SYMPOSIA LIST BY DAY

SUNDAY, JUNE 26, 2022 – ALL DAY

ASAS-NANP Pre-Conference Symposium

The lack of awareness and limited knowledge about mathematical models by the public, in general, are the main culprits of the negative perception of modeling and simulation, which has hindered their development and broader application. Mathematical models are not immune to failures, and unintended consequences arise when a model's limitations are misunderstood, but they are great tools for biological systems because they help the researcher to identify areas in the scientific knowledge that have limited information and need additional research. Scientists, in general, have been trained in experimental research and not systems thinking, and the concept of virtualization of reality has been confined to the design of controlled experimentation. The appropriateness of the virtual representation of real-life situations through mathematical modeling depends on the modeler's ability to synthesize essential concepts and associate their interrelationships with measured data. Animal Nutrition is, of course, in itself complex at the levels of biology, as well as the wide variation in species, feed ingredients, regional differences, and consumer needs and desires. As complex as nutrition may be, it is just a small piece of the true, complete system of food production, including land availability, weather patterns, climate variation, crop production, animal breeding and nutrition, food processing and delivery, and consumer needs and preferences. It has been recognized for quite a while, and it is now becoming a standard practice that we need to face complex problems with more elaborate and inclusive research designs and analysis. This symposium is organized into a set of four lectures and hands on exercises. A brief tutorial on the R programming language (the platform for most exercises) is also included.

- Dr. Rafael Muñoz-Tamayo, University of Paris-Saclay – The Power of Theoretical and Practical Identifiability Analysis for Modeling (Micro-) Biological Processes
- Dr. Scott McClain, SAS – Automation, Machine Learning and Computer Vision as Decision Support: Taking What Animal Agricultural Does Well into the Future
- Dr. Benjamin Turner, Texas A&M University – Hands-on: Building Models for Animal Production and Management with System Dynamics
- Dr. Karun Kanyamattam, Texas A&M University – Hands-on: Agent-Based Modeling: A Historical Perspective and Comparison to Other Modeling Techniques
- Dr. Jameson Brennan, South Dakota State University – Hands-on: Making Sense of Big Data, Machine Learning, Model

MONDAY, JUNE 27, 2022 – MORNING

Beef Species and Ruminant Nutrition Symposium I: Historical and Current Estimates of Bovine Composition and Energetics

Focus over the past two decades into beef carcass grid marketing along with genetic improvements and the application of growth promoting technologies has emphasized the need for better estimates of bovine composition and energetics. While it is important to derive new estimates, it is also prudent to summarize past findings and associated methodologies. Understanding the motivation, equipment, and findings of historical energetic and carcass composition research together with new technologies is imperative to re-evaluating energetic modeling and applying them to improve current estimates.

- Katelyn McCullock, Livestock Marketing Information Center – Key Economic and Marketing Trends in Fed Cattle and High-quality Beef
- Dr. Ty Lawrence, West Texas A&M University – Meat Science Perspective, Carcass Composition, and Grid Marketing: Have We Made Any Advances?
- Dr. Zachary Smith, South Dakota State University – Management, Technology, and Growth Composition: Have They Affected Carcass End Goals?
- Dr. Kristin Hales, Texas Tech University – Evaluating the Difference Between Formulated Dietary Net Energy Values and Net Energy Values Determined from Growth Performance and Estimates of Shrunk Body Weight Gain In Finishing Beef Cattle
- Dr. Ben Holland, Cactus Feeders – How Can Industry Use Energy and Body Composition Predictions to Achieve Production Expectations?

Contemporary and Emerging Issues Symposium: Public Policy: Infrastructure Needs for Advancing Research in Animal Agriculture

- Dr. Douglas Steele, Association of Public & Land-Grant Universities (APLU)
- Dr. Kenneth Sewell, Oklahoma State University
- Dr. Erdogan Memili, Prairie View A&M University
- Dr. Deb Hammernik, USDA NIFA
- Dr. John Blanton, Purdue University

Physiology and Endocrinology Symposium: The Paternal Contribution to Development Programming

Developmental Programming is the now well-accepted concept that 'stressors' during fetal or postnatal development 'program' organ structure and function and thus affect lifelong productivity, including offspring metabolism, growth, behavior and reproductive function. The maternal contribution to Developmental Programming has been well documented. The paternal contribution to Developmental Programming, however, has received little attention, and studies are just now showing its importance. For example, we now know that the oocyte and sperm both contribute mRNAs, small non-coding RNAs and proteins to the embryo, and these have profound influences on embryonic development before activation of the embryonic genome. Additionally, both the maternal (oocyte) and paternal (sperm) genomes can 'transfer' their DNA methylation status to the embryo, and this is influenced by stressors including nutritional status. Lastly, the impacts of the paternal environment during spermatogenesis on post-natal offspring outcomes is an emerging area of research focus. Thus, it is apropos to have a symposium on this emerging, and potentially highly important, topic emphasizing the paternal contribution to Developmental Programming.

- Carl Dahlen, North Dakota State University – Overview: The Paternal Contribution to Developmental Programming
- Dr. Adam Watkins, University of Nottingham – The Paternal Programming of Periconception Development
- Dr. Janice Bailey, Fonds de Recherche du Québec en Nature et Technologies (FRQNT) – Implications of the paternal environment for future generations

Small Ruminant Symposium: Current Status of Genomics Research in Sheep

Genomic selection has resulted in rapid rates of genetic gains especially in dairy cattle. Compared with the use of genomic information for cattle, the higher cost of genotyping relative to the value of the animal is still a strong economic barrier to the uptake of such new technology in sheep breeding. The symposium will provide an overview of the status of genomics research and the current efforts for implementation of genomic selection.

- Dr. Ron Lewis, University of Nebraska–Lincoln – Derivation and Use of Genomic Enhanced Estimated Breeding Values for Selection in Sheep
- Dr. Brenda Murdoch, University of Idaho – Characterizing Functional Genetic Regulatory Elements in Sheep Reference Genome
- Dr. Luiz Brito, Purdue University – Characterization of Genomic Diversity in Sheep Populations Based on Complementary Metrics and Its Implications for Genomic Selection
- Dr. Christian Posbergh, Montana State University – Genomic Approaches for Feed Efficiency in Sheep
- Dr. Tom Murphy, USDA-ARS – Genetic Approaches to Improve Reproductive Performance in The U.S. Sheep Industry

MONDAY, JUNE 27, 2022 – AFTERNOON

Beef Species and Ruminant Nutrition Symposium II: New Advances in Ruminant Nutrition: Nutrient Requirements of Beef Cattle and Looking Forward to the Next NASEM Revisions

The latest Nutrient Requirements of Beef Cattle was released five years ago. Within the next few years, the beef cattle nutrition community needs to begin to revise the published nutrient requirements. It is important to evaluate the current data that is published as a first step to determine the missing data to fill in knowledge gaps. This symposium is designed to give an overview of the current state of the nutrient requirements and specifically point out gaps in the knowledge base to guide research in the next few years to allow a timely revision. A speaker will also give insight into how industry (i.e., consultants) utilize the publication and what they need moving forward.

- Dr. Kristin Hales, Texas Tech University – Predicting Metabolizable Energy from Digestible Energy for Growing and Finishing Beef Cattle and Relationships to Prediction of Methane
- Dr. Robin White, Virginia Tech University
- Dr. Stephanie Hansen, Iowa State University
- Dr. Clint Krehbiel, University of Nebraska

Meat Science and Muscle Biology Symposium: Metabolomics Measurements in Determining Meat Quality – Sponsored by Texas A&M Department of Animal Science – Safety, Quality, and Nutrition of Food Products Area of Excellence

The study of metabolomics is a relatively new field in the area of meat science and muscle biology. Small molecule metabolites are involved in lipid and protein metabolism which have been shown to influence meat quality and sensory traits. Metabolomics allow us to link live animal production, through the study of tissue metabolism, with product quality that impacts the consumer. While proteomics and lipidomics have been discussed recently at ASAS symposia, the discussion of metabolomics has been notably missing. This could be a great way to bring together all segments of the food animal industry to discuss animal production through meat quality and consumer acceptance.

- Dr. Andy King, USDA-ARS – Using Metabolomic Approaches to Understand and Reduce Animal Variation in Meat Quality Traits
- Dr. Chris Kerth, Texas A&M University – The Animal Production and Carcass Traits Affect Meat Quality and Flavor Through Metabolomics
- Dr. Brad Kim, Purdue University – Developing Novel Smart-Aging Strategies Through Metabolomics Approach
- Dr. Ranjith Ramanathan, Oklahoma State University – Metabolomics and Meat Color: A Novel Approach to Understand Molecular Signatures

TUESDAY, JUNE 28, 2022 – MORNING

Animal Behavior and Well-Being Symposium I: Cultural Competency and Communications: A Means to Improve Animal Welfare

- Dr. Michelle Calvo-Lorenzo, Elanco Animal Health – Livestock Welfare: Current Trends, Tools, and On-Farm Hispanic Worker Support
- Dr. Laszlo Hunyadi, Texas Tech School of Veterinary Medicine and Dr. Luis Angel Morales, Equivet Guatemala Mobile Services – Equitarian Efforts unite veterinarians across the globe
- Dr. Juan Velez, Aurora Organic Dairy – Training Programs and Resources That Improve Farm Culture and Communication with Hispanic Caretakers
- Dr. Antonio Landeta-Hernandez, University of Zulia – Role of Veterinarians in Training Latin-American Cattle Workers on Animal Welfare
- Dr. Noa Ivette Roman-Muniz, Colorado State University and Dr. Lily Edwards-Callaway, Colorado State University – Caretaker Perspectives on Animal Welfare and Euthanasia: Challenges and Opportunities

Beef Species and Ruminant Nutrition Symposium III: Implications of Gut Health in Ruminant Nutrition

Research and knowledge of the field of gut health has expanded over the past decade with discovery of important health and metabolic implications for beef production. Many products oriented toward gut health have entered the marketplace, not only due to the increased understanding of this field but also as scrutiny of antibiotic use persists. Speakers for this topic will address physiologic, microbiologic, and immune aspects of the gastrointestinal tract as it pertains to the ruminant as well as present a broad understanding of the types of products, intended application, and regulatory considerations for applications in beef production.

- Dr. Gregory Penner, University of Saskatchewan – Why Should the Beef Industry Be Concerned with Gut Health?
- Dr. Todd Callaway, University of Georgia – Gut Inflammation: Fanning non-specific flames that impact health and performance
- Dr. Christopher Chase, South Dakota State University – Immunology and the Gut: The Key to Animal Health
- Dr. T.G. Nagaraja, Kansas State University – Gut Microbiome: Implications on Gut Health
- Dr. Sara Kvidera, Elanco Animal Health – Intestinal Barrier Dysfunction: Causes and Metabolic Consequences

Cell Biology Symposium: Cellular and Molecular Effects of Heat Stress

Focusing on traditional livestock industries (beef, swine, dairy cattle) as well as others (aquaculture). Speakers will present research that focuses on better understanding the molecular mechanisms that mediate the effects of heat stress in animals (focus on genetic factors, gene expression, and other molecular modalities used to better understand this problem).

- Dr. Jimena Laporta Sanchis, University of Wisconsin-Madison
- Dr. Huaijun Zhou, University of California, Davis – Genetic Dissection of Host Response to Heat Stress in Poultry: an "omic" Approach

Companion Animal Symposium I: Effects of Processing on Nutrients and Nutrition

Pet food ingredients and pet foods are processed through different technologies before it is served as a meal to dogs and cats. These different processes have different effects on particular nutrients. Moreover, over the years, there is an increase in popularity of raw and homemade pet foods. These trendy food types have challenges of their own. Finally, pet food companies and ingredient manufacturers develop new processing techniques that confer them advantages in a very competitive market; however, the effects of these new processes on nutrients may not be completely understood to date. The objective of this symposium is to provide a summary of the main and novel ingredient and food processes used to produce pet foods and their effects on nutrients and nutrition.

- Dr. David Meeker, National Renderers Association – Rendering Effects on Pet Food Ingredients
- Dr. Guido Bosch, Wageningen University – Protein and Amino Acid Modifications During Extrusion
- Stephen Trachtenberg, Chasing Our Tails – Air Dried Complete Diets: The Next Evolution of Companion Animal Feeding

Comparative Gut Physiology Symposium: Redefining Gut Barrier Function in Animal Biosciences

Gut health has emerged as a key area for focus over the past decades in livestock agriculture in order to promote health to minimize antimicrobial use and resistance. Our definitions of gastrointestinal health have evolved to include barrier function, yet there are a variety of definitions and methods for measuring barrier function making it difficult to interpret and draw meaning form recent studies. The focus of our comparative gastrointestinal physiology symposia is to define the key aspects of gastrointestinal barrier function, the limitations of current model and interpretations and direction of future research.

- Dr. Greg Penner, University of Saskatchewan – Redefining Gut Barrier Function for Beef and Dairy Cattle
- Dr. Chengbo Yang, University of Manitoba – Calcium-sensing Receptor and the Regulation of Nutrient Absorption and Gut Health in Pigs
- Dr. Amanda Ziegler, North Carolina State University – Age-dependent Intestinal Barrier Repair in Suckling Pigs: A Comparative Model to Improve Neonatal Gastrointestinal Health Across Species
- Dr. Anthony Blikslager, North Carolina State University – Intestinal Barrier Function: Physiological Regulation, Injury, and Repair in Horses and Swine
- Dr. Douglas Burrin, USDA-ARS – Standing in the Gap of Neonatal Host-Microbe Barrier Function

TUESDAY, JUNE 28, 2022 – AFTERNOON

ASAS-ASN Symposium: Animal-sourced Foods for Global Health

- Dr. Teresa Davis, Baylor University College of Medicine – Incorporation of Animal-Based Foods in U.S. Diets
- Dr. Gbola Adesogan, University of Florida – Importance of Animal-Sourced Foods and Barriers to Their Adoption Globally
- Dr. Robin White, Virginia Tech – Environmental Impacts of Animal-sourced Foods
- Dr. Kim Ominski, University of Manitoba or Agriculture – The Role of Livestock as Up-Cyclers of Food By-Products and Waste
- Dr. Daesoo Kim, University of Arkansas – Life Cycle Assessments of Animal-source Foods

Animal Behavior and Well-Being Symposium II: Animal Production Practices and Greenhouse Gasses: The challenge, what can be done, and how animal agriculture can adapt to a changing climate

- Dr. Ermias Kebreab, University of California, Davis – Is A Climate Neutral Animal Agriculture Possible?
- Dr. Adam Feltz, University of Oklahoma – Balancing Beneficence and Autonomy in Animal Agriculture with A Warming World
- Greg Zwicke, USDA-NRCS – Conservation Planning for Greenhouse Gases in Animal Agriculture

Animal Breeding and Genetics: Symposium I: New Insights on Artificial Intelligence Applied to Precision Animal Breeding

Artificial intelligence (AI) has rapidly emerged as a powerful approach in animal genomics. This symposium will discuss smart animal breeding with advanced AI, big data, machine learning, deep learning, artificial neural networks, etc.; breeding program strategies based on Artificial Intelligence tools; modelling tools to simulate complex genomic relationships; artificial Intelligence applied to high-throughput phenotyping (Automatic monitoring, recording, remote sensing and image interpretation, etc...); increasing accuracy by precision information; future prospectus/new opportunities for positive change.

- Dr. Isabel Condotta, University of Illinois Urbana-Champaign
- Dr. Suresh Neethirajan, Wageningen University
- Dr. Victor Cabrera, University of Wisconsin-Madison – New insights on data integration and artificial intelligence to predict primiparous lactation curves capturing genotype-by-environment interactions
- Dr. Gota Morota, Virginia Tech – How Can Artificial Intelligence Accelerate Phenotyping Efforts in Animal Breeding?

Extension Symposium: Importance and practices of interaction with producers and industry for Land-grant Animal Science Faculty: How are these practices developed and implemented

As society, technology, producer demographics, etc. change over time, what are some key practices that younger beef specialists can learn from those who have been in the trenches over the years and learned over their careers? It is important to take the opportunity to learn from that past to succeed in the future.

- Ivan G. Rush, Professor Emeritus, University of Nebraska-Lincoln
- Dr. Dave Lalman, Oklahoma State University
- Dr. Allison Meyer, University of Missouri
- Dr. Kim Mullenix, Auburn University

WEDNESDAY, JUNE 29, 2022 – ALL DAY

Animal Breeding and Genetics Symposium II: What Sustainable Livestock Breeding Looks Like at Home and Abroad

- Dr. Luiz Brito, Purdue University
- Dr. Ignacy Misztal, University of Georgia – Sustainable Livestock Breeding with a Focus on Heat Stress
- Dr. Asha Miles, USDA-ARS
- Dr. Robin White, Virginia Tech
- Dr. Christine Baes, University of Guelph – Sustainable Livestock Breeding: Challenges and Opportunities
- Dr Chinyere Ekine-Dzivenu, International Livestock Research Institute – Genetics and genomic approaches for sustainable dairy cattle improvement in smallholder dairy systems

WEDNESDAY, JUNE 29, 2022 – MORNING

CSAS Symposium I: Increasing Nutrient Utilization of Feedstuffs for Growing-finishing Pigs

- Dr. Ruurd Zijlstra, University of Alberta – Evaluation and Improvement of the Nutritional Value of Cereal and Pulse Grains for Swine
- Dr. Martin Nyachoti, University of Manitoba – Evaluation and Improvement of the Nutritional Value of Co-products for Swine
- Dr. Julang Li, University of Guelph – Improving Nutrient Value of Soybean Meal Using Characterized Novel Microbial Fermentation
- Cara Cargo-Froom, University of Guelph – A Comparison of Key Methodologies Used to Quantify Protein Quality in Mammals: Ileal Digestibility, Indicator Amino Acid Oxidation, and In Vitro Digestibility
- Dr. Ming Fan, University of Guelph – Monomodular and Multi-functional Processive Endocellulases for Improving Fibre Utilization and Reducing Environmental Footprint in Pigs

Forages and Pastures Symposium I: Complementary Forage Systems for Grazing Livestock

Forage-based livestock production is faced with numerous challenges to remain sustainable and profitable. The strong seasonality and interannual variation in forage quantity and quality is a key limitation to forage-based grazing systems due to extended periods where forage does not meet animal nutrient requirements. Complementary forage systems have the potential to extend the grazing season, reducing reliance on harvested forages, while improving nutritional opportunities of grazing animals and minimizing the need for supplemental inputs. In addition, advantages of using complementary forages can include more efficient use of individual forages, improvements in range condition, increased resource management flexibility, and increased animal performance. Thus, the integration of complementary forage systems can

markedly increase economic returns to the forage-livestock enterprise while conserving landscape resources. Complementary forage systems include a wide variety of management and research opportunities across the United States, including the integration of cover crop and livestock grazing, forage species that offer late season or early spring grazing opportunities (forage kochia, winter/summer annuals, etc.), grazing crop aftermath, and incorporating pasture forage to primarily rangeland operations. Therefore, given the opportunity that complementary forage systems can play in the efficiency of forage-based livestock production systems across the United States, we propose a session to bring scientists and managers updated information on this topic.

- Dr. Darrin Boss, University of Montana – Integration of Cover Crops and Livestock Grazing
- Dr. Juan Villalba, Utah State University – Smart Foodscapes: Developing Functional Landscapes to Enhance the Sustainability Livestock Production Systems
- Dr. Serkan Ates, Oregon State University – Sustainable Livestock Production from Phytochemically Diversified Pastures
- Dr. Ken Coffey, University of Arkansas – Forage Species to Improve Nutritional Opportunity for Grazing Livestock–A Southeast Perspective
- Dr. Paul Beck, Oklahoma State University – Using Annual Forage Crops to Extend Grazing: What are the Benefits to Production and Livestock Enterprise Economics
- Dr. Jamie Sherman, University of Montana – Breeding Winter and Spring Two-row Barley for More Sustainable Livestock Production

Nonruminant Nutrition and Swine Species Symposium I: Nutritional Intervention in Swine Production for the Environment and Gut Health

- Dr. Candido Pomar, Agriculture and Agri-Food Canada – The Impact of Feed Formulation and Feeding Methods on Pig and Poultry Production on the Environment
- Dr. Ruurd Zijlstra, University of Alberta – Nutritional Intervention to Improve Carbohydrate Utilization and Better Gut Health
- Dr. Marcos Duarte and Dr. Sung Woo Kim, North Carolina State University - Nutritional Intervention for Reduced Nitrogen Excretion and Better Intestinal Health
- Dr. Jean-Yves Dourmad, French National Institute for Agricultural Research – Towards A Sustainable Use of Trace Elements in Pig and Poultry Feeding
- Dr. R. Dean Boyd and Dr. David Rosero, The Hanor Company – Increasing Dietary Soybean Meal Level Improves Growth and Feed Conversion Efficiency in Healthy Pigs a
- and Reduces GHG Emissions

Production, Management and Environment Symposium: Sustainability: Moving from Buzzword to Application

With fairly broad presentations on "sustainability," why it matters, and who is saying/doing what in response, there is a need for a more practical and relevant approach (e.g., metrics) to production systems.

- Constance Cullman, AFIA – Setting the Stage: What Are We Being Asked to Know and Do?
- Dr. Juan Tricarico, Innovation Center for U.S. Dairy – Sustainability in Practice at the Dairy Farm Sector (Dairy)
- Dr. Galen Erickson, University of Nebraska-Lincoln – Importance and Difficulty of Measuring Complete Greenhouse Gas Flux from Diverse Beef Production Systems
- Dr. Joel DeRouchey, Kansas State University – Recognizing and Balancing Sustainable Trade-Offs in the Swine Industry
- Dr. Walter G. Bottje, University of Arkansas – Sustainability Science Meets the Real World (Poultry)

WEDNESDAY, JUNE 29, 2022 – AFTERNOON

CSAS Symposium II: Bison Ecological Recovery and Production Perspectives

Bison are a native species to the North American plains adapted to local weather conditions and naturally available feeds. Bison are better suited than cattle at utilizing low quality feeds, which leads to economic advantages in cost of production. There is a growing interest in the perspective of raising bison in a way that promotes and builds on these advantages that will help keep them a distinct, unique product in the marketplace. On the other hand, bison is a "keystone species" by creating a vibrant mosaic of habitats fulfilling their role in the ecosystem that benefits bugs to birds to bears, and hundreds of other species. A look into the bison production perspectives as well as ecological recovery aspects will be discussed at the present Symposium through well knowledge speakers in the field.

- Dr. Jayson Galbraith, Alberta Agriculture and Forestry – All Things Bison: The Known and the Unknown
- Dr. Todd Shury, Manager, Wildlife Health and Management Parks Canada/Government of Canada – Persistence and Serendipity: The Ecological Recovery of North American Bison Populations
- Dr. Eric Zwiefelhofer, University of Saskatchewan – Sex-sorted sperm used for fixed-time artificial insemination and in vitro fertilization in wood bison
- Dr. Jeff Martin, Center of Excellence for Bison Studies – The North American Bison Management System: Reintroduction of A Species with Ecological, Economic, and Cultural Roles in A Changing Climate
- Michelle Miller, Neogen Canada – Developing Genomic Tools for Bison

Companion Animals Symposium II: Nutrition and Immunology Applied to Companion Animals

Pet food plays a pivotal role in strengthening the human-animal bond by supporting healthy growth and longevity for our pets. Much of the knowledge of animal immunology comes from research with livestock, where the typical outcome is increased production with reduced use of antibiotics and other medicines. This differs greatly from the goals for companion animals, which are more like those for humans. Therefore, the objective of this symposium is to provide an overview of recent research discussing the effects of nutrition on the immune system when longevity and improved quality of life are the target goals.

- Dr. Andrew J. Steelman, University of Illinois at Urbana-Champaign – Overview of The Immune System
- Dr. Elizabeth Bobeck, Iowa State University – Ingredients That Modify the Immune System
- TBD – The Influence of Feline Diet on Human Cat Allergies

Nonruminant Nutrition and Swine Species Symposium II: Dealing with E. coli Challenges in a Pre and Post Pharmacological Zinc World

- Dr. Ellen Davis, Arm & Hammer Animal and Food Production – Pathogenic Escherichia coli populations within the gut microbiota of commercial swine herds in the U.S.
- Dr. Gilles Langeoire, Gilles Langeoire Consulting – Preparing for a low zinc World a new paradigme for feeding piglet
- Dr. Martin Nyachoti, University of Manitoba – Application of the Escherichia coli Challenge Model in Developing Strategies to Improve Gut Health and Function in Weaned Pigs
- Dan Bussière, Groupe Ceres Inc – Nutritional Interventions: Our Experiences from the Field
- Dr. Kyle Coble, JBS Live Pork – U.S. Challenges with E. coli And Road Map for The Future

Forages and Pastures Symposium II: Fiber Utilization and Cell Wall Constituents

In 1991, researchers in animal and plant sciences met at the International Symposium on Forage Cell Wall Structure and Digestibility in Madison, WI. At that meeting, seven sessions were organized, representing some of the biggest names in forages and ruminant nutrition, to discuss and debate the cell wall, its role in ruminant nutrition, and the advances made in the science of forage nutrition. Out of that meeting was born Forage Cell Wall Structure and Digestibility, a seminal text on the subject. Since that time, many researchers have tasked themselves with building upon the basis set by these researchers. However, to the best of our recollection, no other conference or symposium has been organized to provide an update of events in this field. Thus, given the vital role that cell wall structure plays in the nutrition of herbivorous species (both ruminant and non-ruminant), we propose a session to bring scientists up to speed on this vital topic.

- Dr. George C. Fahey, Jr., University of Illinois Urbana-Champaign – Forage Cell Wall Organization, Complexes, and Components

- Dr. Jamie Foster, Texas A&M University – An Update on In Vitro and In Situ Experimental Techniques for Approximation of Ruminal Fiber Degradation
- Dr. Todd Callaway, University of Georgia – Forage Biodegradation: Advances in Ruminal Microbial Ecology
- TBD – Cell Wall Biodegradation (Cell Wall Biology and Utilization [ARS])
- Dr. Luis Tedeschi, Texas A&M University – Revisiting Mechanisms, Methods, and Models for Altering Cell Wall Utilization for Ruminants

THURSDAY, JUNE 30, 2022 – MORNING

Animal Breeding and Genetics Symposium III: Selection Signatures in Livestock Genome

Livestock genome have been improved by selection for production and performance over the centuries. These selection strategies are expected to leave footprints in the genome that are identified as selection signatures. The identification of selection signatures is currently one of the principal interests because it provides information about the evolutionary processes involved in shaping genomes, as well as physical and functional information about genes/genomic regions

- Lujiang Qu, China Agricultural University – Origins, Timing and Introgression of Domestic Geese Revealed by Whole Genome Data
- Dr. Troy Rowan, University of Tennessee – Mapping Recent and Ongoing Polygenic Selection in Beef Cattle Populations
- Dr. Angela Cánovas, University of Guelph – Evaluating the Functional Differences at Genome, Transcriptome and Methylome Level Between ARS-UCD1.2 and UMD 3.1 Bovine Reference Genomes
- Martin Johsson, Swedish University of Agricultural Sciences - Problematizing Selection Mapping from An Animal Science Perspective

Horse Species Symposium: The Mechanisms for MRP in Horses

Maternal recognition of pregnancy (MRP) is a critical step in the establishment of a successful pregnancy. Although other species have well-defined mechanisms that are required for/associated with MRP, there is controversy around which mechanisms (if any that are currently identified) are necessary for MRP in horses. The goal for this symposium is to bring together speakers with different views on the mechanisms for MRP in horses and to conclude with a roundtable discussion that will hopefully identify future steps for research in this area.

- Dr. Mariana Diel de Amorim, Cornell University – Putative Gene Regulators in the Equine Endometrium, Corpus Luteum and Embryo during Early Pregnancy in the Horse
- Dr. Claudia Klein, Friedrich-Loeffler-Institute
- Dr. Jason Bruemmer, Colorado State University