



Sunday, January 26, 2020

SCC-81 SYMPOSIUM

Chair: Stephan Wildeus, Virginia State University
1:00 PM - 5:00 PM
Walker

1:00 p.m. **SCC-81 SYMPOSIUM WELCOME**

Stephan Wildeus¹

¹Virginia State University

1:05 p.m. 192 **Towards Year-Round Grazing in the Southeastern U.S.**

Gabriel J. Pent¹

¹Virginia Tech - SVAREC

1:35 p.m. 178 **Use of silvopastures and woodlands to expand the grazing opportunity for small ruminants**

Uma Karki¹

¹Tuskegee University

2:05 p.m. **SCC-81 SYMPOSIUM BREAK I**

2:15 p.m. 193 **Growth performance of lambs and kids on pasture**

Susan Schoenian¹

¹University of Maryland

2:45 p.m. 194 **Carcass and Meat Quality of Pasture-raised Lamb and Goat**

Jung H. Lee¹

¹Fort Valley State University

3:15 p.m. **SCC-81 SYMPOSIUM BREAK II**

3:25 p.m. 117 **Organic and conventional pasture systems for lamb production in Southeastern U.S.**

Joan M. Burke¹

¹USDA ARS Dale Bumpers Small Farms Research Center

3:55 p.m. 195 **Marketing options for pasture-raised lambs**

Dahlia O'Brien¹, Stephan Wildeus¹

¹Virginia State University

4:25 p.m. **SCC-81 SYMPOSIUM BREAK III**

4:30 p.m. **SCC-81 SYMPOSIUM ROUNDTABLE**

SERA 41 SYMPOSIUM INTRODUCTION

Chair: Daniel Rivera, Animal and Dairy Sciences Department Mississippi State University
1:00 PM - 5:00 PM
Ballroom 1

1:00 p.m. **SERA 41 SYMPOSIUM INTRODUCTION**

Daniel Rivera ¹

¹Animal and Dairy Sciences Department Mississippi State University

1:05 p.m. 196 **Animal Nutrition: How are we serving our clientele through Extension?**

Kimberly Mullenix ¹, Shane Gadberry ², Robert Lawton Stewart ³

¹Auburn University, ²University of Arkansas, ³University of Georgia

1:50 p.m. 197 **Supplemental feeding, forage intake and animal performance – perspectives from research and the industry**

Daniel Rivera ¹

¹Animal and Dairy Sciences Department Mississippi State University

2:35 p.m. 198 **Beef cattle support system modeling**

Robin R. White ¹

¹Virginia Tech School of Animal Sciences

3:20 p.m. **SERA 41 SYMPOSIUM PANEL DISCUSSION**

3:40 p.m. **SERA 41 MEETING**

GRADUATE STUDENT COMPETITION - MS

Chair: Charles Rosenkrans, University of Arkansas System
3:00 PM - 4:30 PM
Ballroom 2

3:00 p.m. 166 **The effects of feeding lasalocid in combination with zeranol implants on performance and carcass traits in hair sheep**

Brittany A. Lippy ¹, Blake K. Wilson ¹, Jerry Fitch ¹, Gretchen G. Mafi ¹, Justin Crosswhite ¹

¹Oklahoma State University

3:05 p.m. 80 **Evaluation of extended release eprinomectin efficacy on multiparous beef cow performance**

Laine Zammit ¹, Jerme G. Powell ¹, Reagan N. Cauble ¹, Toby D. Lester ¹, Callan Lichtenwalter ¹, Ellen M. Herring ², Clay McGuire ¹, Autumn T. Pickett ¹, Eva M. Wray ¹, Chris Tucker ¹

¹University of Arkansas, ²University of Arkansas System Division of Agriculture Department of Animal Science

3:10 p.m. 154 **The effect of number of cattle per pen on stocker cattle health and performance.**

Kirsten A. Midkiff ¹, Brandi B. Karisch ², Amelia Woolums ²

¹Mississippi State University Animal and Dairy Sciences, ²Mississippi State University

3:15 p.m. 92 **Health and Performance of Ewes in Woodland and Silvopasture Systems**
Nevershi Ellis¹, Uma Karki¹, Bidur Paneru¹, Lila B. Karki¹
¹Tuskegee University

3:20 p.m. 185 **Utilizing craft brewing side streams of trub, hops, and yeast mix (THYM) as a novel feed additive and an alternative to monensin in beef cattle diets**
Kendra P. Phipps¹, Deidre D. Harmon¹, Matt H. Poore², Ethan Henderson³, Robert Bryant⁴, Brock Ashburn⁵, April D. Shaeffer², Johnny R. Rogers¹
¹North Carolina State University, ²NC State University, ³North Carolina Cooperative Extension, ⁴Warren Wilson College, ⁵Highland Brewing Company

3:25 p.m. 163 **The effects of energy and lasalocid supplementation on forage intake and energetics of cattle grazing wheat pasture**
Autumn T. Pickett¹, Beth B. Kegley², PAUL A. BECK³, Stacey A. Gunter⁴
¹University of Arkansas, ²University of Arkansas Division of Agriculture, ³Oklahoma State University, Department of Animal & Food Sciences, ⁴USDA-ARS, Oklahoma and Central Plains Agricultural Research Center

3:30 p.m. 83 **Evaluation of feeding immunoglobulin-Y to Holstein feeder cattle for the control of liver abscesses & reduction of macrolide-resistant bacteria dissemination**
Miranda K. Stotz¹, Diego Casas Murillo¹, Darren D. Henry¹, Whitney L. Crossland¹
¹Texas Tech University

3:35 p.m. 134 **Public perceptions of equine processing and welfare**
Kelly Melvin¹, Liesel G. Schneider², Jennie L. Ivey³, Peter D. Krawczel³
¹University of Tennessee, ²Animal Science Department, University of Tennessee Institute of Agriculture, ³University of Tennessee Institute of Agriculture

3:40 p.m. 63 **Effects of forage allowance and supplementation on performance of steers grazing wheat pasture.**
Kynzie McNeill¹, Ryan R. Reuter¹, PAUL A. BECK²
¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

3:45 p.m. 119 **Palatability of Olive Pomace in Mozambique Tilapia (*Oreochromis mossambicus*)**
Ethan Krasue¹, Benny J. Conn¹, Stanley F. Kelley¹, Marcy M. Beverly¹, Mark Anderson¹
¹Sam Houston State University

3:50 p.m. 160 **The effect on ADG, DMI, and blood metabolites of weaned Katahdin lambs offered chelated mineral with *Ascophyllum nodosum* on a high forage diet**
Elizabeth Jolly¹, Jamie A. Boyd¹
¹Sul Ross State University

3:55 p.m. 12 **Carcass Attributes and Performance of Poultry (*Gallus gallus domesticus*) fed Olive Pomace**
Benny J. Conn¹, Payton Snokhous¹, Ethan Carter¹, Phil Urso², Jerrad F. Legako³, Stanley F. Kelley¹, Marcy M. Beverly¹, Mark Anderson¹
¹Sam Houston State University, ²Texas Tech University, ³Texas Tech University, Department of Animal and Food Sciences

4:00 p.m. 17 **Comparing Natural Vegetation and Food Plot Preference against Supplemental Protein Pellets in Captive White-tailed Deer (*Odocoileus virginianus*) and Exotic Species**

Robert W. McQueen¹, Marcy M. Beverly¹, Stanley F. Kelley¹, Mark Anderson¹
¹Sam Houston State University

4:05 p.m. 27 **Defining Grazing Recommendations for Alfalfa-Bermudagrass Mixtures in the Southeastern U.S.**

Kaylyn Groce¹, Jennifer J. J. Tucker¹, Katie Mason², Landon Marks³, Kim K. Mullenix⁴
¹University of Georgia, ²University of Tennessee, ³Alabama Cooperative Extension, ⁴Auburn University

4:10 p.m. 50 **Effects of acclimation on cattle response to humans while being handled.**

Corban H. Hemphill¹, Ryan R. Reuter¹, James P. Neel², Laura Goodman¹
¹Oklahoma State University, ²USDA, ARS, Grazinglands Research Laboratory

4:15 p.m. 168 **The effects of fly control strategies on fly abundance, fly avoidance behaviors, and performance in feedlot bulls and steers**

Courtney McNeff¹, Justin Talley¹, Colton A. Robison¹, Blake K. Wilson¹
¹Oklahoma State University

4:20 p.m. 23 **Comparison of vaginal microbiome and concentrations of estradiol at artificial insemination in Brangus heifers**

Riley D. Messman¹, Zully E. Contreras-Correa¹, Henry A. Paz¹, George Perry², Caleb O. Lemley¹
¹Mississippi State University, ²South Dakota State University

4:25 p.m. 149 **The effect of bunk preference on performance, intake, and efficiency of feedlot steers using an automated individual feeding system**

Kaitlyn N. Pierce¹, Ryan R. Reuter¹, Colton A. Robison¹, Blake K. Wilson¹
¹Oklahoma State University

UNDERGRADUATE STUDENT COMPETITION

Chair: Blake Wilson, Oklahoma State University; Andrea Warner, Oklahoma State University
4:30 PM - 5:45 PM
Roberts

4:30 p.m. 30 **Determination of Optimal Harvest Weight for Mangalica Pigs Using a Serial Harvest Approach to Measure Growth Performance and Carcass Characteristics**

Maegan A. Reeves¹, Courtney E. Charlton¹, Shannon R. Wilkerson¹, John G. Rehm², Terry D. Brandebourg¹
¹Auburn University, ²Department of Animal Sciences, Auburn University

4:35 p.m. 104 **Impacts of Phosphorus Intake on Beef Heifer Growth Performance and Reproductive Tract Scores**

Hailey Hilfiker¹, Beth B. Kegley², Rick W. Rorie³, Pete A. Hornsby¹, Jana L. Reynolds⁴, Benjamin P. Shoulders⁴, Reagan N. Cauble³, Jermey G. Powell³
¹University of Arkansas Division of Agriculture Dept. of Animal Science, ²University of Arkansas Division of Agriculture, ³University of Arkansas, ⁴University of Arkansas System Division of Agriculture

4:40 p.m. 153 **The Effect of Nerve Growth Factor Beta on Embryonic Cleavage Rates**

Kayla Jones¹

¹North Carolina A&T State University

4:45 p.m. 18 **Comparing stress indicators of horses used for therapy in riding activities and groundwork activities**

Gabrielle Abbott¹, Kathi Jogan¹, Erin L. Oberhaus², Jason Apple³, Charles F Rosenkrans⁴

¹University of Arkansas, ²Louisiana State University Agricultural Center, ³Texas A&M University-Kingsville, ⁴Animal and Veterinary Sciences Department, Clemson University

4:50 p.m. 183 **Utilizing Breeding Indicators for an Effective AI Program in Brahman Cows**

Emily K. DeShazo¹, Sydney T. Reese², Gessica A. Franco-Johannsen³, Don A. Neuendorff⁴, Ron Randel², Ky G. Pohler²

¹Mississippi State University, ²Texas A&M University, ³Texas &M University, ⁴Texas A&M AgriLife Research & Extension Center at Overton

4:55 p.m. 48 **Effect of Zelnate administered at initial processing in high-risk, newly received beef calves on performance and morbidity**

Brady E. Martin¹, Reagan N. Cauble¹, Beth B. Kegley², Jerney G. Powell¹

¹University of Arkansas, ²University of Arkansas Division of Agriculture

5:00 p.m. 175 **The Suitability of Autoclave and Pressure Cooker Washing Methods in Comparison to ANKOM²⁰⁰ to Determine Neutral Detergent Fiber Using Different Feedstuffs and Washing Solutions**

Jordan Adams¹, Aaron B. Norris², Madeline E. Rivera¹, Luiz Fernando Dias Batista¹, Luis O. Tedeschi¹

¹Texas A&M University, ²Texas Tech University

5:05 p.m. 95 **Impact of daily movement with low or higher target residue on ewe weight gain and parasite infestation**

Isabella Kukor-Laureano¹, Izzy Van Buren¹, Jay A. Daniel¹

¹Berry College

5:10 p.m. 122 **Physiological effects of low level laser therapy on exercised horses.**

Ashley Rosenkrans¹, Carson Freeman², Erin L. Oberhaus³, Palika Dias-Morse⁴, Charles F Rosenkrans⁵

¹Purdue University, ²University of Missouri, ³Louisiana State University Agricultural Center, ⁴University of Arkansas Fayetteville, ⁵Animal and Veterinary Sciences Department, Clemson University

5:15 p.m. 39 **Effect of Breed on Dairy Calf Vigor from Birth to Preweaning**

Michelle P. Meza¹, Caitlin M. Turner¹, Chad M. Powers¹, Andrea K. Sexten¹

¹Eastern Kentucky University

5:20 p.m. 171 **The effects of supplementing a chelated mineral containing *Ascophyllum nodosum* on intake and performance of creep-fed hair lambs.**

Victoria Romo¹, Jamie A. Boyd¹

¹Sul Ross State University

5:25 p.m. 60 **Effects of exogenous glucocorticoid administration on leptin concentrations in perinatal dairy bull calves**

Camille Morris¹, Keelee J. McCarty¹, Nathan Long¹
¹Clemson University

5:30 p.m. 103 **Impact of weaning strategy on beef cow-calf behavior and activity**

Molly K. Alexander¹, Carrie L. Pickworth¹, Mikayla Moore², Matt H. Poore²
¹North Carolina State University, ²NC State University

5:35 p.m. 74 **Epigenetic marks within the swine placenta are differentially expressed due to season**

Robin Cheek¹, Lea A. Rempel², Jeremy R. Miles³
¹TAMU-Kingsville, ²USDA, ARS, USMARC, ³USDA, ARS, U.S. Meat Animal Research Center

5:40 p.m. 100 **Impact of weaning strategy on beef cow and calf weight and body condition**

Mikayla Moore¹, Jordan Cox-O'Neill¹, Matt H. Poore¹, Carrie L. Pickworth²
¹NC State University, ²North Carolina State University

GRADUATE STUDENT COMPETITION - PHD

Chair: Charles Rosenkrans, University of Arkansas System

4:40 PM - 5:25 PM

Ballroom 2

4:40 p.m. 53 **Effects of an injectable zinc solution at weaning as an alternative castration method during the backgrounding period in beef bulls**

Reagan N. Cauble¹, Powell G. Powell¹, Beth B. Kegley², Shane Gadberry¹, PAUL A. BECK³, Michael Sims⁴, Cody Shelton²

¹University of Arkansas, ²University of Arkansas Division of Agriculture, ³Oklahoma State University, Department of Animal & Food Sciences, ⁴Oklahoma State University

4:45 p.m. 36 **Differential haptoglobin responsiveness to a *Mannheimia haemolytica* challenge altered immunologic, physiologic, and behavioral responses in beef steers**

Lauren Wottlin¹, Gordon E. Carstens¹, William Kayser¹, Thomas H. Welsh², William E. Pinchak³

¹Texas A&M University, ²Texas A&M University; Texas A&M AgriLife Research, College Station, ³Texas A&M Agrilife

4:50 p.m. 6 **Animal performance in grass monoculture or silvopasture systems using tree legumes**

Izabela Aline Gomes da Silva¹, Jose Carlos Batista Dubeux Jr.², Alexandre C. Leão de MELLO¹, Márcio Vieira da Cunha¹, Mércia Ferreira dos Santos¹, Valéria Oliveira Apolinário³, Gleise Medeiros da Silva⁴, Erinaldo Viana de Freitas¹, Nicolas DiLorenzo⁵

¹Federal Rural University of Pernambuco, ²University of Florida - North Florida Research and Education Center, ³Maranhao State University, ⁴ASAS, ⁵Department of Animal Sciences, North Florida Research and Education Center (NFREC), University of Florida, Marianna, FL

4:55 p.m. 57 **Effects of Diploid and Tetraploid Annual Ryegrass Cultivars on Cattle Performance, Herbage Mass, and Nutritive Value**

Sarah M. Montgomery-Williams ¹, Brandi B. Karisch ¹, Jane A. Parish ², Jesse Morrison ¹, Brian Baldwin ¹

¹Mississippi State University, ²North Mississippi Research and Extension Center, Mississippi State University

5:00 p.m. 64 **Effects of grazing cool-season cover crops on forage and animal performance**

Russell C. Carrell ¹, Leanne L. Dillard ², Kim K. Mullenix ², Audrey Gamble ², Russell B. Muntifering ²

¹Cargill Animal Nutrition, ²Auburn University

5:05 p.m. 99 **Impact of social mixing on feedlot steer eating and lying behavior**

Amanda J. Hubbard ¹, Jason Sawyer ², Reinaldo F. Cooke ¹, Jenny Jennings ³, Courtney L. Daigle ⁴

¹Texas A&M University, ²Texas A&M University-Kingsville, ³Texas A&M AgriLife Research, ⁴Department of Animal Science, Texas A&M University

5:10 p.m. 130 **Presynchronization with Prostaglandin F_{2α} and prolonged exposure to exogenous progesterone impacts estrus expression and alters fertility in beef heifers**

Nicky Oosthuizen ¹, Pedro Fontes ², Cliff Lamb ²

¹ABS Global, ²Texas A&M University

5:15 p.m. 143 **Rumen Fluid Metabolites as Potential Biomarkers of Feed Efficiency in Angus Steers**

Brooke A. Clemmons ¹, Joshua B. Powers ¹, Shawn R. Campagna ¹, Taylor B. Ault-Seay ², Mallory M. Embree ³, Phillip R. Myer ⁴

¹University of Tennessee Knoxville, ²University of Tennessee, Knoxville, ³Ascus Biosciences, Inc., ⁴Department of Animal Science- University of Tennessee

5:20 p.m. 77 **Evaluating Nitrogen Management Strategies to Improve Southern Bermudagrass Grazing Systems**

Justin C. Burt ¹, Jennifer J. J. Tucker ¹, Lisa Baxter ¹

¹University of Georgia

Monday, January 27, 2020

MEATS

Chair: Alexander Stelzleni, University of Georgia, Animal and Dairy Science; Brandie Preuss

8:00 AM - 8:45 AM

Walker

8:00 a.m. 110 **Metmyoglobin reducing activity and oxygen consumption properties of atypical dark-cutting beef**

Ranjith Ramanathan ¹, Andrew M. Cassens ¹, Laura Yoder ¹, Gretchen G. Mafi ¹

¹Oklahoma State University

8:15 a.m. 25 **Cooking method and muscle type impact volatile compound development in beef steaks**

Kelly R. Vierck¹, Jerrad F. Legako², Chance Brooks¹

¹Texas Tech University, ²Texas Tech University, Department of Animal and Food Sciences

8:30 a.m. 147 **Tenderness and Retail Display Evaluation of Non-Enhanced, Enhanced and High-Quality Pork Chops**

Andrew M. Cassens¹, Gretchen G. Mafi¹, Deb L. VanOverbeke¹, Ranjith Ramanathan¹

¹Oklahoma State University

PHYSIOLOGY I

Chair: Daniel Poole, North Carolina State University; Nicky Oosthuizen, ABS Global

8:00 AM - 10:45 AM

Ballroom 3/4

8:00 a.m. 72 **Endocrine and ovarian responses to combined estradiol benzoate-sulpiride in anestrus mares treated with kisspeptin**

Victoria N. Bailey¹, Jennifer L. Sones², Caroline M. Camp¹, Erin L. Oberhaus¹

¹Louisiana State University Agricultural Center, ²Louisiana State University School of Veterinary Medicine

8:15 a.m. 19 **Comparing stress indicators of horses used for therapy in riding activities and groundwork activities**

Gabrielle Abbott¹, Kathi Jogan¹, Erin L. Oberhaus², Jason Apple³, Charles F Rosenkrans⁴

¹University of Arkansas, ²Louisiana State University Agricultural Center, ³Texas A&M University-Kingsville, ⁴Animal and Veterinary Sciences Department, Clemson University

8:30 a.m. 121 **Physiological effects of low level laser therapy on exercised horses.**

Ashley Rosenkrans¹, Carson Freeman², Erin L. Oberhaus³, Palika Dias-Morse⁴, Charles F Rosenkrans⁵

¹Purdue University, ²University of Missouri, ³Louisiana State University Agricultural Center, ⁴University of Arkansas Fayetteville, ⁵Animal and Veterinary Sciences Department, Clemson University

8:45 a.m. 8 **Assessment of consistency in quantification of ribonucleic acid across multiple methods**

Andrea N. DeCarlo¹, Joseph Parrish¹, William Bridges¹, Nathan Clemson University Long¹

¹Clemson University

9:00 a.m. 132 **Proportional tissue weights in male goats differing in genetic propensity to consume juniper.**

Doug R. Tolleson¹, Thomas H. Welsh², Nick E. Garza³, Kaylee Hollingsworth¹, John W. Walker⁴

¹Texas A&M University, ²Texas A&M University; Texas A&M AgriLife Research, College Station, ³Texas A&M AgriLife, Sonora, ⁴Texas A&M AgriLife

9:15 a.m. **PHYSIOLOGY I BREAK**

9:30 a.m. 109 **Metabolic and endocrine indicators in male goats differing in genetic propensity to consume juniper.**

Doug R. Tolleson¹, Thomas H. Welsh², John W. Walker³

¹Texas A&M University, ²Texas A&M University; Texas A&M AgriLife Research, College Station,

³Texas A&M AgriLife

9:45 a.m. 88 **Factors influencing mare milk composition and yield and foal digestive health**

Morgan B. Pyles¹, Ashley Fowler¹, Andrea Crum¹, Susan Hayes¹, Rachel Schendel², MICHAEL Flythe³, Laurie Lawrence¹

¹University of Kentucky, ²University of Kentucky Department of Animal & Food Sciences,

³USDA/ARS

10:00 a.m. 14 **Characterization of adipose tissue extracellular matrix component mRNA expression during porcine adipogenesis using real-time PCR**

Maegan A. Reeves¹, Courtney E. Charlton¹, Terry D. Brandebourg¹

¹Auburn University

10:15 a.m. 31 **Determination of Optimal Harvest Weight for Mangalica Pigs Using a Serial Harvest Approach to Measure Growth Performance and Carcass Characteristics**

Maegan A. Reeves¹, Courtney E. Charlton¹, Shannon R. Wilkerson¹, John G. Rehm², Terry D. Brandebourg¹

¹Auburn University, ²Department of Animal Sciences, Auburn University

10:30 a.m. 75 **Epigenetic marks within the swine placenta are differentially expressed due to season**

Robin Cheek¹, Lea A. Rempel², Jeremy R. Miles³

¹TAMU-Kingsville, ²USDA, ARS, USMARC, ³USDA, ARS, U.S. Meat Animal Research Center

10:45 a.m. 199 **Emerging Young Scholar Presentation: Evaluation of Chronic Ergot Alkaloid Exposure and Various Mitigation Strategies on Performance, Reproduction, and Immunity in Beef Cattle**

Rebecca K. Poole¹

¹Texas A&M University

KUNKLE SYMPOSIUM

Chair: Shane Gadberry, University of Arkansas; Kirsten Midkiff, Mississippi State University
Animal and Dairy Sciences

8:30 AM - 11:30 AM

Ballroom 2

8:30 a.m. **KUNKLE SYMPOSIUM INTRODUCTION**

Shane Gadberry¹

¹University of Arkansas

8:40 a.m. 24 **Condensed tannins: structure, activity and characterization**

Wayne Zeller¹

¹USDA-ARS

9:30 a.m. 180 **Using condensed tannins in plant materials more effectively with livestock**

Scott L. Kronberg¹

¹USDA-Agricultural Research Service

10:20 a.m. **KUNKLE SYMPOSIUM BREAK**

10:35 a.m. 4 **Agrochemical Residues, Product Quality, and Safety of Beef Fed Cotton Ginning and Other Byproduct Feeds**

David J. Smith¹

¹U.S. DEPARTMENT OF AGRICULTURE

BREEDING AND GENETICS

Chair: B Kutz, University of Arkansas; Taylor Ault-Seay, University of Tennessee, Knoxville

1:15 PM - 2:45 PM

Ballroom 3/4

1:15 p.m. 46 **Effect of the addition of α -tocopherol to *in vitro* maturation media of bovine oocytes.**

Theisy P. Acosta Pérez¹

¹Universidad Autonoma de Ciudad Juárez

1:30 p.m. 70 **Effects of the addition of *Moringa oleifera* seed extract to *in vitro* maturation of bovine oocyte media and its antimicrobial activity.**

Theisy P. Acosta Pérez¹

¹Universidad Autonoma de Ciudad Juárez

1:45 p.m. 84 **Evaluation of hair coat shedding ability as an adaptive trait in Angus cattle in the southern U.S.**

Randy H. Burnett¹, Morgan A. Duvic², B R. Kutz³, Avert H. Brown, Jr.³, Jermei G. Powell³, Trent Smith², David G. Riley⁴, R N. Cauble³

¹Mississippi State University Animal and Dairy Sciences, ²Mississippi State University,

³University of Arkansas, ⁴Texas A&M University

2:00 p.m. 128 **Pregnancy and calving rates of beef cows comparing the sex-selected semen to conventional semen using timed artificial insemination**

Jennifer McMurray¹, Andrea N. DeCarlo¹, Nathan Long¹, Nathan Clemson University Long¹

¹Clemson University

2:15 p.m. 139 **Relationship of winter hair growth and performance in Angus dams**

Morgan A. Duvic¹, Randy H. Burnett², Cody Glenn¹, Trent Smith¹

¹Mississippi State University, ²Mississippi State University Animal and Dairy Sciences

2:30 p.m. 184 **Utilizing Breeding Indicators for an Effective AI Program in Brahman Cows**

Emily K. DeShazo¹, Sydney T. Reese², Gessica A. Franco-Johannsen³, Don A. Neuendorff⁴, Ron Randel², Ky G. Pohler²

¹Mississippi State University, ²Texas A&M University, ³Texas &M University, ⁴Texas A&M AgriLife Research & Extension Center at Overton

PASTURES AND FORAGES I

Chair: Flint Harrelson, Morehead State University; Kristen June Jacobson
1:15 PM - 3:45 PM
Ballroom 2

1:15 p.m. 87 **Evaluation of two stocking rates for grazing heifers on mixed sward native warm-season grass pastures in the Black Belt Prairie region**

Jane A. Parish¹, Kalisha C. Yankey², Libby S. Durst³

¹North Mississippi Research and Extension Center, Mississippi State University, ²Prairie Research Unit, Mississippi State University, ³Mississippi State University

1:30 p.m. 115 **Nitrogen fertilizer effects on above ground sward characteristics and beef heifer performance from native warm-season grass blends**

Caroline Chappell¹, Landon Marks², Katie Mason³, Kim K. Mullenix⁴, Leanne L. Dillard⁴, Russell B. Muntifering⁴

¹Auburn University/Alabama Cooperative Extension System, ²Alabama Cooperative Extension, ³University of Tennessee, ⁴Auburn University

1:45 p.m. 5 **Animal performance in grass monoculture or silvopasture systems using tree legumes**

Izabela Aline Gomes da Silva¹, Jose Carlos Batista Dubeux Jr.², Alexandre C. Leão de MELLO¹, Márcio Vieira da Cunha¹, Mércia Ferreira dos Santos¹, Valéria Oliveira Apolinário³, Gleise Medeiros da Silva⁴, Erinaldo Viana de Freitas¹, Nicolas DiLorenzo⁵

¹Federal Rural University of Pernambuco, ²University of Florida - North Florida Research and Education Center, ³Maranhao State University, ⁴ASAS, ⁵Department of Animal Sciences, North Florida Research and Education Center (NFREC), University of Florida, Marianna, FL

2:00 p.m. 16 **Comparing Natural Vegetation and Food Plot Preference against Supplemental Protein Pellets in Captive White-tailed Deer (*Odocoileus virginianus*) and Exotic Species**

Robert W. McQueen¹, Marcy M. Beverly¹, Stanley F. Kelley¹, Mark Anderson¹

¹Sam Houston State University

2:15 p.m. **PASTURES AND FORAGES I BREAK**

2:30 p.m. 20 **Comparison of native warm-season grasses and bermudagrass for stocker calf grazing in the Black Belt Prairie region**

Jane A. Parish¹, Kalisha C. Yankey², Libby S. Durst³

¹North Mississippi Research and Extension Center, Mississippi State University, ²Prairie Research Unit, Mississippi State University, ³Mississippi State University

2:45 p.m. 145 **Stocker gains on diverse summer annual pastures**

Kelly Mercier¹, Chris Teutsch¹, Ray Smith¹, Eric Vanzant², Kenny Burdine¹, Edwin Ritchey¹

¹University of Kentucky, ²University of Kentucky Department of Animal & Food Sciences

3:00 p.m. 191 **Yield and nutritive quality of summer annual forage mixtures**

Serena Thompson¹, Leanne L. Dillard¹, Alana Jacobson¹, Jenny Koebernick¹, Grey Parks¹, Kim K. Mullenix¹

¹Auburn University

3:15 p.m. 76 **Evaluating Nitrogen Management Strategies to Improve Southern Bermudagrass Grazing Systems**

Justin C. Burt¹, Jennifer J. J. Tucker¹, Lisa Baxter¹
¹University of Georgia

3:30 p.m. 28 **Defining Grazing Recommendations for Alfalfa-Bermudagrass Mixtures in the Southeastern U.S.**

Kaylyn Groce¹, Jennifer J. J. Tucker¹, Katie Mason², Landon Marks³, Kim K. Mullenix⁴
¹University of Georgia, ²University of Tennessee, ³Alabama Cooperative Extension, ⁴Auburn University

PHYSIOLOGY II: GENOMICS

Chair: Paul Broadway, USDA-ARS, Livestock Issues Research Unit; Autumn Pickett, University of Arkansas
1:15 PM - 4:15 PM
Roberts

1:15 p.m. 137 **Randel Lecture: Genetic control of thermotolerance in cattle at the whole-animal and cellular level**

Peter J. Hansen¹
¹University of Florida

1:45 p.m. 13 **Changes in Cytokine Profiles in Response to Ergovaline Exposure in Slick vs. Normal Hair Coat in Beef Heifers**

Alecia R. Brown¹, McKenzie L. Haimon¹, Rebecca K. Poole², Matt H. Poore³, Daniel H. Poole⁴
¹Dept of Animal Science - NC State University, ²Texas A&M University, ³NC State University, ⁴North Carolina State University

2:00 p.m. 86 **Evaluation of the effect of prenatal transportation stress on endocrine and immune tissues of neonatal Brahman calves**

Audrey L. Earnhardt-San¹, Catherine L. Wellman², Sarah M. West³, Thomas B. Hairgrove⁴, Rodolfo C. Cardoso³, Charles R. Long³, David G. Riley³, Ron Randel³, Thomas H. Welsh⁵
¹Texas A&M University and AgriLife Research, Department of Animal Science, ²Texas A&M AgriLife Research, ³Texas A&M University, ⁴Texas A&M AgriLife Extension, ⁵Texas A&M University; Texas A&M AgriLife Research, College Station

2:15 p.m. 2 **Acute phase response to lipopolysaccharide challenge in beef steers supplemented with prebiotic blends**

Nicole C. Burdick Sanchez¹, Paul R. Broadway¹, Jeffery A. Carroll¹, Devan M. Paulus Compart², J Chris Forcherio³
¹USDA-ARS, Livestock Issues Research Unit, ²PMI, ³Purina Animal Nutrition LLC

2:30 p.m. 35 **Differential haptoglobin responsiveness to a *Mannheimia haemolytica* challenge altered immunologic, physiologic, and behavioral responses in beef steers**

Lauren Wottlin¹, Gordon E. Carstens¹, William Kayser¹, Thomas H. Welsh², William E. Pinchak³
¹Texas A&M University, ²Texas A&M University; Texas A&M AgriLife Research, College Station, ³Texas A&M Agrilife

2:45 p.m. **PHYSIOLOGY II BREAK**

3:00 p.m. 182 **Uterine gene expression of beef cows in response to supplementation with calcium salts of soybean oil**

Claire L. Timlin¹, Taylor Parrish², Nicholas W. Dias², Felipe Santili², Stefania Pancini², Vitor RG Mercadante³

¹Animal and Poultry Sciences, Virginia Tech, ²Virginia Tech, ³Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, USA.

3:15 p.m. 59 **Effects of exogenous glucocorticoid administration on leptin concentrations in perinatal dairy bull calves**

Camille Morris¹, Keelee J. McCarty¹, Nathan Long¹

¹Clemson University

3:30 p.m. 140 **Relaxin Regulates Porcine Adipose Tissue Development by Inhibiting Preadipocyte Number, Stimulating Lipolysis, and Upregulating mRNA Expression of Adipokine, Fatty Acid Metabolism and Extracellular Matrix Genes**

Courtney E. Charlton¹, Maegan A. Reeves¹, Terry D. Brandebourg¹

¹Auburn University

3:45 p.m. 173 **The role of an intronic single nucleotide polymorphism within the dopamine receptor type-2 gene on pituitary prolactin protein expression in bulls**

Andrea N. DeCarlo¹, Keelee J. McCarty¹, Sarah K. Richey¹, Nathan Long¹, Nathan Clemson University Long¹

¹Clemson University

4:00 p.m. 133 **Provision of Artificial Shade During Summer Reduced Vaginal Temperature and Improved Growth Performance of Pregnant Grazing Beef Heifers**

Gleise Medeiros da Silva¹, Jimena Laporta², Jose Carlos Batista Dubeux Jr.³, Ricardo Chebel¹, Nicolas DiLorenzo⁴

¹ASAS, ²University of Wisconsin-Madison, ³University of Florida - North Florida Research and Education Center, ⁴Department of Animal Sciences, North Florida Research and Education Center (NFREC), University of Florida, Marianna, FL

RUMINANT ANIMAL PRODUCTION II: METABOLISM AND PHYSIOLOGY

Chair: Shane Gadberry, University of Arkansas; Morgan Pyles, University of Kentucky

1:15 PM - 4:15 PM

Ballroom 1

1:15 p.m. 82 **Evaluation of feeding immunoglobulin-Y to Holstein feeder cattle for the control of liver abscesses & reduction of macrolide-resistant bacteria dissemination**

Miranda K. Stotz¹

¹Texas Tech University

1:30 p.m. 44 **Effect of Quebracho (*Schinopsis balansae*) extract inclusion in a high roughage diet upon in vitro gas production**

Luiz Fernando Dias Batista¹, Madeline E. Rivera¹, Aaron B. Norris², Jordan Adams¹, Roberta Cracco³, Morgan Jackson¹, Luis O. Tedeschi¹

¹Texas A&M University, ²Texas Tech University, ³College of Animal Science and Food Engineering FZEA/USP

1:45 p.m. 49 **Effects of *in-vitro* digestibility in cannulated steers when supplemented different levels of glycerol**

Noheli Gutierrez¹, Jamie A. Boyd¹

¹Sul Ross State University

2:00 p.m. 144 **Rumen Fluid Metabolites as Potential Biomarkers of Feed Efficiency in Angus Steers**

Brooke A. Clemmons¹, Joshua B. Powers¹, Shawn R. Campagna¹, Taylor B. Ault-Seay², Mallory M. Embree³, Phillip R. Myer⁴

¹University of Tennessee Knoxville, ²University of Tennessee, Knoxville, ³Ascus Biosciences, Inc., ⁴Department of Animal Science- University of Tennessee

2:15 p.m. 85 **Evaluation of methane concentration sampling methods of gas produced from *in vitro* fermentation**

Genevieve M. D'Souza¹, Aaron B. Norris², Luis O. Tedeschi¹

¹Texas A&M University, ²Texas Tech University

2:30 p.m. 157 **The effect of sample handling methodology on ruminal redox potential measured *in vivo* and *in vitro***

Madeline E. Rivera¹, Aaron B. Norris², Luis O. Tedeschi¹

¹Texas A&M University, ²Texas Tech University

2:45 p.m. **RUMINANT ANIMAL PRODUCTION II BREAK**

3:00 p.m. 124 **Polyclonal Antibody Preparations from Avian Origin Increased Fiber Digestibility of Beef Cattle Receiving a Backgrounding Diet**

Gleise Medeiros da Silva¹, Tessa M. Schulmeister², Federico Tarnonsky³, Federico Podversich², Mariana Eloisa Garcia-Ascolani³, Nicolas DiLorenzo⁴

¹ASAS, ²University of Florida, ³University of Florida - North Florida Research and Education Center, ⁴Department of Animal Sciences, North Florida Research and Education Center (NFREC), University of Florida, Marianna, FL

3:15 p.m. 123 **Polyclonal antibody preparations from avian origin did not reduce plasmatic haptoglobin concentrations but increased ruminal NH₃-N in beef steers during transition from forage to high-grain diets**

Gleise Medeiros da Silva¹, Federico Podversich², Tessa M. Schulmeister², Erick Rodrigo Silva Santos³, Carla Sanford⁴, Michelle C. B. Siqueira⁵, Federico Tarnonsky³, Nicolas DiLorenzo⁶

¹ASAS, ²University of Florida, ³University of Florida - North Florida Research and Education Center, ⁴Montana State University, ⁵Federal Rural University of Pernambuco, ⁶Department of Animal Sciences, North Florida Research and Education Center (NFREC), University of Florida, Marianna, FL

3:30 p.m. 152 **The Effect of Nerve Growth Factor Beta on Embryonic Cleavage Rates**

Kayla Jones¹

¹North Carolina A&T State University

3:45 p.m. 52 **Effects of an energy or protein supplement on forage dry matter intake for steers grazing summer native range**

Taylor C. Husz¹, PAUL A. BECK², Andrew P. Foote¹, Ryan R. Reuter¹

¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

4:00 p.m. 101 **Impact of weaning strategy on beef cow and calf weight and body condition**

Mikayla Moore¹, Jordan Cox-O'Neill¹, Matt H. Poore¹, Carrie L. Pickworth²

¹NC State University, ²North Carolina State University

SMALL RUMINANT PRODUCTION I

Chair: Niki Whitley, Fort Valley State University; Megan Galvin, Department of Animal Science and Veterinary Technology, Tarleton State University

1:15 PM - 4:15 PM

Walker

1:15 p.m. 43 **Effect of Mushroom Probiotic (*Coriolus Versicolor*) on Galectin Gene Secretion in Goat Blood**

Kingsley E. Ekwemalor¹, Emmanuel K. Asiamah², Sarah Adjei-Fremah¹, Eboghoye ElucaOkoludoh¹, Mulumebet Worku³

¹North Carolina Agricultural and Technical State University, ²University of Arkansas at Pine Bluff, ³NC A&T State University

1:30 p.m. 21 **Comparison of Savanna, Kiko, and Spanish Sires for Meat Goat Doe-Kid Traits**

Lauren Stevens¹, Emily G. Hayes¹, Piush Khanal¹, Shaneqwa Thomas¹, Mozell Byars¹, Richard Browning, Jr¹

¹Tennessee State University

1:45 p.m. 159 **The effect of sire FEC EBV on parasitism and survivability in grazing Katahdin lambs**

Andrew R. Weaver¹, Joan M. Burke², Jim Morgan³, Donald L. Wright⁴, Scott P. Greiner⁵, Scott A. Bowdridge¹

¹West Virginia University, ²USDA ARS Dale Bumpers Small Farms Research Center, ³Katahdin Hair Sheep International, ⁴Virginia Tech, Southwest Virginia Agricultural Research and Extension Center, ⁵Virginia Tech

2:00 p.m. 158 **The effect of sire fecal egg count estimated breeding value on antibody production of grazing Katahdin lambs**

Kelsey Bentley¹, Andrew R. Weaver¹, Joan M. Burke², Jim Morgan³, Lee Wright⁴, Scott P. Greiner⁵, Scott A. Bowdridge¹

¹West Virginia University, ²USDA ARS Dale Bumpers Small Farms Research Center, ³Katahdin Hair Sheep International, ⁴Virginia Tech University, ⁵Virginia Tech

2:15 p.m. 45 **Effect of terminal sire breed on grazing performance, parasitism, and market grade of crossbred lambs: year 2**

Curtis Patton¹, Scott L. Bowdridge¹, Andrew R. Weaver¹, Scott P. Greiner², Scott A. Bowdridge¹

¹West Virginia University, ²Virginia Tech

2:30 p.m. **SMALL RUMINANT PRODUCTION I BREAK**

2:45 p.m. 26 **Copper oxide wire particles to complement control of gastrointestinal nematodes with levamisole and/or albendazole in lambs**

Joan M. Burke ¹, Jim E. Miller ², Mohan Acharya ³, Erin Wood ⁴

¹USDA ARS Dale Bumpers Small Farms Research Center, ²Louisiana State University,

³Department of Animal Science, University of Arkansas, ⁴USDA-ARS

3:00 p.m. 177 **Use of diatomaceous earth and copper oxide wire particles to control gastrointestinal nematodes in lambs**

Olivia Jones ¹, Joan M. Burke ², Jim E. Miller ³, Charles F Rosenkrans ⁴

¹University of Arkansas, ²USDA ARS Dale Bumpers Small Farms Research Center, ³Louisiana State University, ⁴Animal and Veterinary Sciences Department, Clemson University

3:15 p.m. 96 **Impact of daily movement with low or higher target residue on ewe weight gain and parasite infestation**

Isabella Kukor-Laureano ¹, Izzy Van Buren ¹, Jay A. Daniel ¹

¹Berry College

3:30 p.m. 93 **Health and Performance of Ewes in Woodland and Silvopasture Systems**

Nevershi Ellis ¹, Uma Karki ¹, Bidur Paneru ¹, Lila B. Karki ¹

¹Tuskegee University

3:45 p.m. 10 **Behavior and Landscape-Use Pattern of Small Ruminants Co-grazed in Woodlands with different Vegetation Characteristics**

Bidur Paneru ¹, Uma Karki ¹, Nevershi Ellis ¹, shailes Bhattra ², Lila B. Karki ¹

¹Tuskegee University, ²University of Georgia

4:00 p.m. 91 **Growth performance of landrace hair sheep lambs under different forage environments**

Stephan Wildeus ¹, Dahlia O'Brien ¹, Gabriel J. Pent ², Kathryn M. Payne ³

¹Virginia State University, ²Virginia Tech, ³Southern Piedmont Agricultural Research and Extension Center, Virginia Tech

RUMINANT ANIMAL PRODUCTION I: GROWING CATTLE

Chair: Daniel Rivera, Animal and Dairy Sciences Department Mississippi State University;
Abbigail Hines, Tarleton State University

1:15 PM - 4:30 PM

Rose

1:15 p.m. 164 **The effects of energy and lasalocid supplementation on forage intake and energetics of cattle grazing wheat pasture**

Autumn T. Pickett ¹, Beth B. Kegley ², PAUL A. BECK ³, Stacey A. Gunter ⁴

¹University of Arkansas, ²University of Arkansas Division of Agriculture, ³Oklahoma State University, Department of Animal & Food Sciences, ⁴USDA-ARS, Oklahoma and Central Plains Agricultural Research Center

1:30 p.m. 169 **The effects of once or twice daily feed delivery on the finishing performance and carcass characteristics of feedlot steers**

Blake K. Wilson ¹, Will Ryan ¹, Chris Richards ¹

¹Oklahoma State University

1:45 p.m. 120 **Performance Effects on Weaned Calves using 3 Weaning Strategies and Nutritional Supplementation**

Meagan Hendricks ¹, Douglas Eborn ², Kaylee R. Kipp ¹, Caleta M. Willis ¹, Megan P. Owen ²

¹Texas A&M University-Commerce, ²Texas A&M University Commerce

2:00 p.m. 113 **Mineral Supplementation Effects in Stocker Cattle Performance Grazed on Wheat Seeded Native Pastures**

Kaylee R. Kipp ¹, Douglas Eborn ², Megan P. Owen ²

¹Texas A&M University-Commerce, ²Texas A&M University Commerce

2:15 p.m. 32 **Determining the feeding value of corn gluten feed relative to corn when supplemented to beef calves grazed on stockpiled tall fescue pastures**

Charles A. Zumbaugh ¹, Adam R. Murray ¹, Taylor A. Langford ², Olivia M. Claire ¹, Thomas B. Wilson ¹

¹Department of Animal and Poultry Sciences, Virginia Tech, ²Virginia Tech

2:30 p.m. 33 **Determining the feeding value of hulless barley relative to corn in beef finishing rations**

Gabriel J. Pent ¹, Thomas B. Wilson ²

¹Virginia Tech, ²Department of Animal and Poultry Sciences, Virginia Tech

2:45 p.m. **RUMINANT ANIMAL PRODUCTION I BREAK**

3:00 p.m. 179 **Using a 100% Dried Distillers Grains Cube as a Supplement for Steers Grazing Mixed Grass Prairie in Oklahoma**

Zane N. Grigsby ¹, PAUL A. BECK ², Stacey A. Gunter ³

¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences, ³USDA-ARS, Oklahoma and Central Plains Agricultural Research Center

3:15 p.m. 186 **Utilizing craft brewing side streams of trub, hops, and yeast mix (THYM) as a novel feed additive and an alternative to monensin in beef cattle diets**

Kendra P. Phipps ¹, Deidre D. Harmon ¹, Matt H. Poore ², Ethan Henderson ³, Robert Bryant ⁴, Brock Ashburn ⁵, April D. Shaeffer ², Johnny R. Rogers ¹

¹North Carolina State University, ²NC State University, ³North Carolina Cooperative Extension, ⁴Warren Wilson College, ⁵Highland Brewing Company

3:30 p.m. 9 **Backgrounding system diet effects on performance of beef calves during transportation and feedyard adaptation**

Daniel A. Tigue ¹, John G. Rehm ², Alisha Kerklin ¹, Soren P. Rodning ¹, Kim K. Mullenix ¹, Christy L. Bratcher ³

¹Auburn University, ²Department of Animal Sciences, Auburn University, ³Texas Tech University, Department of Animal and Food Science

3:45 p.m. 54 **Effects of an injectable zinc solution at weaning as an alternative castration method during the backgrounding period in beef bulls**
Reagan N. Cauble¹, Powell G. Powell¹, Beth B. Kegley², Shane Gadberry¹, PAUL A. BECK³, Michael Sims⁴, Cody Shelton²

¹University of Arkansas, ²University of Arkansas Division of Agriculture, ³Oklahoma State University, Department of Animal & Food Sciences, ⁴Oklahoma State University

4:00 p.m. 112 **Mineral supplement intake by weaned steers as affected by offering multiple salt sources**

Jane A. Parish¹, Kalisha C. Yankey², Libby S. Durst³

¹North Mississippi Research and Extension Center, Mississippi State University, ²Prairie Research Unit, Mississippi State University, ³Mississippi State University

4:15 p.m. 47 **Effect of Zelnate administered at initial processing in high-risk, newly received beef calves on performance and morbidity**

Brady E. Martin¹, Reagan N. Cauble¹, Beth B. Kegley², Jerme G. Powell¹

¹University of Arkansas, ²University of Arkansas Division of Agriculture

Tuesday, January 28, 2020

PASTURES AND FORAGES II

Chair: Jennifer J. Tucker, University of Georgia; Sarah Montgomery-Williams, Mississippi State University

8:00 AM - 10:30 AM

Ballroom 1

8:00 a.m. 61 **Effects of fescue cultivar on performance of beef cow/calf pairs grazed on summer stockpiled tall fescue pastures**

Taylor A. Langford¹, Keri N. Hardin¹, Adam R. Murray², Charles A. Zumbaugh², Olivia M. Claire², David A. Fiske³, Gabriel J. Pent¹, Thomas B. Wilson²

¹Virginia Tech, ²Department of Animal and Poultry Sciences, Virginia Tech, ³Shenandoah Valley Agriculture Research and Extension Center

8:15 a.m. 111 **Metsulfuron and variable nitrogen application rates on infected tall fescue: effects on stocker performance, forage yield, nutritive value, ergovaline concentration and botanical composition**

Kevin R. MENG¹, Eric Bailey¹, Josh Zeltwanger¹, Hannah Allen¹, Mikaela Adams¹, Derek Brake¹

¹University of Missouri

8:30 a.m. 68 **Effects of Plant Growth-Promoting Rhizobacteria on Fall-Stockpiled Bermudagrass**

Madison Cole¹, Megan E. Griffin¹, Leanne L. Dillard¹, Kim K. Mullenix¹, Russell B. Muntifering¹, David Held¹

¹Auburn University

8:45 a.m. 62 **Effects of forage allowance and supplementation on performance of steers grazing wheat pasture.**

Kynzie McNeill¹, Ryan R. Reuter¹, PAUL A. BECK²

¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

9:00 a.m. 58 **Effects of Diploid and Tetraploid Annual Ryegrass Cultivars on Cattle Performance, Herbage Mass, and Nutritive Value**

Sarah M. Montgomery-Williams¹, Brandi B. Karisch¹, Jane A. Parish², Jesse Morrison¹, Brian Baldwin¹

¹Mississippi State University, ²North Mississippi Research and Extension Center, Mississippi State University

9:15 a.m. **PASTURES AND FORAGES II BREAK**

9:30 a.m. 65 **Effects of grazing cool-season cover crops on forage and animal performance**

Russell C. Carrell¹, Leanne L. Dillard², Kim K. Mullenix², Audrey Gamble², Russell B. Muntifering²

¹Cargill Animal Nutrition, ²Auburn University

9:45 a.m. 89 **Fermentation Kinetics of Different Cool-Season Annual Mixtures With or Without Silage Inoculant**

Sarah L. Shoup¹, Kim K. Mullenix¹, Leanne L. Dillard¹, Russell B. Muntifering¹

¹Auburn University

10:00 a.m. 34 **Developing criteria for forage finished beef in the Southeastern U.S.**

Mohan Acharya¹, Joan M. Burke², Erin Wood³, Janeal W. Yancey⁴

¹Department of Animal Science, University of Arkansas, ²USDA ARS Dale Bumpers Small Farms Research Center, ³USDA-ARS, ⁴Department of Animal Science, Division of Agriculture, University of Arkansas System, Fayetteville

10:15 a.m. 97 **Impact of Regionalized Forage Quality and Quantity and Feed Grain Water Use on the Daily Texas Beef Cattle Water Footprint and Supply Chain Efficiency**

Hector M. Menendez¹, Luis O. Tedeschi²

¹Texas A&M, ²Texas A&M University

PHYSIOLOGY III: REPRODUCTIVE

Chair: Vitor R.G Mercadante, Virginia Tech; Audrey Earnhardt-San, Texas A&M University and AgriLife Research, Department of Animal Science

8:00 AM - 11:00 AM

Ballroom 3/4

8:00 a.m. 138 **Randel Lecture: Reproductive Behavior – the basis of reproductive success**

Brenda M. Alexander¹

¹University of Wyoming

8:30 a.m. 37 **Early pregnancy detection in cattle by analysis of maternal circulating microRNA expression**

Andrea N. DeCarlo ¹, Joseph Parrish ¹, Nathan Long ¹, Nathan Clemson University Long ¹
¹Clemson University

8:45 a.m. 42 **Effect of injectable trace mineral supplementation on beef cows fertility and overall mineral status**

Stefania Pancini ¹, Jhon F. Currin ², Jamie L. Stewart ¹, Sherrie Clark-Deener ¹, Tracey Redifer ¹, Nicholas W. Dias ¹, Claire L. Timlin ³, Alvaro Sales ⁴, Vitor RG Mercadante ⁴
¹Virginia Tech, ²Large animal Clinical Sciences, Virginia-Maryland College of Veterinary Medicine, Blacksburg, VA, USA, ³Animal and Poultry Sciences, Virginia Tech, ⁴Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, USA.

9:00 a.m. 69 **Effects of supplementing heifers with dietary quercetin during late-gestation**

Zachary A. Hisaw ¹, Caleta M. Willis ², Kaylee R. Kipp ², Douglas Eborn ¹, Megan P. Owen ¹
¹Texas A&M University Commerce, ²Texas A&M University-Commerce

9:15 a.m. 136 **Quantitative and qualitative analysis of interferon stimulated genesMX2, OAS1, and ISG15 for detection of pregnancy in cattle**

Andrea N. DeCarlo ¹, Joseph Parrish ¹, Nathan Long ¹, Nathan Clemson University Long ¹
¹Clemson University

9:30 a.m. **PHYSIOLOGY III BREAK**

9:45 a.m. 181 **Uterine and vaginal bacteria and cytokine profiles prior to artificial insemination between resulting pregnant and open postpartum beef cows**

Rebecca K. Poole ¹, Taylor B. Ault-Seay ², Phillip R. Myer ³, Andrea S. Lear ⁴, Ky G. Pohler ¹
¹Texas A&M University, ²University of Tennessee, Knoxville, ³Department of Animal Science-University of Tennessee, ⁴College of Veterinary Medicine, University of Tennessee

10:00 a.m. 22 **Comparison of vaginal microbiome and concentrations of estradiol at artificial insemination in Brangus heifers**

Riley D. Messman ¹, Zully E. Contreras-Correa ¹, Henry A. Paz ¹, George Perry ², Caleb O. Lemley ¹
¹Mississippi State University, ²South Dakota State University

10:15 a.m. 129 **Presynchronization with Prostaglandin F_{2α} and prolonged exposure to exogenous progesterone impacts estrus expression and alters fertility in beef heifers**

Nicky Oosthuizen ¹, Pedro Fontes ², Cliff Lamb ²
¹ABS Global, ²Texas A&M University

10:30 a.m. 106 **In Utero Exposure of Ergot Alkaloids does not Impact Heifer Growth and Reproductive Performance**

McKenzie L. Haimon ¹, Alecia R. Brown ¹, Matt H. Poore ², Daniel H. Poole ³
¹Dept of Animal Science - NC State University, ²NC State University, ³North Carolina State University

10:45 a.m. 107 **Influence of chronic melatonin supplementation on bovine testis physiology**

Brittini P. Littlejohn¹, Kayla B. Mercer¹, Karrigan J. Bowers¹, Riley D. Messman², Zully E. Contreras-Correa², Dana S. Reid³, Jean M. Feugang², Rhonda C. Vann⁴, Caleb O. Lemley²
¹Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State, MS, ²Mississippi State University, ³Department of Animal and Dairy Sciences, Mississippi State University, ⁴Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Raymond, MS

SMALL RUMINANT PRODUCTION II

Chair: Richard Browning, Jr, Tennessee State University; S. Maggie Justice, Clemson University
8:00 AM - 11:00 AM
Walker

8:00 a.m. 78 **Evaluation of extended hair sheep ram semen stored as liquid at 5°C**

Robert W. Godfrey¹, Sabrina Keiper¹, Sue A. Lakos²
¹University of the Virgin Islands, ²University of the Virgin Islands, Agricultural Experiment Station

8:15 a.m. 142 **Reproductive performance of land race hair sheep ewes in different breeding seasons under a semi-continuous production**

Stephan Wildeus¹, Dahlia O'Brien¹
¹Virginia State University

8:30 a.m. 141 **Reproductive characteristics of post-pubertal lambs after being rendered short scrotum**

Dahlia O'Brien¹, Stephan Wildeus¹, Susan Schoenian², Maegan Perdue²
¹Virginia State University, ²University of Maryland

8:45 a.m. 90 **Growth and carcass characteristics of ram, wether, and short-scrotum lambs: year 2**

Susan Schoenian¹, Jeffery W. Semler², Mary Beth Bennett³, Chris Anderson¹, Amanda M. Grev², Maegan Perdue¹
¹University of Maryland, ²University of Maryland Extension, ³West Virginia University

9:00 a.m. 162 **The Effects of a *Saccharomyces Cerevisiae* Fermentation Product on the Digestibility of an Annual Rye Grass Hay Based Finishing Diet for Lambs**

Justin C. Burt¹, Jamie A. Boyd², Lisa Baxter¹, Brittany Perron³
¹University of Georgia, ²Sul Ross State University, ³Clemson University

9:15 a.m. 66 **Effects of level of protein supplementation on intake of wheat straw and drinking water varying in salinity by Boer and Spanish goats**

Chala Merera¹, Abdelhafid Keli², Ryszard Puchala³, Adaven Scronce⁴, Luana Ribeiro², Raquel Lourenco², Wei Wang³, Arthur L. Goetsch³
¹American Institute for Goat Research Langston University; Department of Animal Science, Ambo University, ²American Institute for Goat Research, Langston University, ³Langston University, ⁴American Institute for Goat Research, Langston University; Ambo University, Ambo, Ethiopia

9:30 a.m. **SMALL RUMINANT PRODUCTION II BREAK**

9:45 a.m. 56 **Effects of creep feed supplementation and sire breed on the post-weaning performance of replacement doelings.**
Emily G. Hayes¹, Lauren Stevens¹, Shaneqwa Thomas¹, Kaylee Hurt¹, Richard Browning, Jr¹
¹Tennessee State University

10:00 a.m. 170 **The effects of supplementing a chelated mineral containing *Ascophyllum nodosum* on intake and performance of creep-fed hair lambs.**
Victoria Romo¹, Jamie A. Boyd¹
¹Sul Ross State University

10:15 a.m. 161 **The effect on ADG, DMI, and blood metabolites of weaned Katahdin lambs offered chelated mineral with *Ascophyllum nodosum* on a high forage diet**
Elizabeth Jolly¹, Jamie A. Boyd¹
¹Sul Ross State University

10:30 a.m. 165 **The effects of feeding lasalocid in combination with zeranol implants on performance and carcass traits in hair sheep**
Brittany A. Lippy¹, Blake K. Wilson¹, Jerry Fitch¹, Gretchen G. Mafi¹, Justin Crosswhite¹
¹Oklahoma State University

10:45 a.m. 146 **Survey of residual feed intake in Katahdin and Texel lambs in a feedlot environment**
Scott L. Bowdridge¹, Andrew R. Weaver¹, Eugene Felton¹, Scott P. Greiner², Scott A. Bowdridge¹
¹West Virginia University, ²Virginia Tech

RUMINANT ANIMAL PRODUCTION III: REPRODUCTIVE CATTLE

Chair: Ryon Walker, Texas A&M University; Gleise Medeiros da Silva, ASAS

8:00 AM - 11:15 AM

Ballroom 2

8:00 a.m. 127 **Predicting Dry Matter Intake of Gestating and Lactating Beef Cows**
Megan A. Gross¹, Claire Anderson¹, Amanda Holder², Alexi Moehlenpah¹, Carla Goad¹, Harvey Freetly³, PAUL A. BECK⁴, Eric A. DeVuyst¹, David Lalman¹
¹Oklahoma State University, ²College of the Ozarks, ³USDA, ARS, U.S. Meat Animal Research Center, ⁴Oklahoma State University, Department of Animal & Food Sciences

8:15 a.m. 188 **Voluntary individual intake and performance of mature cows compared to primiparous heifers consuming a low quality forage**
Amanda Holder¹, Claire Anderson², Megan A. Gross², Alexi Moehlenpah², David Lalman²
¹College of the Ozarks, ²Oklahoma State University

8:30 a.m. 41 **Effect of grazing cotton crop residue versus Bermudagrass on performance and economic parameters in late gestation beef cows**
Dylan Blake B. Davis¹, Shane R. Hernandez², Robert Lawton Stewart¹
¹University of Georgia, ²University of Georgia, Animal and Dairy Science

8:45 a.m. 79 **Evaluation of extended release eprinomectin efficacy on multiparous beef cow performance**

Laine Zammit¹, Jerney G. Powell¹, Reagan N. Cauble¹, Toby D. Lester¹, Callan Lichtenwalter¹, Ellen M. Herring², Clay McGuire¹, Autumn T. Pickett¹, Eva M. Wray¹, Chris Tucker¹
¹University of Arkansas, ²University of Arkansas System Division of Agriculture Department of Animal Science

9:00 a.m. 1 **A survey of anthelmintic resistance in Angus bulls participating in centralized performance tests in Appalachia**

Roger T. Rohrbaugh¹, Andrew R. Weaver¹, Scott P. Greiner², Scott A. Bowdridge¹
¹West Virginia University, ²Virginia Tech

9:15 a.m. 40 **Effect of calving season in an artificial insemination program on finishing performance and carcass traits**

Taylor J. Garcia¹, Colton A. Robison¹, PAUL A. BECK², Ryan R. Reuter¹, Blake K. Wilson¹, David Lalman¹
¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

9:30 a.m. 55 **Effects of concentrate supplementation frequency and amount on growth and reproductive performance of Brangus heifers**

Elizabeth A. Palmer¹, Marcelo Vedovatto², Juliana Ranches³, Rhaiza A. Oliveira⁴, John Arthington⁵, Joao Vendramini³, Philippe Moriel⁶
¹University of Florida - Range Cattle Research & Education Center, ²Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, ³UF/IFAS - Range Cattle Research & Education Center, ⁴University of Florida, IFAS – Range Cattle Research and Education Center, ⁵Department of Animal Sciences - University of Florida, ⁶University of Florida

9:45 a.m. **RUMINANT ANIMAL PRODUCTION III BREAK**

10:00 a.m. 71 **Effects of timing of supplementation during late gestation in *Bos indicus*-influenced beef cows on post-weaning growth, immunity, and carcass characteristics of steer progeny**

Elizabeth A. Palmer¹, Marcelo Vedovatto², Juliana Ranches³, Vinicius N. Gouvea⁴, Rhaiza A. Oliveira⁵, John Arthington⁶, Joao Vendramini³, Matt H. Poore⁷, Philippe Moriel⁸
¹University of Florida - Range Cattle Research & Education Center, ²Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, ³UF/IFAS - Range Cattle Research & Education Center, ⁴Texas A&M, ⁵University of Florida, IFAS – Range Cattle Research and Education Center, ⁶Department of Animal Sciences - University of Florida, ⁷NC State University, ⁸University of Florida

10:15 a.m. 108 **Influence of Cow Body Weight Changes on Calf Growth during the Summer Grazing Period**

Flint W. Harrelson¹, Joseph Fraley¹, Patricia L. Harrelson¹
¹Morehead State University

10:30 a.m. 105 **Impacts of Phosphorus Intake on Beef Heifer Growth Performance and Reproductive Tract Scores**

Hailey Hilfiker¹, Beth B. Kegley², Rick W. Rorie³, Pete A. Hornsby¹, Jana L. Reynolds⁴, Benjamin P. Shoulders⁴, Reagan N. Cauble³, Jermeay G. Powell³

¹University of Arkansas Division of Agriculture Dept. of Animal Science, ²University of Arkansas Division of Agriculture, ³University of Arkansas, ⁴University of Arkansas System Division of Agriculture

10:45 a.m. 126 **Pre- and post-partum supplementation of molasses/urea, with or without methionine fortification, to enhance growth and physiology of *Bos indicus*-influenced primiparous cows and their offspring**

Elizabeth A. Palmer¹, Marcelo Vedovatto², Juliana Ranches³, Vinicius N. Gouvea⁴, Rhaiza A. Oliveira⁵, John Arthington⁶, Joao Vendramini³, Philippe Moriel⁷

¹University of Florida - Range Cattle Research & Education Center, ²Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, ³UF/IFAS - Range Cattle Research & Education Center, ⁴Texas A&M, ⁵University of Florida, IFAS – Range Cattle Research and Education Center, ⁶Department of Animal Sciences - University of Florida, ⁷University of Florida

11:00 a.m. 190 **Fontenot Award Recipient: Winter vs. year-round supplementation of mature beef cows on feedlot performance and carcass characteristics of steer progeny**

Elizabeth A. Palmer¹, Marcelo Vedovatto², Juliana Ranches³, Vinicius N. Gouvea⁴, Rhaiza A. Oliveira⁵, Matt H. Poore⁶, John Arthington⁷, Joao Vendramini³, Philippe Moriel⁸

¹University of Florida - Range Cattle Research & Education Center, ²Faculdade de Medicina Veterinária e Zootecnia, Universidade Federal de Mato Grosso do Sul, ³UF/IFAS - Range Cattle Research & Education Center, ⁴Texas A&M, ⁵University of Florida, IFAS – Range Cattle Research and Education Center, ⁶NC State University, ⁷Department of Animal Sciences - University of Florida, ⁸University of Florida

RUMINANT ANIMAL PRODUCTION IV: BEHAVIOR

Chair: Jhones Sarturi, Texas Tech University; Brooke Clemmons, University of Tennessee
Knoxville
8:00 AM - 11:15 AM
Rose

8:00 a.m. 189 **What's in a step? Evaluating the interrelationship between productivity and cattle behavior during a series of temperament tests**

Courtney L. Daigle¹, Amanda J. Hubbard², Xandra Meneses², Temple Grandin³

¹Department of Animal Science, Texas A&M University, ²Texas A&M University, ³Colorado State University

8:15 a.m. 67 **Effects of Maternal Disposition and Calf Chute Behavior at Weaning on Calf Finishing Performance**

Michael Sims¹, PAUL A. BECK², Cyril B. Stewart³, Cody Shelton⁴, Reagan N. Cauble⁵, Andrea L. Warner¹

¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences, ³University of Arkansas SWREC, ⁴University of Arkansas Division of Agriculture, ⁵University of Arkansas

8:30 a.m. 51 **Effects of acclimation on cattle response to humans while being handled.**
Corban H. Hemphill¹, Ryan R. Reuter¹, James P. Neel², Laura Goodman¹
¹Oklahoma State University, ²USDA, ARS, Grazinglands Research Laboratory

8:45 a.m. 155 **The effect of number of cattle per pen on stocker cattle health and performance.**
Kirsten A. Midkiff¹, Brandi B. Karisch², Amelia Woolums²
¹Mississippi State University Animal and Dairy Sciences, ²Mississippi State University

9:00 a.m. 98 **Impact of social mixing on feedlot steer eating and lying behavior**
Amanda J. Hubbard¹, Jason Sawyer², Reinaldo F. Cooke¹, Jenny Jennings³, Courtney L. Daigle⁴
¹Texas A&M University, ²Texas A&M University-Kingsville, ³Texas A&M AgriLife Research, ⁴Department of Animal Science, Texas A&M University

9:15 a.m. 167 **The effects of fly control strategies on fly abundance, fly avoidance behaviors, and performance in feedlot bulls and steers**
Courtney McNeff¹, Justin Talley¹, Colton A. Robison¹, Blake K. Wilson¹
¹Oklahoma State University

9:30 a.m. **RUMINANT ANIMAL PRODUCTION IV BREAK**

9:45 a.m. 102 **Impact of weaning strategy on beef cow-calf behavior and activity**
Molly K. Alexander¹, Carrie L. Pickworth¹, Mikayla Moore², Matt H. Poore²
¹North Carolina State University, ²NC State University

10:00 a.m. 114 **Monitoring the impact of shade and housing on physiological response in finishing beef cattle during the summer months in the Southeastern United States.**
Shane R. Hernandez¹, William M. Sims², Alexander M. Stelzleni¹, Dylan Blake B. Davis², Luís Fernando Glasenapp De Menezes³, Robert W. McKee², Robert Lawton Stewart²
¹University of Georgia, Animal and Dairy Science, ²University of Georgia, ³Federal University of Technology

10:15 a.m. 94 **Impact of a Hydrolyzed Yeast Product on Performance, Hair Coat Shedding, and Behavior of Cows Grazing Pastures Containing Endophyte-Infected Tall Fescue**
Patricia L. Harrelson¹, Rick Martin², Brent Rogers¹, Flint W. Harrelson¹
¹Morehead State University, ²Gro-Tec Inc.

10:30 a.m. 148 **The effect of bunk preference on performance, intake, and efficiency of feedlot steers using an automated individual feeding system**
Kaitlyn N. Pierce¹, Ryan R. Reuter¹, Colton A. Robison¹, Blake K. Wilson¹
¹Oklahoma State University

10:45 a.m. 38 **Effect of Breed on Dairy Calf Vigor from Birth to Preweaning**
Michelle P. Meza¹, Caitlin M. Turner¹, Chad M. Powers¹, Andrea K. Sexten¹
¹Eastern Kentucky University

11:00 a.m. 150 **The effect of competition for an automated supplement feeder on supplement intake behavior of stocker steers**

Taylor C. Husz¹, Carla Goad¹, Ryan R. Reuter¹
¹Oklahoma State University

EXTENSION

Chair: Jason Smith, Texas A&M AgriLife Extension; Madison Lee
8:15 AM - 11:30 AM
Roberts

8:15 a.m. 3 **Addressing Food Animal Veterinary Services Shortages Through Veterinary Continuing Education Courses: A New Role for Extension as a Bridge Between Veterinary and Agriculture Communities**

Heidi M. Ward¹
¹University of Arkansas Cooperative Extension Service

8:30 a.m. 7 **Assessment of beef cattle record keeping utilization and application: a collaboration of the Alabama Beef Cattle Improvement Association and the Alabama Cooperative Extension System**

Michelle F. Elmore¹, Kim K. Mullenix¹, Joshua B. Elmore²
¹Auburn University, ²Alabama Cooperative Extension System

8:45 a.m. 15 **Climate Change and the Evolving Fulani Pastoralists Cattle Production System in Nigeria: A Need to Retool Extension and Innovation Services**

AKINWUMI OMOTAYO¹, Olga Bolden -Tiller¹, Chukewueme Okere¹
¹Tuskegee University

9:00 a.m. 29 **Demonstrating the Effects of Deworming and Implanting Weaned Calves for Retained Ownership on Pasture in Eastern Oklahoma**

PAUL A. BECK¹, Earl Ward², Scott Clawson², Brian Pugh², Rodney Farris²
¹Oklahoma State University, Department of Animal & Food Sciences, ²Oklahoma State University

9:15 a.m. 73 **Engaging youth through bovine reproductive practices**

Nicholas W. Dias¹, Alvaro Sales², Claire L. Timlin³, Curtis Friedel⁴, Vitor RG Mercadante²
¹Virginia Tech, ²Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, USA., ³Animal and Poultry Sciences, Virginia Tech, ⁴Virginia Tech - Agricultural, Leadership, and Community Education

9:30 a.m. 116 **Oklahoma State University Continuing Education Online Courses for Extension Educators in 2020**

Alexi Moehlenpah¹, David Lalman¹
¹Oklahoma State University

9:45 a.m. **EXTENSION BREAK**

10:00 a.m. 125 **Possibility of Shifting Domestic Supply Curve for Lamb and Goat Meat: The Case of Market Price Information in the Southeast USA**

Lila B. Karki¹, Uma Karki¹, Srinivasa R. Mentreddy²
¹Tuskegee University, ²Alabama A&M University

10:15 a.m. 131 **Producer adoption of preconditioning strategies in the Oklahoma Quality Beef Network**

Jeff Robe¹, PAUL A. BECK², Dana L. Zook¹, Marty New¹, Earl Ward¹, Brian M. Freking¹
¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

10:30 a.m. 135 **Public perceptions of equine processing and welfare**

Kelly Melvin¹, Liesel G. Schneider², Jennie L. Ivey³, Peter D. Krawczel³
¹University of Tennessee, ²Animal Science Department, University of Tennessee Institute of Agriculture, ³University of Tennessee Institute of Agriculture

10:45 a.m. 172 **The Mississippi Beef Quality Assurance Program: Certification Demographics from 2015 to 2019**

Alexandra M. Pittman¹, Brandi B. Karisch¹, Carla Huston²
¹Mississippi State University, ²Mississippi State University College of Veterinary Medicine

11:00 a.m. 174 **The Southeast hay contest: 10 year summary**

Leanne L. Dillard¹, Lisa Baxter², Marcelo Wallau³, Deidre D. Harmon⁴, Dennis W. Hancock²
¹Auburn University, ²University of Georgia, ³University of Florida, ⁴North Carolina State University

11:15 a.m. 187 **Utilizing Working Groups to Provide Hands-On Learning Opportunities for Experienced Beef Cattle Producers.**

Timothy P. Vining¹, Luke L. Jacobs², Marty L. Marks¹, Gerald L. Thompson¹, Kim K. Mullenix³
¹Alabama Cooperative Extension System, ²Clemson University, ³Auburn University

NUTRITION

Chair: Robert Lawton Stewart, University of Georgia; Kaylyn Groce, University of Georgia

10:45 AM - 11:30 AM

Ballroom 1

10:45 a.m. 11 **Carcass Attributes and Performance of Poultry (*Gallus gallus domesticus*) fed Olive Pomace**

Benny J. Conn¹, Payton Snokhous¹, Ethan Carter¹, Phil Urso², Jerrad F. Legako³, Stanley F. Kelley¹, Marcy M. Beverly¹, Mark Anderson¹
¹Sam Houston State University, ²Texas Tech University, ³Texas Tech University, Department of Animal and Food Sciences

11:00 a.m. 118 **Palatability of Olive Pomace in Mozambique Tilapia (*Oreochromis mossambicus*)**

Ethan Krasue¹, Benny J. Conn¹, Stanley F. Kelley¹, Marcy M. Beverly¹, Mark Anderson¹
¹Sam Houston State University

11:15 a.m. 176 **The Suitability of Autoclave and Pressure Cooker Washing Methods in Comparison to ANKOM²⁰⁰ to Determine Neutral Detergent Fiber Using Different Feedstuffs and Washing Solutions**

Jordan Adams¹, Aaron B. Norris², Madeline E. Rivera¹, Luiz Fernando Dias Batista¹, Luis O. Tedeschi¹
¹Texas A&M University, ²Texas Tech University