

ANIMAL & DAIRY SCIENCES



IN THIS ISSUE:

- DR. AMANDA STONE - GRANT AWARD
- DR. JEAN FEUGANG MEETS THE WORLD'S FIRST IVF BABY
- MAURICIO XAVIER - EXT. PUBLICATION
- BREAKFAST ON THE FARM SUCCESS
- STUDENT SPOTLIGHT
- FOLLOW US ON SOCIAL MEDIA
- NEW CLASS
- SPRING AI CLASS
- BEEF EXPO
- UPCOMING EVENTS
- 2018 PUBLICATIONS

MISSISSIPPI STATE UNIVERSITY

\$1.1 MM GRANT AWARD TO DR. AMANDA STONE

Dr. Stone along with her collaborators received a \$1.1 million grant award from the Substance Abuse and Mental Health Services Administration (SAMHSA) within the Department of Health and Human Services.

The project title is: “PREventing Opioid Misuse In the SouthEast: The PROMISE Initiative 2.0.” The main goal is to expand efforts to help combat the opioid epidemic in rural Mississippi, which is an area Dr. David Buys (lead PI) is actively involved with.

This project is exciting in that it will have specific aim within Extension focusing on agriculture producers.

There are 9 objectives in this project, one of which, Dr. Stone will be recruiting and training Extension agents and 4-H volunteers on presenting strategic, brief education on mental illnesses, substance use disorders, and opioid misuse prevention strategies with rural families, including ag producers and youth.

David Buys (FSNHP) is the lead, and Alisha Hardman (Human Sciences) and Holli Seitz (Communications) are also co-PIs along with Dr. Stone.



MEETING MRS. LOUISE BROWN, THE WORLD'S FIRST IVF BABY

Meeting Mrs. Louise Brown, the World's first IVF baby

Dr. Jean M Feugang recently participated, as an invited speaker, to the 23rd annual meeting of the French Federation of the Study of Reproduction (*Fédération Française d'Étude de la Reproduction* – FFER-SFEF) held in the city of Lyon, from September 12th to 14th, 2018. This meeting was an excellent forum that gathered over 600 researchers and biomedicine professionals (clinicians and veterinarians) in the reproduction field to discuss recent scientific advances and their implications in clinical practices. Dr. Feugang presented a part of his research effort to enhancing animal reproduction through nanotechnology.

This year's meeting coincided with the 40th anniversary of the development of the in vitro fertilization (IVF) technique, which culminated with the birth of the world's first IVF baby in July 25th, 1978. This remarkable medical success by Drs. Steptoe and Edwards revolutionized the clinical practices around the world and launched an ever uprising number of couples undergoing IVF for infertility treatment or fertility maintenance or restoring. Considered as one of the greatest achievement of the 20th century, Dr. Robert G. Edwards received the *Nobel Prize in Physiology or Medicine 2010* "for the development of in vitro fertilization."

Dr. Feugang had the honor to be introduced to Mrs. Louise Brown, the surprise guest of this year's meeting.



MEETING MRS. LOUISE BROWN, THE WORLD'S FIRST IVF BABY

40 Years of IVF – Louise Brown the World's first IVF baby at 40

By Patrick Steptoe and Edwards (2010 Nobel Prize)

July 25 was Louise Brown's 40th birthday and the fortieth anniversary of the first successful IVF birth!

Born at Westchester fertility - Reproductive Endocrinology

In July 25 1978, Louise Brown, the World's first IVF baby was born, which launch an ever uprising number of couples undergoing IVF for infertility treatment or fertility maintenance or restoring.



The birth of Louise Brown on July 25th 1978 revolutionized clinical practice. This achievement of Steptoe and Edwards, one of the great medical advances of the 20th century, was significant for many reasons. Nothing is more important for most of us than the birth of our children. Moreover, the publicity openly highlighted the burden of childlessness. There have now been over six million births following *in vitro* fertilization (IVF) contributing to great happiness of many families; this, indeed, is an anniversary to celebrate. An account of the lengthy struggle of Steptoe and Edwards is (Johnson & Elder 2015) in an analysis of the records at Oldham General Hospital and at Cambridge. Edwards won the Nobel Prize for Physiology in 2010 and many tributes have been paid to him. We sometimes forget how Jean Purdy, the third member of this pioneering team, was also critically important. A brief video in which Professor Winston celebrates the remarkable achievement of the delivery of the world's first baby born after IVF is also available (Video 1). Professor Winston also points out that forty years on, the success rate for each IVF treatment cycle commenced still remains low with around a 20% live birth rate. It tends to be even less successful than this in women over 35 years old, paradoxically the age group when many if not most IVF cycles are done. This anniversary should be a reminder that much more research is needed to improve results.



understanding what makes a good embryo. IVF → absolutely misery to get pregnant and massive emotional and financial costs.

Success celebration but a moment of reflection as the success rate plateaus at 20% (/cycle) around the world. Could be higher if transferring multiple eggs (26% in the US) → Need for research on IVF improvements, hormonal environment to reduce rate of aneuploidy eggs, improve male fertility, and research in implantation → 3 key areas to improve success rates and



MAURÍCIO XAVIER EXTENSION PUBLICATION

<http://extension.msstate.edu/sites/default/files/publications/publications/p3274.pdf>



Mississippi State University Extension Dairy

4 hrs · 🌐

Master's student **Maurício Xavier** recently finished this Extension publication on calf care. Check it out by clicking this link!

<http://extension.msstate.edu/.../dairy-calf-management-birth-...>



EXTENSION.MSSTATE.EDU

Dairy Calf Management: From Birth to Weaning | Mississippi State University Extension Service

SUCCESSFUL BREAKFAST ON THE FARM!!

Breakfast on the Farm 2018 is officially a wrap! We had the best time welcoming school groups and families to our farm Thursday to Saturday - ending up with over 1,200 attendees!

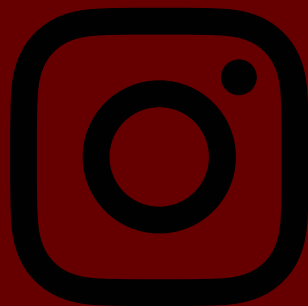


STUDENT SPOTLIGHT

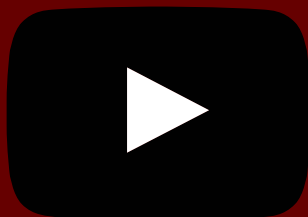
Kate Parsons, from Columbia, Tennessee, is a senior Mississippi State University Animal & Dairy Sciences major with a minor in International Studies in Agriculture. She says, "I knew Animal and Dairy Sciences would push me out of my comfort zone while providing me with the animal science knowledge I need to reach my goals."



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<https://www.youtube.com/user/MSUAgandLifeSciences>



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https://twitter.com/MSU_AG

NEW COURSE OFFERING FOR ANYONE INTERESTED IN VET SCHOOL OR PURSUING A CAREER WITH LIVESTOCK



THE DETAILS

Immunology and Disease in Large Livestock Species

Spring 2019 - ADS4633/6633 - MWF 10 to 10:50 - Dr. Stone

Also being offered online (Campus V) for schedule flexibility

TOPICS WILL INCLUDE

- **The function and dynamics of the cattle and equine immune systems and what mechanisms aid in detection and defense within the body**
- **How vaccines work, how they differ, and when they are appropriate to use**
- **Differences in antibiotics, appropriate uses, and the importance of withholding**
- **Various diseases and health issues within equine and beef and dairy cattle, including why, when, and how these problems occur and their impact**
- **Why disease is an animal welfare issue.**
- **What are practical methods of disease control and their importance**

MISSISSIPPI STATE ANIMAL & DAIRY SCIENCES

CONTACT DR. STONE AT AES784@MSSTATE.EDU FOR MORE INFORMATION

SPRING AI SCHOOL

Registration for Spring 2019 Artificial Intelligence School is now available. The Course will be held March 14-16, 2019, and registration is \$450.

Email Brandi Karisch at brandi.karisch@msstate.edu for more information



**NORTH
MISSISSIPPI
BEEF EXPO**

**PLEASE JOIN US FOR THE
2018 NORTH MISSISSIPPI
BEEF EXPO**

**OCTOBER 26, 8:00 A.M., BATESVILLE CIVIC CENTER
290 CIVIC CENTER DRIVE, BATESVILLE, MS 38606**

8:00- Registration

9:00- Gene Lowery

"Preparing Cattle for the Feedlot Stage"

9:45- Dr. Jason Banta: Nutrition

"Pre-Weaning and Pre-Conditioning"

10:30- Break and Trade Show

11:00- Dr. Amelia Woolums: Stocker Health

"Disease Diagnosis and Prevention"

11:45- Lunch and Trade Show

12:45- Andy Berry: MS Cattlemen's Association

1:15- Producer Panel



**MISSISSIPPI STATE UNIVERSITY™
EXTENSION**



For more information, contact Lance Newman at lance.newman@msstate.edu or 662-832-4586.

UPCOMING EXTENSION EVENTS

Beef Extension - Dr. Brandi Karisch & Cobie Rutherford

Oct. 20-21, 2018 MSU Artificial Insemination Insemination School, MSU Campus

Oct. 26, 2018 North MS Beef Expo, Batesville, MS

Phone: (662) 325-7465 or brandi.karisch@msstate.edu

(662) 325-4344 or cobie.rutherford@msstate.edu

Beef Calendar: <http://extension.msstate.edu/livestock/beef/beef-calendar>

Dairy Events - Dr. Amanda Stone

Phone: (662) 325-8773 or Email: amanda.stone@msstate.edu

Website: <http://extension.msstate.edu/dairy>

4-H Events - Dr. Dean Jousan

October 3-14 Mississippi State Fair, Jackson, MS

Phone: (662) 325-2424

Email: dj230@msstate.edu

[www.http://extension.msstate.edu/4-h](http://extension.msstate.edu/4-h)

Equine Events - Dr. Clay Cavinder

Contact Dr. Cavinder for information about programs and events.

Phone: (662) 325-7566 or clay.cavinder@msstate.edu

Website <http://extension.msstate.edu/agriculture/livestock/equine/upcoming-programs>

2018 Refereed Publications

- Dinh, T.T.N.**, J.F. Legako, M.F. Miller, J.C. Brooks. Effects of USDA quality grade and cooking on water-soluble precursors of beef flavor. *Meat Science*. 146 (2018) 122-130. <https://doi.org/10.1016/j.meatsci.2018.08.008>.
- Littlejohn, Brittni P., David G. Riley, Thomas H. Welsh, Jr, Ronald D. Randel, **Scott T. Willard**, and **Rhonda C. Vann**. Use of random regression to estimate genetic parameters of temperament across an age continuum in a crossbred cattle population. *Journal of Animal Science*. 2018. 96:2607–2621. doi: 10.1093/jas/sky180.
- Vu, P. T. T., A. J. Holtcamp, A. T. Sukumaran, M. V. V. Le, D. H. Nguyen, & **T. T. N. Dinh**. (2018). Effects of market type and time of purchase on oxidative status and descriptive off-odors and off-flavors of beef in Vietnam. *Meat science*, 145, 399-406. <https://doi.org/10.1016/j.meatsci.2018.07.018>.
- Ishak, G. M. , S. T. Bashir, G. A. Dutra, G. D. A. Gastal, M. O. Gastal, **C. A. Cavinder**, **J. M. Feugang**, and E. L. Gastal. In vivo antral follicle wall biopsy: a new research technique to study ovarian function at the cellular and molecular levels. *Reproductive Biology and Endocrinology* (2018) 16:71. <https://doi.org/10.1186/s12958-018-0380-8>.
- Humphrey, R. M., Z. Yang, M. S. Hasan, **M. A. Crenshaw**, **D. D. Burnett**, J. K. Htoo and **S. F. Liao**. The compensatorily -gained pigs resulted from feeding a methionine-deficient diet had more fat and less lean body mass. *Journal of Applied Animal Nutrition*, Vol. 6; e6; page 1 of 7. <https://doi.org/10.1017/JAN.2018.5>.
- Griffin, Courtney M. , BS; Jenna A. Scott, BS; **Brandi B. Karisch, MS, PhD**; Amelia R. Woolums, DVM, MVSc, PhD, DACVIM, DACVM; **John R. Blanton, MS, PhD**; Ray M. Kaplan, DVM, PhD, DEVPC, DACVM; William B. Epperson, DVM, MS, DACVPM (Epidemiology); David R. Smith, DVM, PhD, DACVPM (Epidemiology). A randomized controlled trial to test the effect of on-arrival vaccination and deworming on stocker cattle health and growth performance. *The Bovine Practitioner*, Vol. 52, No. 1.
- Sun, Yuhang , Jin Liu, Gengping Ye, Fang Gan, Mohammed Hamid, **Shengfa Liao**, Kehe Huang. Protective effects of zymosan on heat stress-induced immunosuppression and apoptosis in dairy cows and peripheral blood mononuclear cells. *Cell Stress and Chaperones*. <https://doi.org/10.1007/s12192-018-0916-z>.
- Woolums, Amelia R., **Brandi B. Karisch**, Jonathan G. Frye, William Epperson, David R. Smith, **John Blanton Jr.**, Frank Austin, Ray Kaplan, Lari Hiott, Tiffanie Woodley, Sushim K. Gupta, Charlene R. Jackson, Michael McClelland. Multidrug-resistant *Mannheimia haemolytica* isolated from high-risk beef stocker cattle after antimicrobial metaphylaxis and treatment of bovine respiratory disease. *Veterinary Microbiology* 221 (2018) 143-152. <https://doi.org/10.1016/j.vetmic.2018.06.005>.
- Sukumaran, Anuraj T., Alexander J. Holtcamp, Yan L. Campbell, **Derris Burnett**, Mark W. Schilling, **Thu T.N. Dinh**. Technological characteristics of pre- and post-rigor deboned beef mixtures from Holstein steers and quality attributes of cooked beef sausage. *Meat Science*. 145 (2018) 71–78. <https://doi.org/10.1016/j.meatsci.2018.06.001>.
- Hart, CG, BE Voelz, KE Brockus, **CO Lemley**. Hepatic steroid inactivating enzymes, hepatic portal blood flow and corpus luteum blood perfusion in cattle. *Reproduction in Domestic Animals*. 2018;53:751–758.
- Camacho, L.E., **C.O. Lemley**, S.T. Dorsam, K.C. Swanson, K.A. Vonnahme. Effects of maternal nutrient restriction followed by realimentation during early and mid-gestation in beef cows. II. Placental development, umbilical blood flow, and uterine blood flow responses to diet alterations. *Theriogenology*. <https://doi.org/10.1016/j.theriogenology.2018.04.013>.

2018 Refereed Publications

- Lemley, C.O.**, L.E. Camacho, D.M. Hallford, K.A. Vonnahme. Uteroplacental secretion of progesterone and estradiol 17beta in an ovine model of intrauterine growth restriction. *Animal Reproduction Science*. 193 (2018) 68-78. <https://doi.org/10.1016/j.anireprosci.2018.04.001>.
- T. Williams, **B. Rude**, **S. Liao**, C. Mochal-King, **M. Nicodemus**. Effects of fat supplementation on plasma glucose, insulin and fatty acid analysis in ponies maintained on a forage- based diet. *Journal of Animal Physiology and Animal Nutrition*. 2018;1–8. DOI: 10.1111/jpn.12905.
- Gastal, G.D.A., **J.M. Feugang**, F.L.N. Aguiar, A.P.R. Rodrigues, J.M. Scimeca, G.A. Apgar, W.J. Banz, E.L. Gastal. Cryopreservation and in vitro culture of white-tailed deer ovarian tissue. *Theriogenology*. 113 (2018) 253-260.
- Velho, Ana Luiza Cazaux, Einko Topper, Erika Menezes, **Thu Dinh**, Abdullah Kaya, Arlindo Alencar Moura, **Erdogan Memili**. Metabolomic markers of fertility in bull seminal plasma. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0195279>.
- Owen, MPT , EN Ferjak, **CA Cavinder**, KJ McCarty, KC Yankey, CG Hart, **DD Burnett**, **TTN Dinh**, **CO Lemley**. Effects of body condition score (BCS) on steroid- and eicosanoid- metabolizing enzyme activity in various mare tissues during winter anoestrus. *Reproduction in Domestic Animals*. 2018;53:296–303. <https://doi.org/10.1111/rda.13104>.
- Park, Seong B., **Scott T. Willard**, Christy S. Steadman, Atul A. Chaudhari, Shreekumar R. Pillai, Shree R. Singh, **Peter L. Ryan** and **Jean M. Feugang**. Proteomic analysis of antimicrobial effects of pegylated silver coated carbon nanotubes in Salmonella enterica serovar Typhimurium. *Journal of Nanobiotechnology*. (2018) 16:31 <https://doi.org/10.1186/s12951-018-0355-0>.
- Cavinder, C. A.**, PAS, E. N. Ferjak, C. A. Phillips, **D. D. Burnett**, and **T. T. N. Dinh**. REVIEW: The importance of overall body fat content in horses. *The Professional Animal Scientist* 34:125–132. <https://doi.org/10.15232/pas.2017-01708>.
- Sukumaran, Anuraj T. , Alexander J. Holtcamp, April K. Englishbey, Yan L. Campbell, Taejo Kim, Mark W. Schilling, **Thu T.N. Dinh**. Effect of deboning time on the growth of Salmonella, E. coli, aerobic, and lactic acid bacteria during beef sausage processing and storage. *Meat Science* 139 (2018) 49–55.
- Wang, T., **M. A. Crenshaw**, N. Regmi, **B. J. Rude**, M. S. Hasan, A. T. Sukumaran, **T. Dinh**, and **S. F. Liao**. 2018. Effects of dietary lysine level on the content and fatty acid composition of the intramuscular fat in late-stage finishing pigs. *Canadian Journal of Animal Science*. 98: 241-249. DOI: [dx.doi.org/10.1139/cjas-2017-0083](https://doi.org/10.1139/cjas-2017-0083).
- Owen, M.P.T., K.J. McCarty, C.G. Hart, C.S. Steadman, **C.O. Lemley**. Endometrial blood perfusion as assessed using a novel laser Doppler technique in Angus cows. *Animal Reproduction Science*. 190 (2018) 119-126. <https://doi.org/10.1016/j.anireprosci.2018.01.015>.
- Feugang, Jean M.** , **Shengfa F. Liao**, **Scott T. Willard**, and **Peter L. Ryan**. In-depth proteomic analysis of boar spermatozoa through shotgun and gel-based methods. *BMC Genomics*. (2018) 19:62 DOI 10.1186/s12864-018-4442-2.
- Liao, Shengfa F.**, Naresh Regmi, Guoyao Wu. Homeostatic Regulation of Plasma Amino Acid Concentrations. *Frontiers in Bioscience, Landmark*. 23, 640-655, January 1, 2018.

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Feugang, Jean M. , Shengfa F. Liao, Scott T. Willard, and Peter L. Ryan. In-depth proteomic analysis of boar spermatozoa through shotgun and gel-based methods. *BMC Genomics*. (2018) 19:62 DOI 10.1186/s12864-018-4442-2.

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

2018 Book Chapters:

Jain, Sapna, Seong B. Park, Shreekmar R. Pillai, **Peter L. Ryan**, **Scott T. Willard** and **Jean M. Feugang**. Applications of Fluorescent Quantum Dots for Reproductive Medicine and Disease Detection. In *Unraveling the Safety Profile of Nanoscale Particles and Materials—From Biomedical to Environmental Applications*, Chapter 6, pp. 133-148, <http://dx.doi.org/10.5772/intechopen.72978>.