crude protein diets containing coarse wheat bran as an alternative to zinc oxide in nursery pig diets
- The efficacy of replacing animal protein products in nursery pig diets with a bioactive peptide-based feed additive program on growth performance and efficiency in a commercial system.
- Growth performance, fecal score, and blood immune parameters of nursery pigs challenged with *Escherichia coli* F18 fed canola meal-based diet
- Evaluating the interaction between nursery diet complexity and pharmacological zinc and copper
- In-feed antibiotics elicit intestinal integrity modifications early in post-weaning life
- Mycotoxin mitigation strategy to improve nursery pig performance during natural mycotoxin challenge
- Evaluating nutritional strategies to improve performance of poor health nursery pigs
- Investigating the relationship between nursery pig performance and markers of intestinal morphology and integrity



MIDWEST SECTION MEETING

March 8–10 • Omaha, Nebraska

2021

Nonruminant Nutrition Symposium III: Utilization of Fiber in Modern Swine Nutrition

- Dr. George C. Fahey, Jr., University of Illinois, Urbana-Champaign – Dietary Fiber: Chemical and Physical Characteristics and Methods of Analysis
- Dr. Ruurd T. Zijlstra, University of Alberta – Fiber and Co-product Utilization in Pigs
- Dr. Mariana Boscato Menegat, Holden Farms – Review of Current Nutrition Knowledge and Practices for Gilt Development

Physiology Session III: Nutrition Reproduction Interactions

- The interactions of change in nutrition on uterine environment and plasma cholesterol concentrations in beef cattle
- Effects of *Saccharomyces cerevisiae* fermentation products on lactating sow's blood and uterine cytokine profiles
- Growth performance and gut integrity of nursery pigs fed diet with butyric acid and enzymatically hydrolyzed yeast product

Physiology Session IV: General Physiology

- Effects of number of sperm and site of uterine semen deposition on conception rate and number of embryos in weaned sows receiving a single fixed time insemination
- Plasma concentrations of cortisol during the periparturient period in gilts
- Serum trace minerals in late gestation sows at variable risk for pelvic organ prolapse

Ruminant Nutrition Session IV: Growth Enhancement Technologies and Novel Feedstuffs

- Managing for efficiency and quality through diet and implant strategies on steers selected for superior marbling
- Effect of Feedlot Implant Dose and Terminal Window Timing on Heifer Performance and Carcass Characteristics
- Effects of Revalor IH/Revalor-200 re-implant program or Revalor-XH on performance and carcass characteristics of finishing heifers fed for 179, 200, or 221 days.
- Comparison of Revalor-XH with a Revalor-IH/Revalor-H/Revalor-200 Re-implant Program on Feedlot Cattle
- Evaluation of a long-acting growth-promoting implant (Revalor-XS) as an initial implant in a re-implant program with a Revalor-200 terminal implant in feedlot cattle: a three-study pooled analysis.
- Survey of feedlot nutritionists provides insight on how industry professionals gather practical information
- Effect of Feeding CARS on Digestibility in Finishing Cattle Diets
- Evaluation of Green Grass Inclusion on Digestibility and Fatty Acid Flow in Finishing Diets of Beef Cattle