

# Animal and Dairy Sciences



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Volume 130, December 20, 2019



*Merry Christmas*



MISSISSIPPI STATE UNIVERSITY™  
EXTENSION



# NATIONAL REINING HORSE FUTURITY

EXCITING News! Our Horse Judging Team competed at the National Reining Horse Futurity in Oklahoma City. This is 1 of 4 National judging contests that colleges compete throughout the year. Mississippi State is now the 2019 NRHA Futurity Champion team!! Here are the top 5 results:

1. Mississippi State 3709
2. Oklahoma State 3667
3. West Texas A&M 3596
4. Texas A&M 3596
5. Texas Tech 3528



The Mississippi State team consisted of Savanna Blackburn (Reserve High Point), Tori Kelson (3rd Overall), Harper Cobb (5th Overall), Nathania McKenzie (10th Overall), McKinley Owens (11th Overall), Camryn Pike, and Kate Burch. The team is coached by Courtney Heaton (graduating PhD in ADS) and directed by Dr. Clay Cavinder.



**Courtney Heaton, Nathania McKenzie, McKinley Owens, Kate Burch, Camryn Pike, Tori Kelson, Savanna Blackburn, and Harper Cobb**

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**Courtney Heaton, Nathania McKenzie, McKinley Owens, Kate Burch, Camryn Pike, Tori Kelson, Savanna Blackburn, and Harper Cobb**



# MSU EQUINE CLUBS GIVE BACK TO THE HORSE INDUSTRY



Mississippi State University Horseman's Association and Eventing Team joined forces to dedicate a weekend assisting a local horse show with their preparations for the show. The two equine clubs worked the Heart of Dixie Palomino Exhibitors Association Fall Classic Horse Show helping with various aspects of the show both in and outside of the show arena.

The show was held in Meridian at the Lauderdale County Agricenter. It gave club members an opportunity to learn more about the industry and meet professionals working in the industry including horse show judges and managers along with horse trainers.

While attending the show, club members sold T-shirts to raise funds for their upcoming spring trip. Both equine clubs plan to help one another with an upcoming showing this month in Meridian along with volunteering at the Dixie National Quarter Horse Show in February.

For those interested in the equine clubs or purchasing club T-shirts, please contact advisor Dr. Molly Nicodemus at [mcn16@msstate.edu](mailto:mcn16@msstate.edu).



**Equine Club Members at the Fall Classic Horse Show**

# MS STATE FAIR WINNERS

## BEEF BREEDING WINNERS

### AWARD

SUPREME CHAMPION HEIFER

RESERVE SUPREME CHAMPION HEIFER

BEST 5 HEAD – BEEF HEIFER

BEST 5 HEAD – BEEF HEIFER

BEST 5 HEAD – BEEF HEIFER

### EXHIBITOR

Hannah Buse

Amelia Buckley

Rylie/Stran Melancon

Asa Lee

McKenna/Dru Priscock

### BREED

Percentage Simmental

Beefmaster

Angus

Brahman

Brangus

### COUNTY

Jones 4-H

Covington 4-H

Wilkinson 4-H

Pearl River 4-H

Oktibbeha 4-H

### AWARD

SUPREME CHAMPION BULL

RESERVE SUPREME CHAMPION BULL

BEST 5 HEAD – BEEF BULL

BEST 5 HEAD – BEEF BULL

BEST 5 HEAD – BEEF BULL

### EXHIBITOR

Haley Walker

Amelia Buckley

Jacob Poyner

Hagen Hinton

Jacob Poyner

### BREED

Angus

Beefmaster

Percentage Simmental

Brahman

Simmental

### COUNTY

Tippah 4-H

Covington 4-H

Independence FFA/Tate 4-H

Covington 4-H

Independence FFA/Tate 4-H

## COMMERCIAL BEEF HEIFER WINNERS

SUPREME CHAMPION COMMERCIAL BEEF HEIFER

RESERVE SUPREME CHAMPION COMMERCIAL BEEF HEIFER

Amelia Buckley

Rylie/Stran Melancon

Covington 4-H

Wilkinson 4-H

## MARKET STEER WINNERS

Grand Champion Prospect Steer

Res Champion Prospect Steer

Conner Boyles, Smith 4-H

Jace Welborn, Jasper 4-H

Grand Champion Progress Steer

Reserve Champion Progress Steer

Ann Rileigh Holder, Jones 4-H

Eli Eason, Smith 4-H

## MARKET LAMB WINNERS

Grand Champion

Reserve Grand Champion

State Bred Grand Champion

State Bred Res. Grand Champion

Avery Wood

Elizabeth Nichols

Dane/Vivien Stevens

Sydney/Tripp McGee

Montgomery 4-H

Pontotoc 4-H

Rankin 4-H

Newton 4-H

## WETHER DAM WINNERS

Grand Champion

Reserve Grand Champion

State Bred Grand Champion

State Bred Res. Grand Champion

Mary-Hayden Blaylock

Jorja/Roxie Roberson

Leighton/Lara Horton

Matthew/Morgan White

Montgomery 4-H

Union 4-H

Pontotoc 4-H

Oktibbeha 4-H

## MARKET SWINE WINNERS

Grand Champion

Res. Grand Champion

MS Bred Grand Champion

MS Bred Reserve Grand Champion

Kaci Lynn Ladner, Pearl River 4-H

Jaylynn/BreeLyynn/Layton/Payton Cloy, Lincoln 4-H

Jaylynn/BreeLyynn/Layton/Payton Cloy, Lincoln 4-H

Stormy Thompson, Calhoun 4-H



# MS STATE FAIR WINNERS

## DAIRY CATTLE WINNERS

### HOLSTEIN

Grand Champion

Reserve Grand Champion

Lee Taylor

Kirsten Wade

Prentiss 4-H

Walthall 4-H

### JERSEY

Grand Champion

Reserve Grand Champion

Holden Taylor

Lee Taylor

Prentiss 4-H

Prentiss 4-H

### OTHER PUREBREDS

Grand Champion

Reserve Grand Champion

Mallory Ard

Evan Powers

Lincoln 4-H

Tate 4-H

### JUNIOR COMMERCIAL DAIRY HEIFER SHOW

Champion Commercial Dairy Heifer

Reserve Champion Commercial Dairy Heifer

Connor Stokes

Anna Newell

Clay 4-H

Pontotoc 4-H

## MARKET GOAT WINNERS

Grand Champion

Reserve Grand Champion

MS Bred Grand Champion

Reserve MS Bred Grand Champion

Anna Lee Guy

Layla/Jillian Bramlitt

Anna Lee Guy

Hayden Barnett

Smith 4-H

Calhoun 4-H

Smith 4-H

Calhoun 4-H

## COMMERCIAL MEAT GOAT DOE WINNERS

Grand Champion

Reserve Grand Champion

MS Bred Grand Champion

Reserve MS Bred Grand Champion

Payton/Mallory/Paxton Lemoine

Ann Fleming Leflore

Ann Fleming Leflore

Mallory Causey

Rankin 4-H/Pelahatchie FFA

Lafayette 4-H

Lafayette 4-H

Lee 4-H

## DAIRY GOAT WINNERS

Best in Show Senior Doe

Reserve Best in Show Senior Doe

Best in Show Junior Doe

Reserve Best in Show Junior Doe

Kaitlyn Anne Skelton

Theodore/Elliott Haffey

Olivia Faith Morris

Kenneth Hall, Jr.

Hinds 4-H

Itawamba 4-H

Oktibbeha 4-H

Hinds 4-H

For a more extensive list of winners from the 2018 Mississippi State Fair, access the full version of the October 2019 Animal Lines Newsletter at <http://extension.msstate.edu/newsletters/4h-animal-lines-newsletters>.

# EQUINE LAB HOLDS CLASS AT THE CVM EQUINE CLINICS

Mississippi State University Horseman's Association and Eventing Team joined forces to dedicate a weekend assisting a local horse show with their preparations for the show. The two equine clubs worked the Heart of Dixie Palomino Exhibitors Association Fall Classic Horse Show helping with various aspects of the show both in and outside of the show arena.

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**ADS 3221 students with Dr. Ben Nabors at the CVM Equine Clinic**



# ADS 3221 COMMUNITY ENGAGEMENT

As a part of the ADS 3221 Practices in Horse Care & Management, students were required to participate in community engagement activities. These activities included volunteering at the local horse rescue, the CVM equine clinic, the MSU equestrian team collegiate horse show, and various breed-recognized shows throughout the state. Through these activities students were able to meet people in the industry and learn more about what these individuals do in the industry. Students got to take part in the industry and give back.

A part of the assignment included reflecting on the community engagement activities that they participated in. The feedback from the students and from those in the industry was positive as it gave the two groups an opportunity to interact and assist each other. ADS 3221 will be offered this spring and a part of the community engagement activities will include the Dixie Nationals Quarter Horse Show in February. For individuals interested in learning more about the course and the community engagement program, they can contact the course instructor, Dr. Molly Nicodemus, at [mcn16@msstate.edu](mailto:mcn16@msstate.edu).



**Equine students participating in community engagement activities**



## 2019 Refereed Publications

- Paes, Victor M., **Shengfa F. Liao**, Jose R. Figueiredo, **Scott T. Willard**, **Peter L. Ryan** and **Jean M. Feugang**. Proteome changes of porcine follicular fluid during follicle development. *Journal of Animal Science and Biotechnology*, (2019) 10:94. <https://doi.org/10.1186/s40104-019-0400-3>.
- Park, Seong B., Shecoya B. White, Christy S. Steadman, Tibor Pechan, Olga Pechanova, Henry J. Clemente, Rooban V. K. G. Thirumalai, **Scott T. Willard**, **Peter L. Ryan** & **Jean M. Feugang**. Silver-coated magnetic nanocomposites induce growth inhibition and protein changes in foodborne bacteria. *Nature Scientific Reports*, (2019) 9:17499. <https://doi.org/10.1038/s41598-019-53080-x>.
- Vance, Carrie K., E. Heath King, Susan D. Bowers, **Peter L. Ryan**, Kevin Walters and Nancy W. Shappell. Reproductive Performance of Mares Fed Dietary Zearalenone. *Frontiers in Veterinary Science*, 6:423. doi: 10.3389/fvets.2019.00423.
- Kutchy, Naseer A., Erika S.B. Menezes, Muhammet R. Ugur, Asma Ul Husna, Hazem ElDebaky, Holly C. Evans, Emily Beaty, Fagner C. Santos, Wei Tan, Robert W. Wills, Einko Topper, Abdullah Kaya, Arlindo A. Moura, **Erdogan Memili**. Sperm Cellular and nuclear dynamics associated with bull fertility. *Animal Reproduction Science*. 211 (2019) 106203. <https://doi.org/10.1016/j.anireprosci.2019.106203>.
- Menezes, Erika S. B., Peres Ramos Badial, Hazem El Debaky, Asma Ul Husna, Muhammet Rasit Ugur, Abdullah Kaya, Einko Topper, Camilo Bulla, Kamilah E. Grant, Olga Bolden-Tiller, Arlindo A. Moura, **Erdogan Memili**. Sperm miR-15a and miR-29b are associated with bull fertility. *Andrology*. 2019;00:e13412. <https://doi.org/10.1111/and.13412>.
- Ward, S. H., Jenna M. Guinn, D. T. Nolan, P. D. Krawczel, C. S. Petersson-Wolfe, G. M. Pighetti, **A. E. Stone**, J. M. Bewley, and Joao H. C. Costa. Comparing dairy farm milk yield and components, somatic cell score, and reproductive performance among Unites States regions using summer to winter ratios. *Journal of Dairy Science*, 102. <https://doi.org/10.3168/jds.2018-16170>.
- Evans, Holly, **Dean Jousan**, **Erdogan Memili**, Leigh Beckman, **Molly Nicodemus**. Life Skill Development and Financial Impact Associated with a Youth Livestock Sales Program. *Journal of Youth Development*. Vol. 14 Issue 3 DOI 10.5195/jyd.2019.720. <http://jyd.pitt.edu>.
- E. B. Menezes, A. L. C. Velho, F. Santos, **T. Dinh**, A. Kaya, E. Topper, A. A. Moura and **E. Memili**. Uncovering sperm metabolome to discover biomarkers for bull fertility. *BMC Genomics*. (2019) 20:714 <https://doi.org/10.1186/s12864-019-6074-6>.
- Ishak, G.M., S.B. Park, G.A. Dutra, G.D.A. Gastal, M.E. Elcombe, M.O. Gastal, **J.M. Feugang**, E.L. Gastal. Deficiency in proliferative, angiogenic, and LH receptors in the follicle wall: implications of season toward the anovulatory condition. *Domestic Animal Endocrinology* 70 (2020) 106382. <https://doi.org/10.1016/j.domaniend.2019.07.010>.
- Ishak, Ghassan M. A., Gabriel A. Dutra, Gustavo D. A. Gastal, Melba O. Gastal, **Jean M. Feugang**, Eduardo L. Gastal. Transition to the ovulatory season in mares: An investigation of antral follicle receptor gene expression in vivo. *Journal of Molecular Reproduction and Development*. 2019;1–14. DOI: 10.1002/mrd.23277.



## 2019 Refereed Publications

- Ugur, Muhammet Rasit, Amal Saber Abdelrahman, Holly C. Evans, Alicia A. Gilmore, Mustafa Hitit, Raden Iis Arifiantin, Bambang Purwantara, Abdullah Kaya and **Erdogan Memili**. Advances in Cryopreservation of Bull Sperm. *Frontiers in Veterinary Science*, 6:268. doi: 10.3389/fvets.2019.00268.
- Hasan, M Shamimul, **Jean M Feugang**, and **Shengfa F Liao**. A Nutrigenomics Approach Using RNA Sequencing Technology to Study Nutrient–Gene Interactions in Agricultural Animals. *Current Developments in Nutrition*, 2019;3:nzz082.
- Ugur, Muhammet Rasit, Naseer Ahmad Kutchy, Erika Bezerra de Menezes, Asma Ul-Husna, Bethany Peyton Haynes, Alper Uzun, Abdullah Kaya, Einko Topper, Arlindo Moura and **Erdogan Memili**. Retained Acetylated Histone Four in Bull Sperm Associated With Fertility. *Frontiers in Veterinary Science*, July 2019, Volume 6, Article 223. doi: 10.3389/fvets.2019.00223.
- Feugang, Jean M.**, Carley E. Rhoads, Popoola A. Mustapha, Steve Tardif, John J. Parrish, **Scott T. Willard**, **Peter L. Ryan**. Treatment of boar sperm with nanoparticles for improved fertility. *Theriogenology*, 137 (2019) 75-81, <https://doi.org/10.1016/j.theriogenology.2019.05.040>.
- Chilling, M. W. S, A. J. Pham-Mondala, N. Dhowlaghar, Y. L. Campbell, **T. T. Dinh**, A.C. Tolentino, J. B. Williams, Y. L. Xiong. Changes in the Volatile Composition of Fresh Pork Sausage with Natural Antioxidants During Long-Term Frozen Storage. *Meat Science and Muscle Biology*, 3(1):194–209 (2019), doi:10.22175/mmb2019.03.0007.
- Sukumaran, Anuraj T., Kalyn Coatney, Jack Ellington, Alexander J. Holtcamp, M. Wes Schilling, and **Thu T. N. Dinh**. Consumer Acceptability and Demand for Cooked Beef Sausage Formulated with Pre- and Post-Rigor Beef. *Meat Science and Muscle Biology*, 3(1):210–218 (2019), doi:10.22175/mmb2019.03.0008
- Hatcher, Jillian, **Clay Cavinder**, Courtney P. Heaton, Lesli Figueredo, Alex Holtcamp and **Thu Dinh**. Physiological and Physical Benefits of Interactions with Horses. *Journal of Extension*, 2019, Vol 57, Number 3, Article # 3RIB6.
- Zoller, Jennifer L. , **Clay A. Cavinder**, Dennis Sigler, Luis O. Tedeschi, and Julie Harlin. Development of a mathematical model for predicting digestible energy intake to meet desired body condition parameters in exercising horses. *Journal of Animal Science* 2019.97:1945–1955. doi: 10.1093/jas/skz041.
- Yang, Zhongyue and **Shengfa F. Liao**. Physiological Effects of Dietary Amino Acids on Gut Health and Functions of Swine. *Frontiers in Veterinary Science* 6:169. doi: 10.3389/fvets.2019.00169.
- Ferguson, Treena L. , **Brian J. Rude**, and D. Tommy King. American White Pelican (*Pelecanus erythrorhynchos*) Growth, Nutrition, and Immunology. *BioOne Complete*. Waterbirds, 42(1) : 61-69. URL: <https://doi.org/10.1675/063.042.0107>.
- Julien, Allison R. , Andrew J. Kouba, David Kabelik, **Jean M. Feugang**, **Scott T. Willard**, and Carrie K. Kouba. Nasal administration of gonadotropin releasing hormone (GnRH) elicits sperm production in Fowlers Toads (*Anaxyrus fowleri*). *BMC Zoology* (2019) 4:3. <https://doi.org/10.1186/s40850-019-0040-2>.



## 2019 Refereed Publications

- Aldridge, Mildred Elizabeth, Jasmyn Elaine Fearon, Bethany Peyton Haynes, Hannah Marie Miller, Katie Yvonne Sanford, Rachel Rebecca Scott, William Wess Anglin, Lauren Susanne Blalock, Briana Lashun Burkes, Olivia Lucienne Cohn-White, Brittany Renee Franks, Haleigh Margaret Giles, Ashley Lorraine Greene, Riley Dawn Hanby, Anna Grace Holliman, John Mark Kirby, Austin William Klein, Courtney Ann Lehmann, Grace Jennette Llyod, Cody Triston Lore, Tyler B. McMurray, Zachary Vinz Moody, Brianna Nicole Palmer, Lindsey Virginia Pansano, Ryan Matthew Pickle, Laura Marie Schaeffer, Jeneva Ruth Seidl, James Dean Smith, Hannah Faith Stepp, Faisal Amri Satrio, Naseer Ahmad Kutchy, Ed Dechert, **Cobie Rutherford, Kipp Brown**, Bambang Purwantara, **Erdogan Memili**. Review: Solutions for grand challenges in goat and sheep production industry. *Biotropia*. Vol. 26 No. 1, 2019: 56 - 64. DOI: 10.11598/btb.2019.26.1.944.
- Velho, Ana, Hongfeng Wang, Leslie Koenig, Kamilah E. Grant, Erika S. Menezes, Abdullah Kaya, Arlindo Moura, **Erdogan Memili**. Expression dynamics of integrin subunit beta 5 in bovine gametes and embryos imply functions in male fertility and early embryonic development. *Andrologia*. 2019;00:e13305. <https://doi.org/10.1111/and.13305>
- Carlisle, MS, Leif D., **Erdogan Memili, DVM, PhD**, Robert L. Linford, DVM, PhD, ACVS, Kristen A. Slater, DVM, **Molly C. Nicodemus, PhD**. Relationship between Gate Mechanics and the Speed of the Trot in the Weimaraner Dog Breed. *Topics in Companion Animal Medicine* 35 (2019) 26-30. <http://dx.doi.org/10.1053/j.tcam.2019.03.003>.
- El Debaky, Hazem A., Naseer A. Kutchy, Asma Ul-Husna, Rhesti Indriastuti, Shamim Akhter, Bambang Purwantara, and **Erdogan Memili**. Review: Potential of water buffalo in world agriculture: Challenges and opportunities. *Applied Animal Science* 35:255–268. <https://doi.org/10.15232/aas.2018-01810>.
- Ferjak, E.N., **C.A. Cavinder**, A.T. Sukumaran, **D.D. Burnett, C.O. Lemley, T.T.N. Dinh**. Fatty acid composition of mesenteric, cardiac, abdominal, intermuscular, and subcutaneous adipose tissues from horses of three body composition scores. *Livestock Science* 223 (2019) 116-123. <https://doi.org/10.1016/j.livsci.2019.02.01>.
- Dutra, G. A., G. M. Ishak, O. Pechanova, T. Pechan, D. G. Peterson, J. C. F. Jacob, **S. T. Willard, P. L. Ryan, E. L. Gastal**, and **J. M. Feugang**. Seasonal variation in equine follicular fluid proteome. *Reproductive Biology and Endocrinology*. (2019) 17:29. <https://doi.org/10.1186/s12958-019-0473-z>.
- Casey L. Durfey, Sabrina E. Swistek, **Shengfa F. Liao, Mark A. Crenshaw**, Henry J. Clemente, Rooban V. K. G. Thirumalai, Christy S. Steadman, **Peter L. Ryan, Scott T. Willard** and **Jean M. Feugang**. Nanotechnology-based approach for safer enrichment of semen with best spermatozoa. *Journal of Animal Science and Biotechnology*. (2019) 10:14. <https://doi.org/10.1186/s40104-018-0307-4>.
- Mayo, L. M., W. J. Silvia, D. L. Ray, B. W. Jones, **A. E. Stone**, I. C. Tsai, J. D. Clark, J. M. Bewley, and G. Heersche Jr. Automated estrous detection using multiple commercial precision dairy monitoring technologies in synchronized dairy cows. *Journal of Dairy Sciences*. 2019. J. Dairy Sci. 102:1–12. <https://doi.org/10.3168/jds.2018-14738>.



## 2019 Refereed Publications

Yang, Zhongyue, Md. Shamimul Hasan, John K. Htoo, **Derris D. Burnett**, **Jean M. Feugang**, **Mark A. Crenshaw**, and **Shengfa F. Liao**. Effects of dietary supplementation of L-methionine vs. DL-methionine on performance, plasma concentrations of free amino acids and other metabolites, and myogenesis gene expression in young growing pigs. *Translational Animal Science*. Transl. Anim. Sci. 2019.3:113–123. doi: 10.1093/tas/txy109.

Gastal, G.D.A., **J.M. Feugang**, F.L.N. Aguiar, G.M. Ishak, **C.A. Cavinder**, **S.T. Willard**, **P.L. Ryan**, E.L. Gastal. Effect of cryopreservation techniques on proliferation and apoptosis of cultured equine ovarian tissue. *Theriogenology*. <https://doi.org/10.1016/j.theriogenology.2018.11.034>.



# Certificate of Appreciation

*Be it known that faculty and staff of  
the Department of Animal and Dairy Sciences at Mississippi State University appreciates*

***Dr. John R. Blanton Jr.***

*for his leadership and guidance in ensuring a new Meat Science and Muscle  
Biology Laboratory, and a new department building for our students, staff,  
faculty, stakeholders, and alumni who contribute to Mississippi State University.*

This certificate is conferred to recognize many hours and enormous work effort involved in the planning and construction of the new building as well as the relocation of the laboratories and offices.

These advanced facilities will enable our faculty, staff, and students to make major contributions and greater impact on the future of agriculture in Mississippi, our region, across the nation, and around the globe.

Through our pursuit of excellence in the traditions of the land-grant mission of research, teaching and extension, your efforts and contribution will be felt throughout agriculture.

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With sincere thanks and best wishes,  
Faculty and Staff of Animal and Dairy Sciences  
DECEMBER, 2019

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MISSISSIPPI STATE UNIVERSITY  
DEPARTMENT OF ANIMAL  
AND DAIRY SCIENCES