

JANUARY 26, 2018 | VOLUME 75

ANIMAL & DAIRY SCIENCES NEWSLETTER

MISSISSIPPI STATE UNIVERSITY
ANIMAL AND DAIRY SCIENCES

IN THIS ISSUE

National Western Stock Show - 2

Mark Lewis participation at the
IETS meeting - 3

Hands on Horses - 4

Clay Cavinder - WALTHAM
FOUNDATION GRANT - 5

MSU Online Horse Judging - 6

Student Spotlight - 7

Upcoming Events - 8





NATIONAL WESTERN STOCK SHOW

The MSU Livestock Judging Team had a great first major contest outing with the new team at the National Western Stock Show in Denver, CO. The team went through a “mock” contest hosted by the University of Nebraska prior to its actual days of competition in Denver. Several practices at elite livestock operations contributed to the team’s success.

MSU was one of 26 universities from across the nation to compete, and we had our strongest day in the “Carload Contest” ranking 14th. The team was led by Abigail Jenkins who ranked 3rd of 116 contestants in that event! Actually, Abigail was just one point behind the high individual in the contest!



Congrats Mark Lewis!

Empowering Undergraduate Students through Research and Scientific Meeting Presentations: Two Student Stories

Hi, my name is **Mark B. Lewis**, a Biochemistry majoring student. I have conducted my undergraduate research experience, partially supported by the URSP-CALS/MAFES research program, under the supervision of **Dr. Jean M. Feugang** within the department of Animal and Dairy Sciences. I recently traveled to Bangkok, Thailand to attend the 44th Annual International Embryo Technology Society (IETS) and present the findings of my research project entitled "*Investigating the Cryotolerance of Boar Spermatozoa Subjected to Prior Selection*" within the undergraduate student competition category.

This trip was a truly amazing experience, as I was able to meet with researchers and industry experts in the field of reproduction. Additionally, I got the chance to connect with several students at the conference and discuss our individual paths that landed us here. As I began to tell my story that led me to reproductive physiology research, all were extremely impressed with Mississippi State's focus on undergraduate research. Indeed, undergraduate students in many other universities around the world do not get the chance to perform research and let alone get funding for their trip to Thailand. After taking in all of these stimulating conversations, I realized just how fortunate we are at Mississippi State University. Its dedication to undergraduate research is seemingly unmatched when compared to other universities, and I am truly grateful to have been a part.

I have worked with my research mentor, Dr. Jean M. Feugang, for close to two years now and we have had a chance to work on many projects that have been quite successful. I have presented research findings in conjunction with Dr. Feugang at two local symposia at MSU (Undergraduate Research symposium - Shackouls Honors College), one regional symposium at the Delta Research and Extension Center (Mississippi Academy of Sciences - Summer edition), and an international conference in Bangkok, Thailand (the IETS). I have won **third place awards** at the regional and the local symposia. In what I believe to be my greatest accomplishment while working under Dr. Feugang, I was selected to present my research at the IETS Conference in Thailand as one of only four undergraduate students selected out of over 200 abstracts submitted, worldwide. I was extremely fortunate to win the **runner-up award** for my poster presentation at the conference, which is quite an honor. I look forward to continuing my career in the sciences and utilizing everything that I have learned from Dr. Feugang and during my time within the department of Animal and Dairy Sciences. I am forever thankful for these opportunities that would not have been possible without the incredible support from my great university.

HANDS ON HORSES

My Horse is just "Big-Boned"



What's the best way to monitor your horse's weight at home?
What is a body condition score and how can it help me?

Whether you are trying to get your horses ready for the breeding season or want them shiny for the show pen, learn practical methods of assessing these health parameters in your own horse!

Join us Saturday March 24th, 2018 at the MAFES Horse Unit for a hands-on day of practical horse management topics covering nutrition, health, training tools, and more!

Cost: \$45

lunch and manual provided!

To Register Contact:

Dr. Clay Cavinder

clay.cavinder@msstate.edu or 662-325-7466

By March 16th



HANDS ON HORSES

Feeling the winter blues? Get fired up about Hands on Horses! A day of on-the-farm, practical management techniques. Check out our events for a list of topics, such as "My Horse is just 'Big-Boned!'"



Caitlin Chase

Congrats Dr. Cavinder

Congrats Dr. Clay A. Cavinder for being sponsored by the WALTHAM Foundation (Mars Horsecare US, Incorporated)

Project Title: Effect of a Commercial Prebiotic on the Digestibility of Nutrients for the Horse and Potential Alteration in the Fecal Microbiota

Award Amount: \$23,000





MSU Online Horse Judging | Mississippi State University Extension Service

Coaches and adult leaders can utilize this site as it contains numerous four-horse classes of Halter, Western Pleasure, Hunter Under Saddle,...

EXTENSION.MSSTATE.EDU

Like Comment Share

MSU ONLINE HORSE JUDGING

Be sure to check out our online Horse Judging page! Through this website, coaches and adult leaders will have access to numerous four-horse classes of Halter, Western Pleasure, Hunter Under Saddle, Trail, Ranch Riding, and so much more. Additionally, each class will have either a video set of reasons from the MSU Collegiate Horse Judging Team or a voice-over explanation of the placings. Plus, users will have access to quick tips and tutorials concerning “how to mark a score card” and “what are penalties and when should they be applied?”

"These are by far the most valuable videos I have ever seen. The kids do a great job giving reasons and it was exactly what I was looking for. Keep the reasons coming. We are using every one of them!" -Denine Trump (FFA/ Agricultural Instructor)

Follow the link below to get signed up today!

<https://extension.msstate.edu/msu-online-horse-judging-educational-page>

STUDENT SPOTLIGHT



SHAWNA DOWNS

Shawna Downs is an animal and dairy sciences major from Raleigh, North Carolina. She anticipates graduating in Spring of 2020. Her favorite thing about home is that's where her best and parents are. Shawna's favorite things about MSU are how friendly the people are and how good everyone is at making you feel right at home. "The best thing about the College of Agriculture and Life Sciences is the staff. They are always willing to go the extra mile for anyone," In her spare time, she loves hanging out with her amazing friend group. She also rides horses so she spends a lot of her time out at the barn. After graduation, she plans to attend vet school, hopefully at Mississippi State. An interesting fact about Shawna is she loves to go to the beach but is terribly afraid of the ocean.

Upcoming Events

BEEF EXTENSION - DR. BRANDI KARISCH & COBIE RUTHERFORD

- February 28- MBCIA Annual Membership Meeting
- March 1- Hinds/MBCIA Spring Bull Sale, Raymond
- March 15-17- MSU Spring Artificial Insemination School



EQUINE EVENTS - DR. CLAY CAVINDER

- March 24 Hands on Horses
- March 27 - May 1 Horse Management 101
- June 1-3 MSU Horse Judging Camp



4-H EVENTS - DR. DEAN JOUSAN

- February 1-8 - Dixie Nationals, Jackson 4-H
- February 9-10 - Dixie National Judging Contest 4-H



DAIRY EVENTS - DR. AMANDA STONE

- Upcoming programs and publications are online at <http://extension.msstate.edu/dairy>
- For more info, contact Dr. Stone at amanda.stone@msstate.edu



2017 Refereed Publications

Liao, Shengfa F., Naresh Regmi, Guoyao Wu. Homeostatic Regulation of Plasma Amino Acid Concentrations. *Frontiers in Bioscience, Landmark*. 23, 640-655, January 1, 2018.

Capik, Sarah F., Brad J. White, Robert L. Larson, Nicholas Van Engen, Natalia Cernicchiaro, Terry J. Engelken, Jeffrey Lakritz, Michael A. Ballou, Lindsey E. Hulbert, **Rhonda C. Vann**, Jeff L. Caswell, Gabriella Jacob, Jeffery A. Carroll, Johann F. Coetzee. Effect of oral administration of meloxicam prior to transport on inflammatory mediators and leukocyte function of cattle at feedlot arrival. *American Journal of Veterinary Research*. December 2017. Vol 78, No. 12.

Phillips, C. A., PAS, **C. A. Cavinder, PAS**, D. H. Sigler, and J. D. Fluckey. Effect of Various Levels of Dietary Starch on Glycogen Replenishment in the Light Working Horse. *The Professional Animal Scientist*. 33:729–738. <https://doi.org/10.15232/pas.2017-01651>.

Kaya, Abdullah, Hakan Sagirkaya, Müge Misirlioglu, Ahmet Gümen, John J. Parrish, **Erdogan Memili**. Leptin and IGF-I improve bovine embryo quality in vitro. *Animal Reproduction*. Oct./Dec. 2017, v.14, n.4, p.1151-1160.

Ferjak, E. N., **C. A. Cavinder, D. D. Burnett**, C. Mc. Argo, and **T. T. N. Dinh**. Body fat of stock-type horses predicted by rump fat thickness and deuterium oxide dilution and validated by near-infrared spectroscopy of dissected tissues. *Journal of Animal Science*. 2017.95:4344–4351. doi:10.2527/jas2017.1676

Hergenreder, J. E., J. F. Legako, **T. T. N. Dinh**, P. R. Broadway, K. S. Spivey, J. O. Baggerman, J. P. Hutcheson, M. E. Corrigan, and B. J. Johnson. Zilpaterol Hydrochloride affects Cellular Muscle Metabolism and Lipid Components of 10 Different Muscle in Feedlot Heifers. *Meat Science and Muscle Biology*. 1:192–206 (2017) doi:10.22175/mmb2017.02.0013.

Kutchy, N.A., E. S. B. Menezes, A. Chiappetta, W. Tan, R. W. Wills, A. Kaya, E. Topper, A. A. Moura, A. D. Perkins, **E. Memili**. Acetylation and methylation of sperm histone 3 lysine 27 (H3K27ac and H3K27me3) are associated with bull fertility. *Andrologia*. 2017;e12915. <https://doi.org/10.1111/and.12915>.

Durfey, Casey L., **Derris D. Burnett, Shengfa F. Liao, Christy S. Steadman, Mark A. Crenshaw**, Henry J. Clemente, **Scott T. Willard, Peter L. Ryan, Jean M. Feugang**. Nanotechnology-based selection of boar spermatozoa: growth development and health assessments of produced offspring. *Livestock Science*. 205 (2017) 137-142. <http://dx.doi.org/10.1016/j.livsci.2017.09.024>

Liao, Shengfa F., Martin Nyachoti. Using probiotics to improve swine gut health and nutrient utilization. *Animal Nutrition*. (2017) 1-13. <http://dx.doi.org/10.1016/j.aninu.2017.06.007>.

Kutchy, Naseer A., Ana Velho, Erika S. B. Menezes, Marie Jacobsen, Giselle Thibaudeau, Arlindo Moura, Abdullah Kaya, Andy Perkins, and **Erdogan Memili**, Robert W. Wills. Testis specific histone 2B is associated with sperm chromatin dynamics and bull fertility-a pilot study. *Journal of Reproductive Biology and Endocrinology*. (2017) 15:59. DOI 10.1186/s12958-017-0274-1.

Lemley, Caleb O. Investigating reproductive organ blood flow and blood perfusion to ensure healthy offspring. *Animal Frontiers*. doi:10.2527/af.2017-0124.

2017 Refereed Publications:

- Keomanivong, F. E., L. E. Camacho, **C. O. Lemley**, E. A. Kuemper, R. D. Yunusova, P. P. Borowicz, J. D. Kirsch, K. A. Vonnahme, J. S. Caton and K. C. Swanson. Effects of realimentation after nutrient restriction during mid- to late gestation on pancreatic digestive enzymes, serum insulin and glucose levels, and insulin-containing cell cluster morphology. *Journal of Animal Physiology and Animal Nutrition*. 101 (2017) 589–604. DOI: 10.1111/jpn.12480.
- Menezes, E.B., R.V. de Oliveira, M.F. van Tilburg, E.A. Barbosa, N.V. Nascimento, A.L.M.C.S. Velho, F.B. Moreno, R.A. Moreira, A.C.O. Monteiro-Moreira, G.M.C. Carvalho, A.F. Ramos, **E. Memili**, A.A. Moura. Proteomic analysis of seminal plasma from locally-adapted “Curraleiro Pé-Duro bulls” (*Bos taurus*): identifying biomarkers involved in sperm physiology in endangered animals for conservation of biodiversity. *Animal Reproduction Science*. <http://dx.doi.org/10.1016/j.anireprosci.2017.05.014>.
- Cavinder, C. A.**, A. Sear, R. Valdez, L. White. Utilization of Social Media as a Marketing Tool for Equine Businesses: An Exploratory Study. *North American Colleges and Teachers of Agriculture Journal*. June 2017, Vol 61(2).
- Gastal, G. D. A., A. Hamilton, B. G. Alves, S. G. S. de Tarso, **J. M. Feugang**, G. A. Apgar, C. K. Nielsen, E. L. Gastal, W. J. Banz. Ovarian features in white-tailed deer (*Odocoileus virginianus*) fawns and does. *PLOS ONE*. 12(5):30177357. <https://doi.org/10.1371/journal.pone.0177357>.
- Aguiar, F.L.N., G.D.A. Gastal, G.M. Ishak, M.O. Gastal, D.I.A. Teixeira, J.R. Figueiredo, E.L. Gastal, **J.M. Feugang**. Effects of FSH addition to an enriched medium containing insulin and EGF after long-term culture on functionality of equine ovarian biopsy tissue. *Theriogenology* 99 (2017) 124-133.
- Feugang, Jean M.** Novel agents for sperm purification, sorting and imaging. *Molecular Reproduction Development*. 2017. 9999:1-10. DOI: 10.1002/mrd.22831.
- Borchers, M. R., Y. M. Chang, K. L. Proudfoot, B. A. Wadsworth, **A. E. Stone**, and J. M. Bewley. Machine-learning-based calving prediction from activity, lying, and ruminating behaviors in dairy cattle. *Journal of Dairy Sciences*, Vol.100:1-11. 2017. <https://doi.org/10.3168/jds.2016-11526>.
- Lemley, C. O.** and K. A. Vonnahme. PHYSIOLOGY AND ENDOCRINOLOGY SYMPOSIUM: Alterations in uteroplacental hemodynamics during melatonin supplementation in sheep and cattle. *Journal of Animal Science* 2017.95:2211-2221. doi:10.2527/jas2016.1151.
- Gastal, G.D.A., F.L.N. Aguiar, B.G. Alves, K.A. Alves, S.G.S. de Tarso, G.M. Ishak, **C.A. Cavinder**, **J.M. Feugang**, E.L. Gastal. Equine ovarian tissue viability after cryopreservation and in vitro Culture. *Theriogenology* 97 (2017) 139-147.
- Maki, C R, S Allen, M Wang, SH Ward, **BJ Rude**, HR Bailey, RB Harvey and TD Phillips. Calcium Montmorillonite Clay for the Reduction of Aflatoxin Residues in Milk and Dairy Products. *Journal of Dairy and Veterinary Sciences*. 2017; 2*3): 555587.
- Regmi, N., T. Wang, **M. A. Crenshaw**, **B. J. Rude**, **S. F. Liao**. Effects of dietary lysine levels on the concentrations of selected nutrient metabolites in blood plasma of late-stage finishing pigs. *Journal of Animal Physiology and Animal Nutrition*. 2017; 1-7. DOI: 10.1111/jpn.12714.
-

2017 Refereed Publications:

- Wang, Taiji, **Jean M. Feugang**, **Mark A. Crenshaw**, Naresh Regmi, **John R. Blanton Jr.** and **Shengfa F. Liao**. A Systems Biology Approach Using Transcriptomic Data Reveals Genes and Pathways in Porcine Skeletal Muscle Affected by Dietary Lysine. *International Journal of Molecular Sciences* (2017) 18, 885.
- Cain, Amanda J., **Caleb O. Lemley**, F. Kevin Walters, David L. Christiansen, E. Heath King, Richard M. Hopper. Pre-breeding beef heifer management and season affect mid to late gestation uterine artery hemodynamics. *Theriogenology* 87 (2017) 9–15.
- Jones, Barbara W., **Amanda E. Stone**, Connie L. Wood, Kristen J. McQuerry, Joey D. Clark, Denise L. Ray, and Jeffrey M. Bewley, PAS. Case Study: Characterization of milk yield, lying and rumination behavior, gait, cleanliness, and lesions between 2 different freestall bases. *The Professional Animal Scientist* 33:140–149. <https://doi.org/10.15232/pas.2016-01548>.
- Stone, A. E.**, B. W. Jones, C. A. Becker, and J. M. Bewley. 2017. Influence of breed, milk yield, and temperature-humidity index on dairy cow lying time, neck activity, reticulorumen temperature, and rumination behavior. *Journal of Dairy Sciences* 100:1–9. <https://doi.org/10.3168/jds.2016-11607>.
- Hodge, Lauren B., **Brian J. Rude**, **Thu N. Dinh**, **Caleb O. Lemley**. Effect of u-3 Fatty Acid Supplementation to Gestating and Lactating Mares: On Milk IgG, Mare and Foal Blood Concentrations of IgG, Insulin and Glucose, Placental Efficiency, and Fatty Acid Composition of Milk and Serum From Mares and Foals. *Journal of Equine Veterinary Science* 51 (2017) 70–78.
- Littlejohn, B. P., M. C. Roberts, M. N. Bedenbaugh, A. W. Lewis, D. A. Neuendorff, D. G. Riley, J. A. Carroll, **R. C. Vann**, M. Amstalden, R. D. Randel, T. H. Welsh, Jr. (2017). Evaluation of the influence of prenatal transportation stress on GnRH-stimulated luteinizing hormone and testosterone secretion in sexually mature Brahman Bulls. *Journal of Animal Science* 95, 129-138. www.animalsciencepublications.org/publications/jas.
- Gastal, G D A , B G Alves, K A Alves, M E M Souza, A D Vieira, A S Varela Jr, J R Figueiredo, **J M Feugang**, T Lucia Jr and E L Gastal. Ovarian fragment sizes affect viability and morphology of preantral follicles during storage at 4°C. *Reproduction*, (2017) 153, 577-587.

2017 Book Chapters:

- Greene, Jonathan M. and **Peter L. Ryan**. L-Arginine in the Uterus and Placenta and During Gestation in Mammals. In *L-Arginine in Clinical Nutrition, Nutrition and Health*, Chapter 22. 2017. V.B. Patel et al. (eds.). DOI 10.1007/978-3-319-26009-9_22.
- Stone, A. E.** Precision dairy monitoring technology implementation opportunities and challenges. In *Large Dairy Herd Management*, 3rd Edition. (Edited by David K. Beede).
- Wang, Taiji, **M. A. Crenshaw**, M. S. Hasan, G. Wu and **S. F. Liao**. 2017. Effects of dietary lysine levels on the plasma concentrations of growth-related hormones in late-stage finishing pigs. In T. Asao and M. Asaduzzaman. eds. *Amino Acid - New Insights and Roles in Plant and Animal*. Chapter 13. pp. 259-271. InTech, Rijeka, Croatia. DOI: 10.5772/intechopen.68545.