

# Animal and Dairy Sciences

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**MISSISSIPPI STATE**  
UNIVERSITY™



**Ribbon Cutting to Open New Animal  
and Dairy Sciences Building**



## FALL CONTEST SEASON BEGINS FOR THE MSU LIVESTOCK JUDGING TEAM

Our team enjoyed a reserve champion finish in the swine division and a fourth place finish overall at the Prof Lidvall Memorial Collegiate Livestock Judging Contest in Tennessee!

Congratulations to team member Logan Whipple for ranking fourth individually in the swine division!

# MISSISSIPPI 4-H LIVESTOCK SKILLATHON TEAM WINS THE 2019 DIAMOND STATE INVITATIONAL CONTEST



L-R: Heather Jennings, Savanna Ashley, Katie Norris, Jacob Johnson, Mary Beth Ainsworth, Jace Welborn, Jennifer Williams

The team spent Saturday, September 14 going through various exercises and mock contests to increase their livestock knowledge and skills working on team challenges. The contest was held on Sunday, September 15 to conclude the weekend.

Teams were represented from the states of Mississippi, Texas, Arkansas, and Kentucky. The Mississippi 4-H Livestock Skillathon Team won the 2019 Diamond State Classic 4-H Livestock Skillathon Championship. They were the Champion Team in the Evaluation, Quality Assurance and Identification phases of the contest.

- Mary Beth Ainsworth was Reserve Champion High Point Individual for the entire contest and placed 1st in Quality Assurance and 4th in Identification.
- Katie Norris was 4th High Point Individual and placed 2nd in Identification and 4th in Quality Assurance.
- Jacob Johnson won 4th place in Evaluation

Thanks to Heather Jennings (Rankin County) and Jennifer Williams (Lincoln County) for working with this team since March in their preparation.

The team will compete in mid-November at the NAILE National 4-H Livestock Skillathon Contest in Louisville, KY.

#MSUext

#ms4h

#ms4hlivestock

# LAST DEFENSE BEFORE MOVING TO THE NEW BUILDING

As the Animal & Dairy Sciences department packed up and moved to their new building, Ms. Holly Evans was able to properly send off the Wise Center 4th floor with successfully presenting her thesis defense. Over the years, room 4043 has been the final step for many graduate students in their graduate program as they defended their research. Holly marked the last of these students as she defended her research titled *Characterization of fatty acid composition of bull sperm with varied cryotolerance*.

Along with her research contributions to the department, Holly has filled vital roles within the department as the Assistant Manager of the MAFES Horse Unit, Assistant Coach of the MSU Equestrian Team, and Teaching Assistant for ADS 1132 Introduction to Horsemanship.

In addition, she has been the guest lecturer in multiple departmental courses and co-author for multiple published abstracts and manuscripts during her time at MSU.

As she completes her last semester at MSU, Holly is currently interviewing for university positions where she will continue to give back to those wanting to learn. Holly's graduate committee consisted of co-advisors Dr. Erdogan Memili and Dr. Molly Nicodemus and committee member Dr. Dean Jousan.





L-R: Andy Berry; Chris Vowell; Beth Tartt; 1st place: Anna Nelson; 2nd place: Laney Anderson; 3rd place: Noah Carpenter; 4th place: Nina Hay; 5th place: Elizabeth Rone; finalist: Hannah Buse; finalist: Taylor Vowell; finalist: Brandt Sowell; Roy Higdon; Mark Smith; and Dean Jousan

## 2018-2019 4-H/FFA REPLACEMENT BEEF HEIFER DEVELOPMENT CONTEST WINNERS

Eight youth completed the 4-H/FFA Replacement Beef Heifer Development Contest and were awarded prizes at the 2019 Mississippi State Fair. The contest involved daily management of three beef heifers over 10 months. At the end of the contest, youth submitted a record book (30% of score) and had their heifers evaluated (20% of score) by a panel of beef producers. The final phase of the contest consisted of a presentation given to the judges (50% of score) defending their management decisions.

Sponsors for this contest included: Chris Vowell, American Livestock Insurance; B&B Cattle Co.; Bouie River Beefmasters; Campo Farms; Carcass Performance Partners Bull Sale (Triple S Land and Cattle); Courtesy Motors, Inc.; Havard Pest Control; Hearz Yer Sign; Jackson Power Train; Keith Superstores; McDaniel Farms; MG 4M Farms; Mississippi Ag Company; Mississippi Simmental & Simbrah Association; Mississippi State University Extension; Mississippi Cattlemen's Association; PMCC, LLC; Red Fox Farm; and Southern Producers Heifer Sale Group.

The winners of the contest are:

- 1st Place: Anna Nelson,  
Walthall County;
- 2nd Place: Laney Anderson,  
Lincoln County;
- 3rd Place: Noah Carpenter,  
Tishomingo County;
- 4th Place: Nina Hay,  
Lauderdale County;
- 5th Place: Elizabeth Rone,  
Panola County;
- Finalist: Taylor Vowell, Leake  
County;
- Finalist: Brandt Sowell,  
Madison County; and
- Finalist: Hannah Buse, Jones  
County

Youth ages 14-18, as of Jan. 1, 2019, are eligible to compete in the 2019-2020 Contest. The entry deadline is Nov. 1, 2019. Contact your local Extension office or FFA Advisor for an application to take part in this unique contest.

## 2019 Refereed Publications

- 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.
- Ugur, Muhammet Rasis, 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:nz2082.
- Ugur, Muhammet Rasis, 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.
- Retained Acetylated Histone Four in Bull Sperm Associated with Fertility. *Frontiers in Veterinary Science*, **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.

## 2019 Refereed Publications

- 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>.
- 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>.

## 2019 Refereed Publications

- 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>.
- 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>.