August 7, 2020 | ISSUE 7

# RIDING THE RANGE

## EXPLORE EDUCATION, RESEARCH AND EXTENSION EFFORTS TO BUILD THE FUTURE OF AGRICULTURE

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PROFESSOR & DEPARTMENT HEAD
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## *IN THIS ISSUE:*



Welcome to Bethany Eckhart as our new Business Coordinator in the Department of Animal and Dairy Sciences.

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DEPARTMENT OF ANIMAL AND DAIRY SCIENCES

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# UNDERGRADUATE ADS RESEARCH EXPERIENCE FORGES AHEAD DURING COVID-19 PANDEMIC

**Junior and senior undergraduate students across multiple Departments across Mississippi State University are committed to responsible research in beef cattle. Under the guidance of Zully Contreras-Correa, ADS Doctoral Student, these undergraduate researchers are working daily to provide feed and treatments to pregnant heifers via the Calan Broadbent Feeding System, as well as cleaning pens and monitoring heifer comfort during this hot summer.**

**This is the third year of a 5-year USDA-AFRI grant (awarded to Drs. Caleb Lemley, Derris Burnett, Brian Rude, and Heath King) examining the potential benefits of supplementing beef heifers with melatonin to reverse the negative consequences of maternal nutrient restriction on uterine blood flow, fetal growth, and placental functional capacity. The animal collection period of this project is expected to end in September when the heifers undergo Cesarean sections for collection of placental and fetal tissues.**

***Submitted by Zully Contreras-Correa.***

**Cason Brown, an undergraduate MSU student intern enrolled in ADS 4420, weighs feed rations for the pregnant heifers.**

# UNDERGRADUATE ADS RESEARCH EXPERIENCE FORGES AHEAD DURING COVID-19 PANDEMIC

**Masked undergraduate student interns and workers from the Department of Animal and Dairy Sciences, Biological Sciences, and Poultry Sciences working on beef cattle research during COVID-19 pandemic.**

**L-R: Top row, Cason Brown, Kirsten Thompson, Amelie Signorel, Carley Rhoads, Robin Sessums; Bottom row, Hayden Duncan, Kaitlyn Wood, Taylor Cochran, and Mackenzie Ripper (bottom).**

# PHOTO CONTRIBUTION FROM SAMMY BLOSSOM

**Sammy Blossom is an alumnus of ADS and captured many photos during his 16-year career with the Mississippi Cattlemen's Association. Enjoy the photo.**

***Photo courtesy of Sammy Blossom Photography: https://www.sammyblossomphotography.com/.***

# DRS. LIAO AND HASAN DELIVER INVITED TALK

**The ASAS-CSAS-WSASAS Annual Meeting and Trade Show was held virtually for the first time from July 19-23, 2020. The North East Section of the American Society of Animal Science (ASAS) hosts a symposium during this event, and the symposium topics change each from year. This year the NES chose to focus on the usage of different omics-based tools in animal science research, which include epigenomics, transcriptomics, proteomics, etc.**

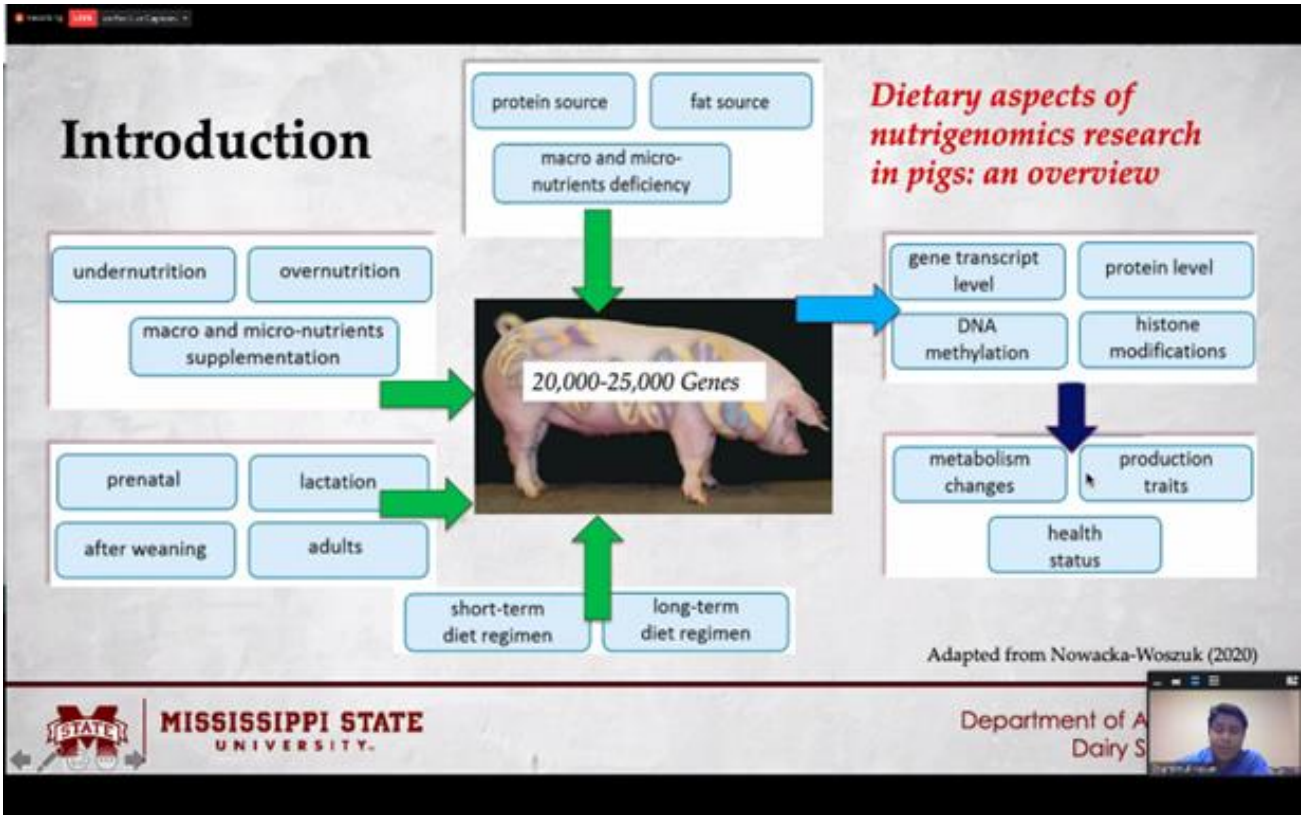
**Drs. Shengfa Liao and Shamimul Hasan in our ADS department were invited to talk about the "best practices" for applying RNA sequencing technology in swine-related research. The title of their presentation was "Application and Practices of RNA Sequencing for Understanding Transcriptional Regulation of Gene Expression Affected by Dietary Nutrients or Feed Additives in Swine." In this online Zoom presentation, they discussed some "best practices" in the application of this technology, including appropriately designing experiments, collecting samples, laboratory analysis, and bioinformatics data analyses in order to have confidence in the results obtained from the RNA sequencing methodology.**

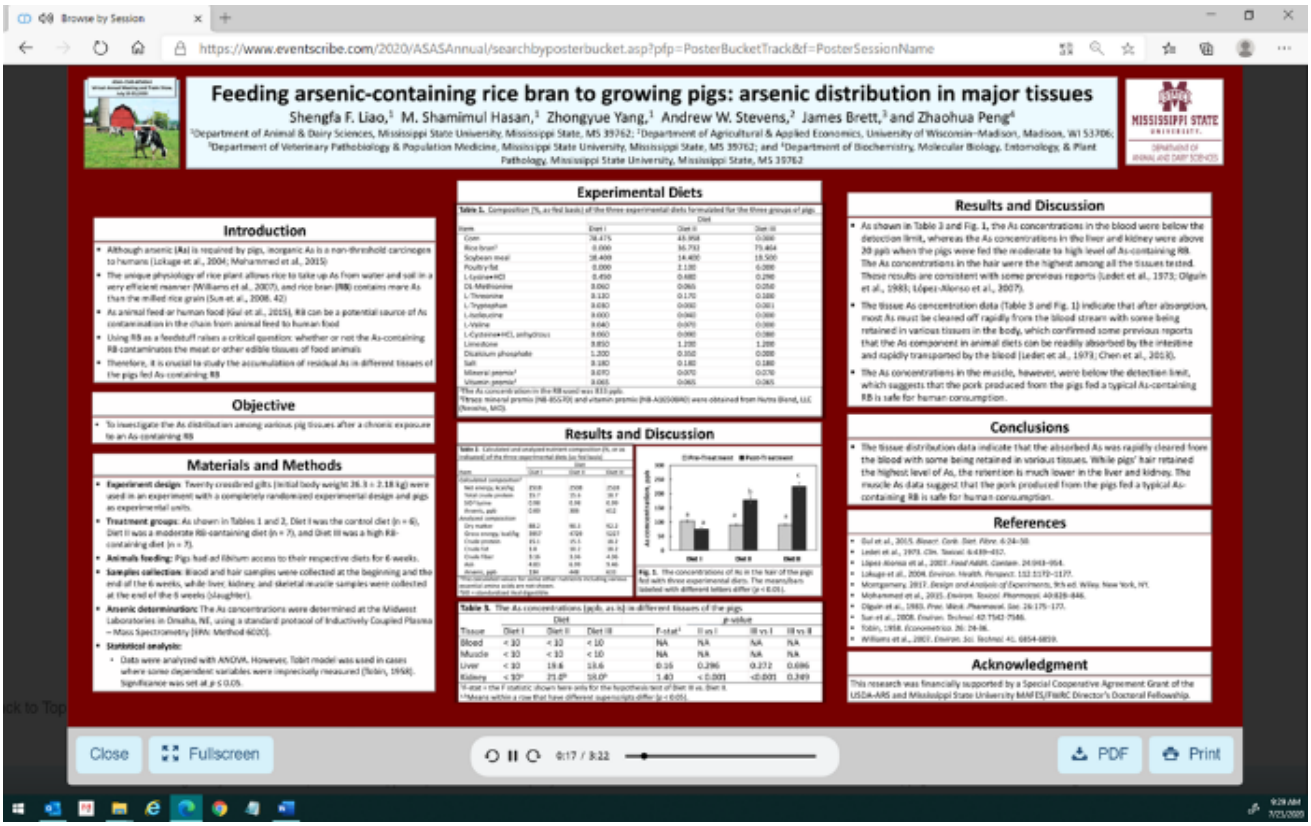
**In addition to this RNA sequencing presentation, Dr. Liao also delivered another presentation titled "Feeding arsenic-containing rice bran to growing pigs: arsenic distribution in major tissues." This was presented in the third poster session (No. PSIII-29) of this Annual Meeting and Trade Show.**

Dr. Shengfa Liao

***Submitted by Rebecca Humphrey.***

# DRS. LIAO AND HASAN DELIVER INVITED TALK



# DR. LEMLEY PRESENTS TWO INVITED LECTURES AT THE 2020 SOCIETY FOR THERIOGENOLOGY CONFERENCE

**The 2020 Society for Theriogenology Conference was held virtually from July 22 – 25, 2020. During this year's meeting, Dr. Caleb Lemley presented back-to-back 1-hour lectures on Saturday, July 25th in the Production Animal Track session sponsored by Lane Manufacturing, Inc. Dr. Lemley's first talk titled "Fetal Programming: Maternal-Fetal Interactions" focused on environmental stimuli or insults during pregnancy which alter placental functional capacity and fetal development. Dr. Lemley's second talk titled "Fetal Programming: Postnatal Performance" focused discussion on the overwhelming evidence linking size morphometrics at birth with lifelong consequences to livestock production and fertility.**

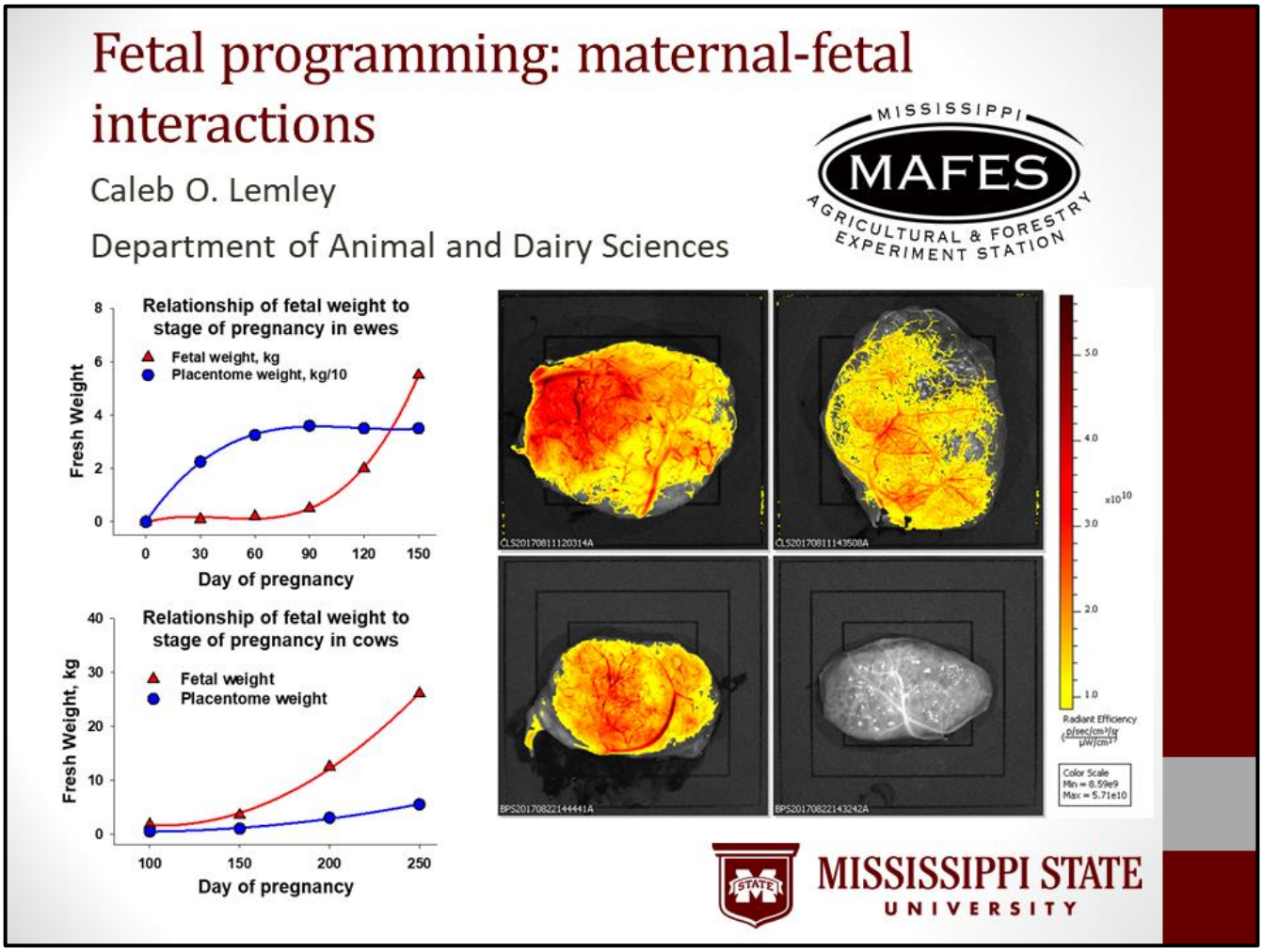
**The mission of the Society for Theriogenology is "to promote standards of excellence in reproductive medicine, to provide outreach and education to veterinarians, and to foster continual improvements in theriogenology". Information from Dr. Lemley's talks were compiled into a proceedings paper that will be published in Clinical Theriogenology September 2020 issue.**

**The full citation for this conference proceeding is as follows: Lemley, C.O. 2020. Fetal programming: maternal-fetal interactions and postnatal performance. Clinical Theriogenology, Volume 12, Number 3, Page 252-267.**

***Submitted by Dr. Caleb Lemley.***

**Dr. Caleb Lemley**

# DR. LEMLEY PRESENTS TWO INVITED LECTURES AT THE 2020 SOCIETY FOR THERIOGENOLOGY CONFERENCE




Society for Theriogenology
Veterinarians Dedicated to Animal Reproduction

# PHOTO CONTRIBUTION FROM ZULLY CONTRERAS-CORREA

**Zully Contreras-Correa is a graduate student in the Department of Animal and Dairy Sciences working with Dr. Caleb Lemley. Here is a photo, courtesy of Zully with Magnolia Farm Photography, of cattle on the MSU South Farm enjoying the water.**

# ADS GRADUATE STUDENT HEADS TO KSU

**Alicia Gilmore, an Animal & Dairy Sciences masters student, completed her graduate degree this summer after successfully defending her thesis titled "The molecular and cellular dynamics of Holstein bull spermatozoa." Alicia's graduate committee consisted of Dr. Erdogan Memili (co-advisor), Dr. Molly Nicodemus (co-advisor), and Dr. Dean Jousan (committee member).**

**During her time at Mississippi State University, Alicia was the teaching assistant for ADS 3221 Practices in Horse Care & Management. She was also able to assist with several research projects in both dairy cattle and equine. Last summer she traveled to the Equine Science Society Meeting to present research on one of her projects regarding teaching.**

**Her interest in both reproduction and equine is taking her to Kansas State University where she will be pursuing a Ph.D. in equine reproduction under the guidance of Dr. Joann Kouba. Along with researching cryotolerance in equines at KSU, Alicia will be assisting with teaching the equine health, equine management, and equine reproduction laboratories, along with the colt starting class.**

**Outside of her teaching and research responsibilities at KSU, Alicia will be helping with foaling and breeding activities at the KSU Equine Unit. Alicia is excited about starting her Ph.D. program at KSU this fall and feels she is well prepared after her experience at MSU in the ADS graduate program.**

***Submitted by Dr. Molly Nicodemus.***


**Graduate Student Alicia Gilmore showing off her new jersey as she gets ready to head to Kansas State University to work on her Ph.D.**

# DR. MEMILI RECEIVES USDA NIFA FUNDING

**Dr. Memili, Professor in the Department of Animal and Dairy Sciences, received $20,000 in competitive funding from the USDA NIFA for the Association for Applied Animal Andrology's (AAAA) International Conference. However, the conference was scheduled to be in Italy in June 2020 was canceled (http://animalandrology.org/futuremeetings.htm), so the funding will be used for the future conference.**

**Dr. Erdogan Memili**

**Dr. Memili was one of the plenary conference speakers and had a conference paper published in the Journal of Animal Reproduction Science (see below in ADS Publications). He has also been elected for the Board of Directors for the AAAA and will also be serving on the Publications/Editorial Task Force.**

***Submitted by Dr. Erdogan Memili.***

Association for Applied **Animal Andrology**

# DR. HEATON ACCEPTS POSITION AT AUBURN

**Greetings! I just wanted to take a quick moment to thank everyone for the guidance and support during my time as a graduate student at Mississippi State. I'm excited to announce that I have accepted a job at Auburn University as their Equine Science Lecturer beginning August 17th.**

**I'm looking forward to teaching as well as collaborating with others on equine research. I wanted to sincerely thank everyone who has had a hand in my education and impacted me in more ways than I can think of. I am so grateful for the opportunities I have had while at Mississippi State University and look forward to what the future holds! Thank you, and Gig 'em /Hail State/War Eagle!**

***Submitted by Dr. Courtney Heaton.***

Logo from https://ansc.auburn.edu/

Dr. Courtney Heaton

# 2020 REFEREED PUBLICATIONS (27 total)

**Memili, E.**, A.A. Moura, and A. Kaya. 2020. Metabolomes of sperm and seminal plasma associated with bull fertility. Animal Reproduction Science. Article in Press: https://doi.org/10.1016/j.anireprosci.2020.106355.

Becker, C.A. and **A.E. Stone**. 2020. Graduate Student Literature Review: Heat abatement strategies used to reduce negative effects of heat stress in dairy cows. Journal of Dairy Science. 103:article in press. https://doi.org/10.3168/jds.2020-18536.

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# 2020 REFEREED PUBLICATIONS (27 total)


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# 2020 REFEREED PUBLICATIONS (27 total)


**Stone, A.E.** 2020. Symposium review: The most important factors affecting adoption of precision dairy monitoring technologies. Journal of Dairy Science. 103(6). https://doi.org/10.3168/jds.2019-17148.

To, K.V., X. Zhang, W. Shao, J.D. Hendrix, M.D. Byron, Y.L. Campbell, T.W. Phillips, **T. Dinh**, and M.W. Schilling. 2020. The effects of dry-cured ham initial water activity on *Tyrophagus putrescentiae* infestations. Journal of Stored Products Research. 87:101069. https://www.sciencedirect.com/science/article/abs/pii/S0022474X20300540?via%3Dihub

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Gomes, F. P., J. K. Diedrich, A. J. Saviola, **E. Memili**, A. Moura, and J. R. Yates III. 2020. EThcD and 213 nm for top-down analysis of bovine seminal plasma proteoforms on electrophoretic and chromatographic time frames. Analytical Chemistry. 92(4): 2979-2987. https://pubs.acs.org/doi/10.1021/acs.analchem.9b03856.

Ugur, M. R., **T. Dinh**, M. Hitit, A. Kaya, E. Topper, B. Didion, and **E. Memili**. 2020. Amino acids of seminal plasma associated with freezability of bull sperm. Frontiers in Cell and Developmental Biology. 7(347). https://www.frontiersin.org/articles/10.3389/fcell.2019.00347/full.

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