

Animal and Dairy Sciences



OUR MISSION:

Our faculty are committed to serving the citizens of this state through teaching, research and extension programs. Research and extension centers are located strategically throughout the state.

Animal research facilities at Leveck Animal Research Center, Bearden Dairy Cattle Research Center, Prairie Research Unit, Brown Loam Research Station, and the White Sands Unit give faculty opportunities to investigate the challenges facing the livestock industry.

Our Mission is to provide science-based solutions for animal agriculture through innovative and effective education, research and extension programming. Our Vision is Building the Future of Agriculture.

In This Issue:

ADS Study Abroad

4-H Livestock Judging Contest

American Dairy Science Association Conference

4-H Youth Development
Craft Camp 2

Dr. Memili visits LSU
Equine Science Society Symposium

Equine Science Society Symposium

ADS History - Sammy Blossom

MSU Livestock Judging Camp

Drink Milk T-Shirt

Dairy Cow Camp

Upcoming Extension Events

Refereed Publications

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MSU students recently completed a successful study abroad trip to Guatemala where students and faculty provided hands-on rabbit production training in the Western Highlands area. Many in this poverty stricken area have limited access to adequate nutrition. More than 59% of the population lives on less than \$2.00 per day and over 40% of the children are physically and/or developmentally stunted due to inadequate nutrition.

Many more suffer from “hidden hunger” in which overall body condition appears normal but due to inadequate nutrition or scarcity of essential nutrients, their growth and developmental trajectory has been permanently altered or compromised. Based on a survey conducted with the affected populations, we’ve determined that the women in these community are responsible for preparing meals for about 10 people including children and adults in their household. They also noted that they were only able to feed their families meat an average of 1.5 times a week or less.

The MSU team and The Guatemala Rabbit Project aims to provide technical training to these women in the Western Highlands who desire to increase household access to and consumption of high quality and nutritious animal protein.



The Guatemala Livestock Education Program, a faculty lead study abroad program developed by Ms. Jessica Graves, is in its 3rd year and for the first time being offered as a community-engaged learning course.

Each spring, students work to develop educational materials related to various livestock management practices that are then disseminated in Guatemala to a variety of audiences —Ministry of Agriculture, Food and Livestock Extensionistas, farmers, and sometimes children.

Students are not only “teachers” while in Guatemala, but also take on the role of “student”. They are able to learn more about the “Farm-to-Table” concept in Guatemala as they gain hand-on experience working alongside local veterinarians in addition to livestock and meat market owners. These invaluable experiences equip students with a variety of soft skills such as critical thinking, communication, and cultural awareness and competency.

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This year's project focuses on rabbit production for which students have prepared educational material with a "Farm-to-Table" approach. Over the course of the last several weeks, they have assumed all responsibilities related to rabbit production from building a hutch and caring for rabbits daily to harvesting and preparing a wholesome and delish meal.

Ms. Jessica Graves teamed up with Drs. Derris Burnett, Carla Jagger, and Mr. Tim Armstrong this semester to provide students with additional leadership and expertise in preparation for the in-country experience. Before leaving for Guatemala, the students were engaged in a hands-on learning experience in which they developed and implemented a rabbit management program and raised 7 meat rabbits to hone their husbandry skills.

The students were responsible for building the rabbit hutch and then feeding, watering, and monitoring the health of the rabbits daily for 4 weeks. Once the rabbits reached the appropriate size, the rabbits were harvested by the students at the Meat Science and Muscle Biology lab and then cooked using various methods similar to those available to the women in Guatemala.



Based on their husbandry experience, the students then developed instructional materials to train the women in Guatemala how to raise, breed, feed, and harvest rabbits as an efficient and effective source of high quality protein for their families.

The students delivered these interactive workshops to three separate highland communities (Santa Maria Chiquimula, San Cristobal, and Momostenango). The students were well received and their passion was evident and appreciated by their target audiences. By introducing the 35+ women (each of whom are responsible for feeding over 10 people each) to the principles and practices of rabbit husbandry and harvest, they were able to impact the lives of over 300 residents of the highlands . The merits of this program will continue to spread amongst the impacted communities and thus magnify our impact across many families in the years t come. We look forward to following up with the families and our in-country partners and will provide updates as they become available.

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JUNIOR AND SENIOR 4-H STATE LIVESTOCK JUDGING

The Junior and Senior State 4-H Livestock Judging Contest, held on May 25 at the MSU South Farm, ran extremely smooth and those that assisted with the contests are to be commended. In the junior livestock judging contest, we had 46 contestants and 12 teams, while the senior contest had 37 contestants and 9 teams.

Congratulations to the junior team from Simpson County who won 1st place and to the senior team from Lincoln County for winning the senior livestock judging contest. An extensive list of photographs can be found on the Mississippi 4-H Livestock and Horse Programs Facebook page located at <https://www.facebook.com/Mississippi-4-H-Livestock-and-Horse-Programs-763274590406280/?ref=bookmarks>.

Thanks to the contest sponsors – Mississippi Beef Council and Mississippi Pork Producers Association. A big thank you goes to those who provided livestock for the judging contest. Finally, thank you to Brett Crow and his judging team members (past and present) for officiating the contest.



Simpson 4-H: Sy Sullivan, Paxten Wolken, Mattie Welch

1st Place - Juniors



1st Place - Seniors

L-R: Lincoln 4-H: Will Watts (coach/volunteer), Mary Beth Ainsworth, Kathryn Johnson, Whitney Watts, Madelyn Boyd, Jennifer Williams (Extension Agent).

JUNIOR AND SENIOR 4-H STATE LIVESTOCK JUDGING



High Point - Juniors

Front row (L to R): 1stPlace: Sadee Dickens, Covington 4-H; 2ndPlace: Ayden Wolken, Simpson 4-H; 3rdPlace: Sy Sullivan, Simpson 4-H; 4thPlace: Grace Randle, Pontotoc 4-H; 5thPlace: Mattie Welch, Simpson 4-H. Back row (L to R): 6thPlace: Mary Bradley Woods, Covington 4-H; 7thPlace: Haley Grace Welch, Simpson 4-H; 8thPlace: Leighton Horton, Pontotoc 4-H; 9thPlace: Paxten Wolken, Simpson 4-H, 10thPlace: Josef Lowery, Covington 4-H.



High Point - Seniors

Front row (L to R): 1stPlace: Kathryn Johnson, Lincoln 4-H; 2ndPlace: Mary Beth Ainsworth, Lincoln 4-H; 3rdPlace: Whitney Watts, Lincoln 4-H; 4thPlace: Ian Johnson, Lincoln 4-H; 5thPlace: Shelby Young, Covington 4-H. Back row (L to R): 6thPlace: Luke Sanders, Marion 4-H; 7thPlace: Tucker Woods, Covington 4-H; 8thPlace: Madalyn Boyd, Lincoln 4-H; 9thPlace: Hannah Buse, Jones 4-H; 10thPlace: Laney Anderson, Lincoln 4-H.

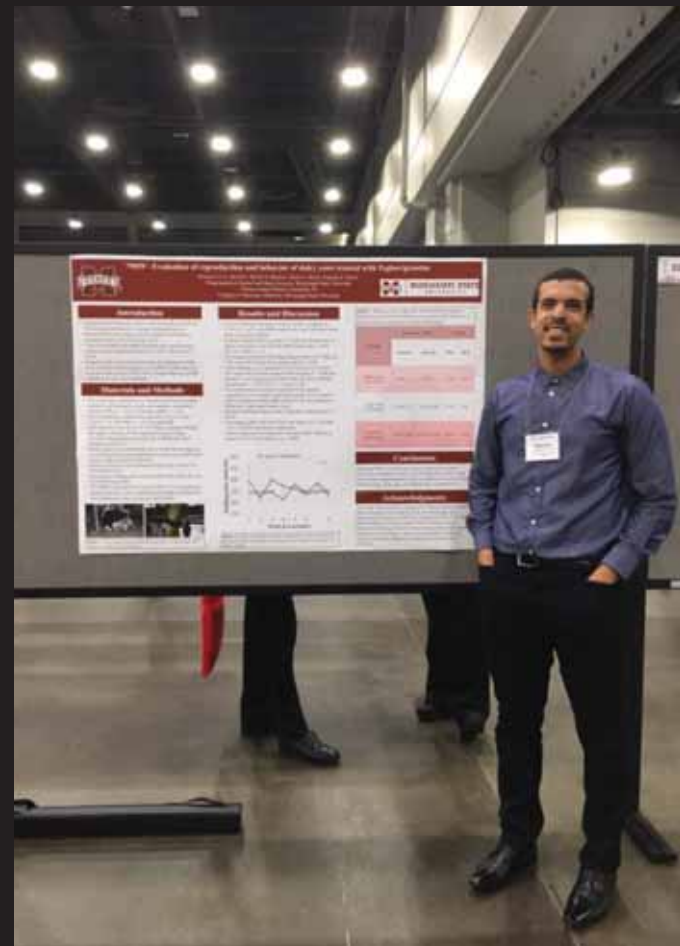
ADS Staff & Students attend ADSA Conference in Ohio

Dr. Stone, 2 graduate students, and 2 undergraduate students were able to attend the American Dairy Science Association meeting in Ohio this week.

Mauricio presented a poster and an oral presentation on his Master's work, Malik presented in the undergraduate production competition, and

Dr. Stone presented on precision dairy monitoring technologies in a symposia talk. The students did awesome and represented MSU so well!

They all learned a lot and had fun!



4-H Youth Development

The State Staff and Agents completed another very successful 4-H Club Congress on the MSU main campus with over 500 registered 4-Hers.

Congratulations to Dr. Dean Jousan, our Extension Agents, the Ag Comm and CTO staff and the Dixie National Sale of Junior Champions committee for a successful 50th anniversary celebration. Agents and Volunteers brought over 1200 4-Hers to the Show.

To protect our 4-H'ers, we made a change to the 4-H equestrian helmet policy. All 4-H'ers involved in riding events must wear a protective helmet while mounted on a horse.



Dr. Memili visits LSU

During June 19 and 20, 2019, Dr. Erdogan Memili visited with Dr. Zonliang (Carl) Jiang and the other faculty in the School of Animal Sciences at the Louisiana State University (LSU) to explore collaborations in the land-grant missions. Dr. Memili also gave a seminar “Sperm Functional Genome Associated with Male Fertility” at LSU’s College of Veterinary Medicine on June 20, 2019.



The flyer features the LSU logo (Louisiana State University) and the LSU AgCenter logo in the top corners. The text reads: "SEMINAR", "Erdogan Memili, D.V.M, Ph.D.", "Professor", "Department of Animal and Dairy Sciences", "Mississippi State University". Below this is a portrait of Dr. Memili. At the bottom, the seminar title is written in red: "Sperm Functional Genome Associated with Male Fertility".



ADS Equine Students Represent MSU at the 2019 Equine Science Society Symposium



As the equine program grows within the Animal & Dairy Sciences Department, research activities within the department have also grown in the areas of equine nutrition, reproduction, exercise physiology, teaching, and extension.

This growth was seen at this summer's Equine Science Society (ESS) Symposium in Asheville, North Carolina where the department was represented by nine graduate and undergraduate students presenting both poster and oral presentations including several students competing in the graduate and undergraduate student competitions.

This year's ESS Symposium compared to past ESS Symposiums was the largest showing of ADS students presenting research. Additional research was also presented at ESS by MSU veterinary students in the College of Veterinary of Medicine, and between the two programs, MSU had one of the largest representation of students compared to other college programs at ESS.

ADS HISTORY



Growing up on a small dairy, beef, and sheep farm in Scott County, Sammy Blossom developed a lifelong interest in livestock. He showed cattle and lambs during his high school years and served as a state officer of FFA and the Junior Hereford Association. While enrolled in Animal Science at Mississippi State, he was a member of Dr. Leroy Boyd's 1968 Livestock Judging Team. Blossom says, "I received more life skills and met more lasting friends through judging than anything else I experienced at MSU. I don't know any activity that is better than judging to acquire traits of leadership, discipline, and logical thinking."



Read the whole article on the Mississippi State University Livestock Judging Facebook page

Livestock Judging Camp

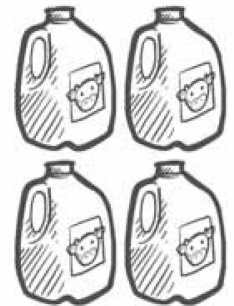




Hail State & Drink Milk!



One
\$20 shirt =



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MILK DONATED

SUPPORT MISSISSIPPI DAIRY PRODUCERS AND FOOD BANKS

register.extension.msstate.edu/hail-state-and-drink-milk

For more information, contact Dr. Amanda Stone at amanda.stone@msstate.edu.

JULY 22-23, 2019
10 a.m. Monday-3 p.m. Tuesday
MISSISSIPPI HORSE PARK


MISSISSIPPI STATE
UNIVERSITY

EXTENSION

Dairy Cow Camp

"Moove" to the top of the show ring at your next dairy competition!



Spend two days with judging
and showmanship experts!
Bring your animal! (for an additional fee)

Camp will be held at
MISSISSIPPI HORSE PARK
869 East Poor House Road
Starkville, MS 39759

Cost: \$100/camper | \$22/animal
Free for parents/chaperones

Get your printable registration form at
extension.msstate.edu/dairy-cow-camp

Fill out the form and make checks out to MSU Foundation.
Mail to Dr. Amanda Stone at
Box 9815, Mississippi State, MS 39762

Your registration **MUST** be
postmarked no later than June 21!

Questions? Contact Dr. Amanda Stone at
(662) 769-9941.

Thanks to our generous sponsors!



The Mississippi Horse Park is a division of the MSU Extension Service and a partnership of the City of Starkville and Oktibbeha County.

Produced by Agricultural Communications.

Mississippi State University is an equal opportunity institution. For disability accommodation, please contact Amanda Stone at (662) 769-9941 or amanda.stone@msstate.edu.

KEEP UP WITH US ON
FACEBOOK



<https://www.facebook.com/Mississippi-State-University-Animal-Dairy-Sciences-153818701305363/>

Upcoming Extension Events

Dr. Brandi Karisch, Extension Beef Specialist

July 17-18 - Deep South Stocker Conference, Athens, GA

Dr. Amanda Stone, Extension Dairy Specialist

July 22-23 - Dairy Cow Camp, Mississippi Horse Park, Starkville

Dr. Dean Jousan, Extension 4-H Livestock Specialist

August 31 - Southern Regional 4-H Horse Championship, Perry, GA

Dr. Clay Cavinder, Extension Equine Specialist

2019 Refereed Publications

- 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>
- 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>

2019 Refereed Publications

- 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>.