**W3112 - Reproduction in Domestic Ruminants**

**Publications – 2018-2019 Report**

**Book Chapters**

Missouri

1. Ky G. Pohler, Gessica A. Franco, Sydney T. Reese,and Michael F. Smith, 2019, Physiology and Pregnancy of Beef Cattle, In Animal Agriculture: Sustainability, Challenges and Innovations, Eds F.W. Bazer and G. C. Lamb, and G. Wu), Elsevier (In press)

Montana State

1. Anthony, R.V. and K.M. Jeckel. 2018. Placental Lactogen (CSH). In: M.K. Skinner (Ed.), Encyclopedia of Reproduction. vol. 2, pp. 502–507. Academic Press:Elsevier.

**Peer reviewed Journal Articles**

Arizona

1. Smith, K.E., W.G. Purvis, M.A. Davis, C.G. Min, A.M. Cooksey, C.S. Weber, J. Jandova, N.D. Price, D.S. Molano, J.B. Stanton, A.C. Kelly, L.V. Steyn, R.M. Lynch, S.W. Limesand, M. Alexander, J.R.T. Lakey, K. Seeberger, G.S. Korbutt, K.R. Mueller, B.J. Hering, F.M. McCarthy, K.K. Papas (2018). In Vitro characterization of neonatal, juvenile, and adult porcine islet oxygen demand, β-cell function, and transcriptomes. Xenotransplantation, 25(6):e13432.
2. Limesand, S.W., L.E. Camacho, A.C. Kelly, A.T. Antolic (2018). Impact of thermal stress on placental function and fetal physiology. Animal Reproduction 15(Supplement 1):886-898. http://dx.doi.org/10.21451/1984-3143-AR2018-0056.
3. Kelly, A.C., K.E. Smith, W.G. Purvis, C.G. Min, C.S. Weber, A.M. Cooksey, C. Hasilo, S. Paraskevas, T.M. Suszynski, B.P. Weegman, M.J. Anderson, L.E. Camacho, R.C. Harland, T. Loudovaris, J. Jandova, D.S. Molano, N.D Price, I.G. Georgiev, W.E. Scott 3rd, D. Manas, J. Shaw, D. O'Gorman, T. Kin, F.M. McCarthy, G.L. Szot, A.M. Posselt, P.G. Stock, T. Karatzas, W.J. Shapiro, R.M. Lynch, S.W. Limesand, K.K. Papas (2018). Oxygen perfusion (persufflation) of human pancreata enhances insulin secretion and attenuates islet proinflammatory signaling. Transplantation, 103(1):160-167.
4. Kelly, A.C., C.A. Bidwell, X. Chen, A.R. Macko, M.J. Anderson, S.W. Limesand (2018). Chronic adrenergic signaling causes abnormal RNA expression of proliferation genes in fetal sheep islets. Endocrinology, 159(10):3565-3578.
5. Hart, N.J., C. Weber, K.K. Papas, S.W. Limesand, J. Vagner, R.M. Lynch (2018). Multivalent activation of GLP-1 and sulfonylurea receptors modulates β-cell second messenger signaling and insulin secretion. American Journal of Physiology Cell Physiology, in press
6. Kelly, A.C., S.W. Limesand (2018). Classic solutions to a modern problem: exercise training improves metabolic disorders in offspring from fathers on a high fat diet. Journal of Physiology, in press.
7. Posont, R.J., K.A. Beede, S.W. Limesand, D.T. Yates (2018). Changes in myoblast responsiveness to TNFα and IL-6 contribute to decreased skeletal muscle mass in intrauterine growth restricted fetal sheep. Translational Animal Science 2(Suppl 1) S44-S47.
8. Hill, M.G., A.C. Kelly, K.L. Reed, S.W. Limesand (2019). Plasma markers of physiological stress in human fetuses will intrauterine growth restriction and abnormal umbilical artery Doppler velocimetry. American Journal of Clinical and Experimental Obstetrics and Gynecology, 5(1)1-7.
9. Jones, A., P.J. Rozance, L.D. Brown, D. Goldstrohm, W.W. Hay, Jr., S.W. Limesand, S.R. Wesolowski (2019). Sustained hypoxemia in late gestation potentiates hepatic gluconeogenic gene expression but does not activate glucose production in the ovine fetus. American Journal of Physiology - Endocrinology and Metabolism in press
10. Geisler CE, Ghimire S, Bogan RL, Renquist BJ. (2019) Role of ketone signaling in the hepatic response to fasting. Am J Physiol Gastrointest Liver Physiol. 316(5):G623-G631.

Colorado

1. Tríbul P, Rabaglino M, Bo M, Carvalheira L, Bishop J, Hansen T, Hansen P. Actions of dickkopf-related protein 1 on the morula-to-blastocyst stage embryo to program subsequent trophoblast elongation in the cow are indicative that DKK1 is a potential progestomedin. Scientific Reports 2019; In Press.
2. Morarie-Kane SE, Smirnova NP, Hansen TR, Mediger J, Braun L, Chase C. Fetal Hepatic Response to Bovine Viral Diarrhea Virus Infection in Utero. Pathogens 2018; 7.
3. Liebig BE, bishop JV, thomas MG, McSweeney KD, Van Campen H, Hansen TR. Fertility is associated with increased release and action of interferon tau in lactating Holstein cows. Dom. Anim. Endocriol 2018; SUBMITTED - in Revision.
4. Lenis YY, Johnson GA, Wang X, Tang WW, Dunlap KA, Satterfield MC, Wu G, Hansen TR, Bazer FW. Functional roles of ornithine decarboxylase and arginine decarboxylase during the peri-implantation period of pregnancy in sheep. J Anim Sci Biotechnol 2018; 9:10.
5. Jeckel KM, Boyarko AC, Bouma GJ, Winger QA, Anthony RV. 2018. Chorionic somatomammotropin impacts early fetal growth and placental gene expression. J. Endocrinol. 237:301-310*.*
6. West RC, McWhorter ES, Ali A, Goetzman LN, Russ JE, Gonzalez-Berrios CL, Anthony RV, Bouma GJ, Winger QA. 2019. HMGA2 is regulated by LIN28 and BRCA1 in human placental cells. Biol. Reprod. 100:227-238.

Connecticut

1. Govoni, K., Reed, S. A., & Zinn, S. (2019). Invited Symposium Review: Poor maternal nutrition during gestation: Effects on offspring whole body and tissue-specific metabolism in livestock species. *Journal of Animal Science*. <https://doi.org/10.1093/jas/skz157>
2. Martin, D., Jones, A., Pillai, S., Hoffman, M., McFadden, K., Zinn, S., Govoni, K., & Reed, S. A. (2019). Maternal Restricted- and Over-Feeding During Gestation Result in Distinct Lipid and Amino Acid Metabolite Profiles in the Longissimus Muscle of the Offspring. *Front. Physiol.* <https://doi.org/10.3389/fphys.2019.00515>.
3. Duan, J., Flock, K., Jue, N., Zhang, M., Jones, A., Seesi, S., Mandoiu, I. I., Pillai, S., Hoffman, M., O'Neill, R. J., Zinn, S., Govoni, K., Reed, S. A., Jiang, H., Jiang, Z., & Tian, X. (2019). Dosage Compensation and Gene Expression of the X Chromosome in Sheep. *G3: Genes, Genomes, Genetics*;9(1):305-314. doi: 10.1534/g3.118.200815.
4. Duan, J., Zhang, M., Flock, K., Seesi, S., Mandoiu, I. I., Jones, A., Johnson, E., Pillai, S., Hoffman, M., McFadden, K., Jiang, H., Reed, S. A., Govoni, K., Zinn, S., Jiang, Z., & Tian, X. (2018). Effects of maternal nutrition on the expression of genomic imprinted genes in ovine fetuses. *Epigenetics*. 13(8):793-807. doi:10.1080/15592294.2018.1503489.

Illinois

1. Stella, S. L., D. A. Acosta, C. Skenandore, Z. Zhou, A. Steelman, D. Luchini, and F.C. Cardoso. (2018). Improved uterine immune mediators in Holstein cows supplemented with rumen-protected methionine and discovery of neutrophil extracellular traps (NET). Theriogenology. 114:116-125.

Miles City - ARS

1. Waterman, R. C., M. K. Petersen, **T. W. Geary**, and L. T. Vermeire. 2018. Effects of reduced in utero and post-weaning nutrtion on glucose clearance measures and serum metabolites. Ag. Sci. 9:947-957.
2. Perry, G. A., T. W. Geary, J. A. Walker, J. J. J. Rich, E. J. Northrop, S. D. Perkins, C. L. Mogck, M. L. Van Emon, A. L. Zezeski, and R. F. Daly. 2018. Influence of vaccination with a combined chemically altered/inactivated BHV-1/BVD vaccine or a modified-live BHV-1/BVD vaccine on reproductive performance in beef cows and heifers. Bov. Pract. 52(1):53-58.
3. Abreu, F. M., M. A. Coutinho da Silva, L. H. Cruppe, M. L. Mussard, G. A. Bridges, B. R. Harstine, G. W. Smith, **T. W. Geary**, and M. L. Day. 2018. The role of progesterone concentrations during early follicular development: I. Characteristics of LH secretion and oocyte developmental competence. Anim. Reprod. 196:59-68.
4. Abreu, F. M., **T. W. Geary**, M. A. Coutinho da Silva, L. H. Cruppe, M. L. Mussard, C. A. Madsen, T. Martins, G. A. Bridges, B. R. Harstine, and M. L. Day. 2018. The role of progesterone concentrations during early follicular development: II. Ovulatory follicle growth and pregnancy rates in beef cattle. Anim. Reprod. 196:69-76.
5. Reese, S. T., T. W. Geary, G. A. Franco, J. G. N. Moraes, T. E. Spencer, and K. G. Pohler. 2019. Pregnancy associated glycoproteins (PAGs) and late embryonic mortality in high vs sub fertile heifers. Theriogenology 135:7-12.

Mississippi

1. McCarty, K. J., M. P. T. Owen, C. G. Hart, R. C. Thompson, D. D. Burnett, E. H. King, R. M. Hopper, and C. O. Lemley. 2018. Effect of chronic melatonin supplementation during mid to late gestation on maternal uterine artery blood flow and subsequent development of male offspring in beef cattle. Journal of Animal Science. 96:5100-5111.

2. Lemley, C. O., C. G. Hart, R. L. Lemire, E. H. King, R. M. Hopper, S. B. Park, B. J. Rude, and D. D. Burnett. 2018. Maternal nutrient restriction alters uterine artery hemodynamics and placentome vascular density in Bos indicus and Bos taurus. Journal of Animal Science. 96:4823-4834.

3. Hart, C. G., B. E. Voelz, K. E. Brockus, and C. O. Lemley. 2018. Hepatic steroid inactivating enzymes, hepatic portal blood flow, and corpus luteum blood perfusion in cattle. Reproduction in Domestic Animals. 53:751-758.

4. Lemley, C. O., L. E. Camacho, D. M. Hallford, and K. A. Vonnahme. 2018. Uteroplacental secretion of progesterone and estradiol-17beta in an ovine model of intrauterine growth restriction. Animal Reproduction Science. 193:68-78.

5. Owen, M. P. T., K. J. McCarty, C. G. Hart, C. S. Steadman, and C. O. Lemley. 2018. Endometrial blood perfusion as assessed using a novel laser Doppler technique in Angus cows. Animal Reproduction Science. 190:119-126.

Missouri

1. Wallace, R.M., M.L. Hart, T. E. Egen, M. F. Smith, K. G. Pohler, J. A. Green, 2019, Bovine pregnancy associated glycoproteins can alter selected transcripts in bovine endometrial explants.
2. Theriogenology (In press).
3. Thomas, JM, JWC Locke, RC Bonacker, ER Knickmeyer, DJ Wilson, R Vishwanath, AM Arnett, MF Smith, and DJ Patterson. 2019. Evaluation of SexedULTRA 4MTM sex-sorted semen in timed artificial insemination programs for mature beef cows. Theriogenology. 123:100-107.
4. Ortega, MS, JGN Moraes, DJ Patterson, MF Smith, SK Behura, SE Poock, and TE Spencer. 2018. Influences of sire conception rate on pregnancy establishment in dairy cattle. Biol. Reprod. 99(6):1244-1254.

Montana State

1. Thorson JF; Prezotto LD, Adams H; Petersen SL; Clapper JA; Wright EC; Oliver WT; Freking BA; Foote A; Berry E; Nonneman D; Lents CA. Energy balance affects pulsatile secretion of luteinizing hormone from the adenohypophesis and expression of neurokinin B in the hypothalamus of ovariectomized gilts. Biology of Reproduction 2018; 99(2):433-445.
2. Prezotto LD; Thorson JF; Borowicz P; Dorsan ST; Peine JL; Lents CA; Caton JS; Swanson KC. Influences of maternal nutrient restriction and arginine supplementation on visceral metabolism and hypothalamic circuitry of offspring. Domestic Animal Endocrinology 2018; 65:71-79.

Nebraska

1. Wood JR and AS Cupp. "Female Endocrinology-Aromatization" in Ovary Biology: Volume II: Female Reproduction in Encyclopedia of Reproduction, Reference Module in Biomedical Sciences. https://doi.org/10.1016/B978-0-12-801238-3.64642-1. 2018.

2. Romereim SM and AS Cupp. “Vascular Cells” in Testis Biology; Volume 1: Male Reproduction in Encyclopedia of Reproduction, Reference Module in Biomedical Sciences. https://doi.org/10.1016/B978-0-12-801238-3.64560-9. 2018.

3. McFee, RM, AS Cupp, JR Wood. Comparison of case-based and hands-on laboratory exercises as group-based learning activities to supplement veterinary physiology course lectures. Advances in Physiology Education. 2018 Jun 1;42(2):182-191. doi: 10.1152/advan.00084.2017.

4. Hamernik DL, Cupp AS, Davis JS. Triennial Reproduction Symposium: Looking back and moving forward-how reproductive physiology has evolved. J Anim Sci. 2018 Jun 29;96(7):2949-2951. doi: 10.1093/jas/sky148.

5. Tenley, SC , RS Gomes, SL Rosasco, EJ Northrop, JJ Rich, AK McNeel, AF Summers, JR Miles, CC Chase Jr, CA Lents, GA Perry, JR Wood, AS Cupp, RA Cushman. Maternal Age Influences the Number of Primordial Follicles in the Ovaries of Yearling Angus Heifers Anim Reprod Sci. 2019 Jan;200:105-112. doi: 10.1016/j.anireprosci.2018.12.004. Epub 2018 Dec 12.

6. Abedal-Majed, MA and AS Cupp. Livestock animals to study infertility in women. Invited Review; Animal Frontiers. 2019. In Press.

New Mexico

1. Runyan, C.L., S.Z. McIntosh, M.M. Maestas, K.E. Quinn, B.P. Boren, and R.L. Ashley. 2019. CXCR4 signaling at the ovine fetal-maternal interface regulates vascularization, CD34+ cell presence, and autophagy in the endometrium. Biology of Reproduction. Apr 20. pii: ioz073. doi: 10.1093/biolre/ioz073. [Epub ahead of print].
2. DeAtley, K., M. Colgrave, A. Canovas, G. Wijffels, R.L. Ashley, G. Silver, G. Rincon, J. Medrano, A. Islas-Trejo, M. Fortes, A. Reverter, L. Porto-Neto, S. Lehnert, and M. Thomas. 2018. Neuropeptidome of the hypothalamus and pituitary gland of indicine x taurine heifers: evidence of differential neuropeptide processing in the pituitary gland before and after puberty. Journal of Proteome Research. May 4;17(5):1852-1865. PMID: 29510626.
3. Gifford, C., B Aloqaily, and J. Hernandez Gifford. 2019. Managing the immune system for reproductive success in beef cattle. J. Anim. Sci. Accepted.

Pennsylvania

1. Liu, W.-S. (2019) Mammalian sex chromosome structure, gene content and function in male fertility. Annu Rev Anim Biosci.7,103-124. DOI: 10.1146/annurev-animal-020518-115332
2. Dechow, C., Liu, W.-S. (2018) DNA methylation patterns in peripheral blood mononuclear cells from Holstein cattle with variable milk yield. BMC Genomics 19, 744. DOI: 10.1186/s12864-018-5124-9.
3. Liu, W.-S., Ott, T. (2018). Sheep Overview. In M. K. Skinner (Ed.), Encyclopedia of Reproduction. vol. 1, pp. 515–520. Academic Press: Elsevier. http://dx.doi.org/10.1016/B978-0-12-809633-8.20511-6.
4. Zhang, Y.Y., Han D.P., Dong, X.G., Wang, J.K., Chen, J.F., Yao, Y.Z., Darwish, H.Y.A., Liu, W.-S., Deng, X.M. (2019) Genome-wide profiling of RNA editing sites in sheep. Journal of Animal Science and Biotechnology 10, 31. DOI: 10.1186/s40104-019-0331-z.

Texas

1. Littlejohn, B.P., D.G. Riley, T.H. Welsh, Jr., R.D. Randel, S.T. Willard and R.C. Vann. 2018. Use of random regression to estimate genetic parameters of temperament across an age continuum in a crossbred cattle population. J. Anim. Sci. 96:2607-2621. https://doi.org/10.1093/jas/sky180
2. Littlejohn, B.P., N.C. Burdick Sanchez, J.A. Carroll, D.M. Price, R.C. Vann, T.H. Welsh, Jr. and R.D. Randel. 2018. Influence of prenatal transportation stress on innate immune response to an endotoxin challenge in weaned Brahman bull calves. Stress: In Press. doi.10.1080/10253890.2018.1523895.
3. Littlejohn, B.P., D.M. Price, D.A. Neuendorff, J.A. Carroll, P. Riggs, D.G. Riley, C.R. Long, T.H. Welsh, Jr. and R.D. Randel. 2018. Prenatal transportation stress alters genome-wide DNA methylation in suckling Brahman bull calves. J. Anim. Sci.: In Press. doi:10.1093/jas/sky350.
4. Quail, L.K., M.E. Mund, D.A. Neuendorff, J.P. Banta, T.H. Welsh, Jr. and R.D. Randel. 2018. Relationships between numbers of antral follicles and postpartum interval in Brahman females. Theriogenology: In Press. doi:10.1016/j.theriogenology.2018.08.011.
5. Garza-Brenner, E., A.M. Sifuentes-Rincon, F.A. Rodriguez Alaweida, R.D. Randel, G.M. Parra-Bracamonte and W. Arellano Vera. 2018. Association of temperament genetic markers with feeding performance of yearling bulls. Rev. Colomb. Cienc. Pecu. 32(1):14-20.

Utah

1. Lambert R.M Stevens J.R. (2019) Evaluating the comparative performance of popular gene set test methods. Submitted to *BMC Bioinformatics*.
2. Stevens J.R., Herrick J.S., Wolff R.K., and Slattery M.L. (2018) Power from pairs: assessing the statistical value of paired samples in tests for differential expression. BMC Genomics 19:953.
3. Gauvin M., Pillai S., Reed S., Stevens J.R., Hoffman M., Jones A., Zinn S., and Govoni K. (2019) Poor maternal nutrition during gestation alters prenatal muscle growth and development in offspring. Under review.

Wyoming

1. Abreu FM; Coutinho da Silva MA; Cruppe LH; Mussard ML; Bridges GA; Harstine BR; Smith GW; Geary TW; Day ML. “Role of progesterone concentrations during early follicular development in beef cattle: I. Characteristics of LH secretion and oocyte quality.” Anim. Reprod. Sci. 196:59-68.2018.
2. Abreu FM; Geary TW; Coutinho da Silva MA; Cruppe LH; Mussard ML; Madsen CA; Martins T; Bridges GA; Harstine BR; Day ML. “Role of progesterone concentrations during early follicular development in beef cattle: II. Ovulatory follicle growth and pregnancy rates.” Anim. Reprod. Sci. 196:69-76.2018.
3. Alexander, B. M. 2018. Male reproductive behavior:  Sensory signaling in the brain of low-performing domestic rams. Invited Review. Journal of Animal Science 96:3003-3008. <https://doi.org/10.1093/jas/sky117>
4. Fensterseifer, S. R., K. J. Austin, S. P. Ford and **B. M. Alexander**. 2018. Effects of maternal obesity on maternal and fetal plasma concentrations of adiponectin and expression of adiponectin and its receptors in cotyledonary and adipose tissues at mid- and late-gestation in sheep. Animal Reproduction Science. 197:231-239*.* <https://doi.org/10.1016/j.anireprosci.2018.08.033>
5. Ghnenis, AB, JF Odhiambo; AM Smith, CL Pankey, PW Nathanielsz, SP Ford. Placental 11β-HSD2 May Not Perform a Placental Protective Function but Rather Act to Provide Substrate for Fetal Peripheral Cortisol Synthesis. Submitted PLOS ONE.
6. Harstine BR; Cruppe LH; Abreu FM; Rodrigues AD; Premanandan C; DeJarnette JM; Day ML. “Impact of a timed-release FSH treatment from 2 to 6 months of age in bulls I: Endocrine and testicular development of beef bulls.” Theriogenology 105:142 - 149. 2018.
7. Harstine BR; Cruppe LH; Abreu FM; Rodrigues AD; DeJarnette JM; Day ML. “Impact of a timed-release FSH treatment from 2 to 6 months of age in bulls II: Endocrinology, puberty attainment, and mature sperm production in Holstein bulls.” Theriogenology 105:142 - 149. 2018.
8. Smith, AM, CL Pankey, JF Odhiambo, AB Ghnenis, PW Nathanielsz, SP Ford. 2018. Reduced maternal nutrition during early- to mid-gestation elevates newborn lamb plasma cortisol concentrations and eliminates the neonatal leptin surge. J An Sci 96(7):2640-2645. doi: 10.1093/jas/sky215.
9. Sutton, C. M. **B. M. Alexander**. 2019. Ewes express greater proceptive behavior toward high-sexually active rams. Applied Animal Behavior. *Available online.* <https://www.sciencedirect.com/science/article/pii/S0168159118303976?via%3Dihub>

**Abstracts, Proceedings and Invited Presentations**

Arizona

1. Jones, AK, WW Hay Jr, LD Brown, PJ Rozance, SW Limesand, SR Wesolowski. 2018. Late gestation hypoxia increases norepinephrine and gluconeogenic expression to potentiate hepatic glucose production in fetal sheep. DOHaD US North Carolina.
2. Posont, RJ, KA Beede, SW Limesand, DT Yates (2018) Changes in myoblast responsiveness to TNFα and IL-6 contribute to decreased skeletal muscle mass in intrauterine growth restricted fetal sheep. Translational Animal Science, 2(1):S44-S47.
3. Kelly AC, CA Bidwell, SW Limesand. (2019) Comparative RNA Sequencing Reveals Common Responses in Metabolic Tissues Following Intrauterine Growth Restriction in Fetal Sheep. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract LB-027.
4. Luna Ramirez RI, AC Kelly, CA Bidwell, MA Davis, LE Camacho, MJ Anderson, SW Limesand. (2019) Norepinephrine Spares Adipose Tissue in Ovine Fetuses Complicated with Placental Insufficiency. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-056.
5. Antolic AT, AL Pendleton, AC Kelly, MJ Anderson, MA Davis, CA Bidwell, LE Camacho, S.W. Limesand. (2019) Greater STAT3 Phosphorylation and Enhanced Mitochondrial Respiration in the Left Ventricle of Growth Restricted Ovine Fetuses. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-063.
6. Pendleton, AL, LR Humphreys, MA Davis, LE Camacho, MJ Anderson, SW Limesand Normal Pyruvate Dehydrogenase Activity in Skeletal Muscle of Growth Restricted Ovine Fetuses Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-088.
7. Davis, MA, LE Camacho, AL Pendleton, MJ Anderson, NR Steffens, SW Limesand. Adrenal Demedullation Lowers Placental Glucose Uptake Resulting in Higher Rates of Fetal Glucose Utilization and Production during Hyperinsulinemia. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-110.
8. Pendleton, AL, MA Davis, AC Kelly, LE Camacho, MJ Anderson, SW Limesand. Decreased Complex 1 Expression and Impaired Mitochondrial Function in Growth
9. Restricted Ovine Fetuses with Placental Insufficiency. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-128. 9. MG Gonzalez, MJ Anderson, LE Camacho, SW Limesand, MG Hill. Collagen, Fibrillin, and Elastin Gene Expression in Pregnancies Complicated by Pregnancy Induced Hypertensive Disorders and Spontaneous Preterm Birth. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-162.
10. Davis, MA, LE Camacho, AL Pendleton, MJ Anderson, NR Steffens, SW Limesand, Promotion of Glucose Utilization and Production Rates is Independent of Norepinephrine in Intrauterine Growth Restricted Ovine Fetuses. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-109.
11. Jauregui EJ, Rasmussen LM, Craig ZR. “Measurements of Mono-n-butyl Phthalate in the Tissues of Cycling Adult CD-1 Female Mice after the Oral Administration of Di-n-butyl Phthalate”. Poster presentation at the Annual Meeting of the Society of Toxicology. Baltimore, MD.
12. Rasmussen LM, Jauregui EJ, Craig ZR. “Effects of in vitro exposure to di-n-butyl phthalate and mono-n-butyl phthalate on early embryo viability and development”. Poster presentation at the Annual Meeting of the Society of Toxicology. Baltimore, MD.
13. Beltran-Gastelum J, Jauregui EJ, Craig ZR. (2019). “Environmentally Relevant Exposure to Dibutyl Phthalate and Ovarian Gene Expression: Effects of Terminal Estrous Cycle Stage”. Poster presentation at the Annual Meeting of the Society for the Study of Reproduction. San Jose, CA.
14. Nuñez FM, Beltran-Gastelum J, Craig, ZR. (2019). “Effects of dibutyl phthalate (DBP) exposure on the expression of transcription factors in the mouse ovary”. Poster presentation at the Annual Meeting of the Society for the Study of Reproduction.

California

1. Aguiar LH, Hyde KA, Denicol AC. Long term exposure to supraphysiological temperature (heat stress) impairs growth of bovine preantral follicles in vitro. Abstract presented at the 51st Annual Meeting of the SSR, New Orleans, LA, 2018.
2. Candelaria J, Denicol AC. Follicle-stimulating hormone receptor is expressed in bovine preantral follicles from primary to full secondary stage of development. Abstract accepted for the 52st Annual Meeting of the SSR, San Jose, CA, 2019.

Colorado

1. Hansen T, Van Campen H, Bishop J, Bouma G, QA. W, Sinedino L, Mayo C, Bowen R. 2018. Maternal influenza A virus infection restricts fetal weight and alters placental and fetal thymic gene expression. 51st Society for the Study of Reproduction Meeting. New Orleans. July 10-13. Page 340; Platform Talk.
2. Georges H, Smirnova N, Sinedino L, Knapek K, Van Campen H, Hansen T. 2018. Viral Infection of Bovine Fetuses Results in Impaired Immune Development. Colorado State University Graduate Student Showcase. November 13th. Poster.
3. Georges H, Smirnova N, Sinedino L, Knapek K, Van Campen H, Hansen T. 2018. Transplacental BVDV Infection of Bovine Fetuses Results in Impaired Immune Development. 19th Annual College of Veterinary Medicine and Biomedical Sciences Annual Research Day, Fort Collins, CO, January 20th, Page 9; Scientific Proceedings
4. Georges H, N.P. S, Sinedino L, Knapek KJ, Van Campen H, Hansen T. 2018. Spleens from Bovine Fetuses Persistently infected with Flavivirus Have an Underdeveloped Adaptive Immune Response Despite an Upregulated Innate Immune Response. 51st Society for the Study of Reproduction Meeting. New Orleans. July 10-13. Page 163.
5. Ali A, Nay GC, Anthony RV, Bouma GJ, Winger QA. 2019. Genes Governing Placental Development are Regulated by ARID3A-ARID3B-KDM4C Complex. 66th Annual Society for Reproductive Investigation meeting. Abstract F-150.

Connecticut

1. Halpern, A., Kelly, M., Jones, A., Hoffman, M., Bonelli, J., Zinn, S., Reed, S. A., Govoni, K., 2018. A survey of New England sheep producers. J. Anim. Sci. 96 (S3).
2. Iannitti, H. R., Jones, A., Hoffman, M., Pillai, S., McFadden, K., Govoni, K., Reed, S. A., Zinn, S. 2018. Effects of poor maternal nutrition during gestation on oxidative stress in offspring muscle. J. Anim. Sci. 96 (S3).
3. Martin, D., Jones, A., Hoffman, M., Pillai, S., Govoni, K., Zinn, S., Reed, S. A. 2018. Effects of poor maternal nutrition during gestation on the offspring muscle metabolome. J. Anim. Sci. 96 (S3).
4. Pleasant, V., Wynn, M., Govoni, K., Cabra, A., Szabo, R., Smith, B.\*, Cameron, K., Zinn, S., Hoffman, M. 2018. The Effects of Maternal Milk Production on Dairy Calf Growth and Health. J. Anim. Sci. 96 (S3).
5. Engels, L., Wynn, M., Smith, B., Hoffman, M., Jones, A., Reed, S. A., Zinn, S., Duan, J., Tian, X., Govoni, K. 2018. The Effects of Poor Maternal Nutrition on Fetal Brain Development. J. Anim. Sci. 96 (S3).

Idaho

1. Reynolds, M. K.\*, G. E. Chibisa, A. Ahmadzadeh and J. B Hall†. 2018. Reproductive development and fertility traits among heifers in different residual feed intake groups. Translational Animal Science 2 (suppl\_1): S175–S179. <https://doi.org/10.1093/tas/txy039>
2. Reynolds, M. K.\*, M. Ellison, G. E. Chibisa, A. Ahmadzadeh, and J. B. Hall**.** † 2018. Influence of post weaning grazing on reproductive measures in beef heifers. Joint Ann. Meet. Am. Soc. Anim. Sci. – Can. Soc. Anim. Sci. Vancouver, BC July 10, 2018. Abstr. PSVII-2

Illinois

1. Jones, AK, WW Hay Jr, LD Brown, PJ Rozance, SW Limesand, SR Wesolowski. 2018. Late gestation hypoxia increases norepinephrine and gluconeogenic expression to potentiate hepatic glucose production in fetal sheep. DOHaD US North Carolina.
2. Posont, RJ, KA Beede, SW Limesand, DT Yates (2018) Changes in myoblast responsiveness to TNFα and IL-6 contribute to decreased skeletal muscle mass in intrauterine growth restricted fetal sheep. Translational Animal Science, 2(1):S44-S47.
3. Kelly AC, CA Bidwell, SW Limesand. (2019) Comparative RNA Sequencing Reveals Common Responses in Metabolic Tissues Following Intrauterine Growth Restriction in Fetal Sheep. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract LB-027.
4. Luna Ramirez RI, AC Kelly, CA Bidwell, MA Davis, LE Camacho, MJ Anderson, SW Limesand. (2019) Norepinephrine Spares Adipose Tissue in Ovine Fetuses Complicated with Placental Insufficiency. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-056.
5. Antolic AT, AL Pendleton, AC Kelly, MJ Anderson, MA Davis, CA Bidwell, LE Camacho, S.W. Limesand. (2019) Greater STAT3 Phosphorylation and Enhanced Mitochondrial Respiration in the Left Ventricle of Growth Restricted Ovine Fetuses. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-063.
6. Pendleton, AL, LR Humphreys, MA Davis, LE Camacho, MJ Anderson, SW Limesand Normal Pyruvate Dehydrogenase Activity in Skeletal Muscle of Growth Restricted Ovine Fetuses Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-088.
7. Davis, MA, LE Camacho, AL Pendleton, MJ Anderson, NR Steffens, SW Limesand. Adrenal Demedullation Lowers Placental Glucose Uptake Resulting in Higher Rates of Fetal Glucose Utilization and Production during Hyperinsulinemia. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-110.
8. Pendleton, AL, MA Davis, AC Kelly, LE Camacho, MJ Anderson, SW Limesand. Decreased Complex 1 Expression and Impaired Mitochondrial Function in Growth Restricted Ovine Fetuses with Placental Insufficiency. Society for Reproductive Investigation 66th Annual Scientific Meeting. Oral Abstract O-128. 9. MG Gonzalez, MJ Anderson, LE Camacho, SW Limesand, MG Hill. Collagen, Fibrillin, and Elastin Gene Expression in Pregnancies Complicated by Pregnancy Induced Hypertensive Disorders and Spontaneous Preterm Birth. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-162.
9. Davis, MA, LE Camacho, AL Pendleton, MJ Anderson, NR Steffens, SW Limesand, Promotion of Glucose Utilization and Production Rates is Independent of Norepinephrine in Intrauterine Growth Restricted Ovine Fetuses. Society for Reproductive Investigation 66th Annual Scientific Meeting. Abstract F-109.
10. Jauregui EJ, Rasmussen LM, Craig ZR. “Measurements of Mono-n-butyl Phthalate in the Tissues of Cycling Adult CD-1 Female Mice after the Oral Administration of Di-n-butyl Phthalate”. Poster presentation at the Annual Meeting of the Society of Toxicology. Baltimore, MD.
11. Rasmussen LM, Jauregui EJ, Craig ZR. “Effects of in vitro exposure to di-n-butyl phthalate and mono-n-butyl phthalate on early embryo viability and development”. Poster presentation at the Annual Meeting of the Society of Toxicology. Baltimore, MD.
12. Beltran-Gastelum J, Jauregui EJ, Craig ZR. (2019). “Environmentally Relevant Exposure to Dibutyl Phthalate and Ovarian Gene Expression: Effects of Terminal Estrous Cycle Stage”. Poster presentation at the Annual Meeting of the Society for the Study of Reproduction. San Jose, CA.
13. Nuñez FM, Beltran-Gastelum J, Craig, ZR. (2019). “Effects of dibutyl phthalate (DBP) exposure on the expression of transcription factors in the mouse ovary”. Poster presentation at the Annual Meeting of the Society for the Study of Reproduction.

Miles City - ARS:

1. Geary, T. W., R. C. Waterman, M. L. Van Emon, A. L. Zezeski, J. Heldt, J. Spears. 2018. Effects of copper and zinc supplementation on standard and novel measures of fertility in peripubertal beef bulls. International Bull Fertility Conference, May 27 to 30, Westport, Ireland.
2. Moraes, J. G. N., S. K. Behura, T. W. Geary, and T. E. Spencer. 2018. Analysis of the uterine luminal secretome in heifers with superior uterine capacity. Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
3. Ciernia, L. A., M. F. Smith, G. A. Perry, J. J. Rich, E. J. Northrop, S. D. Perkins, R. E. Geisert, J. A. Green, A. L. Zezeski, and T. W. Geary. 2018. Effect of preovulatory estradiol or postovulatory progesterone on pregnancy rate in postpartum beef cows. Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
4. McLean, M. K., T. E. Spencer, J. G. N. Moraes, M. S. Ortega L. A. Ciernia, T. W. Geary, and M. F. Smith. 2018. Effect of preovulatory estradiol on conceptus elongation in beef heifers. Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
5. Dickinson, S. E., T. W. Geary, J. M. Monnig, J. A. Green, K. G. Pohler, G. A. Bridges, S. Behura, and M. F. Smith. 2018. Differential transcript profiles in cumulus-oocyte complexes originating from pre-ovulatory follicles of varied physiological maturity in beef cows. International Ruminant Reproduction Symposium, September , Foz do Iguacu, Brazil.
6. Geary, T. W., R. C. Waterman, M. L. Van Emon, C. R. Ratzburg, S. Lake, B. A. Eik, D. R. Armstrong, A. L. Zezeski, and J. S. Heldt. 2019. Effect of supplemental trace minerals on novel measures of bull fertility. Western Section American Society of Animal Science, June 11 to 13, Boise, ID

Mississippi

1. Lemley, C. O., C. G. Hart, R. L. Lemire, K. J. Bowers, K. C. Yankey, E. H. King, R. M. Hopper, S. B. Park, D. D. Burnett. 2018. Maternal nutrient restriction decreases uterine artery blood flow while increasing cotyledonary blood vessel density in Angus and Brahman cattle. Abstract: P142. Flash Talk S8.5. Society for the Study of Reproduction, New Orleans, LA.
2. Bowers, K. J., K. C. Yankey, M. L. Tu, C. G. Hart, C. S. Steadman, K. J. McCarty, and C. O. Lemley. 2018. Effects of vasoactive compounds on ovine placentome blood perfusion using Doppler ultrasonography. Abstract: P144. Society for the Study of Reproduction, New Orleans, LA.

Missouri

1. McLean, M.K., T.E. Spencer, J.G.N. Moraes, M.S Ortega, T.W. Geary, and M.F. Smith, 2018, Effect of preovulatory estradiol on conceptus elongation in beef heifers, Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
2. Ciernia, L.A, M.F. Smith, J. Rich, E. Northdrop, S. Perkins, G.A. Perry, R.E. Geisert, J.A. Green, A.L. Zezeski, and T.W. Geary, 2018, Effect of preovulatory estradiol or postovulatory progesterone on pregnancy rate in postpartum beef cows. Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
3. Sydney T. Reese, Gessica A. Franco, Andrea S. Lear, Felipe G. Dantas, Tatiane S. Maia, Taylor B. Ault, Savannah L. Speckhart, F. Neal Schrick, Michael F. Smith, and Ky G. Pohler, 2019, Prostaglandin Release Following Oxytocin Challenge in Pregnant Non-Lactating Cows, Society for the Study of Reproduction, July 10 to 13, New Orleans, LA.
4. Dickinson, S.E., TW Geary, JM Monnig, JA Green, KG Pohler, GA Bridges, S Behura, and MF Smith, 2018. Differential transcript profiles in cumulus-oocyte complexes originating from pre ovulatory follicles of varied physiological maturity in beef cows. International Ruminant Reproduction Symposium, September , Foz do Iguacu, Brazil.
5. Reese, S.T., G.A Franco, T.S. Maia, R.V. Olivero Filho, F. G. Dantas, F.N. Schrick, M.F Smith, and K.G Pohler, 2018, Prostaglandin profile in pregnant cows during initiation of active placentation, International Ruminant Reproduction Symposium, September , Foz do Iguacu, Brazil.

Missouri

1. Smith, M.F., G.A. Perry, K.G. Pohler, M.K. McLean, L.A. Ciernia, and D.J. Patterson, 2018, Establishment of Pregnancy in Beef Cattle: Application of Basic Principles. In Proceedings,Applied Reproductive Strategies in Beef Cattle. August 29-30. Ruidoso, NM.
2. Patterson, DJ, JM Thomas, JWC Locke, ER Knickmeyer, RC Bonacker, and MF Smith. 2018. Control of estrus and ovulation in beef heifers. In: Proceedings, Applied Reproductive Strategies in Beef Cattle. August 29-30. Ruidoso, NM.
3. Patterson, DJ, JM Thomas, JWC Locke, ER Knickmeyer, RC Bonacker, and MF Smith. 2018. Control of estrus and ovulation in beef cows. In Proceedings, Applied Reproductive Strategies in Beef Cattle. August 29-30. Ruidoso, NM.
4. **Invited Talk** August 2018, Establishment of Pregnancy in Beef Cattle: Application of Basic Principles. Applied Reproductive Strategies in Beef Cattle. Ruidoso, NM.

Montana State

1. Bertho RDM; Thorson JF; Prezotto LD. Influence of protein supplementation during gestation on metabolites, morphometrics, and mammary secretions of beef cows. Journal of Animal Science. 2019.
2. Suayroop N, Navanukraw C, Prezotto LD, Thorson JF. Maternal dietary protein-induced reduction in the follicular pool of neonatal bovine offspring. Biology of Reproduction. 2019.
3. Marcus LV; Thorson JF; Prezotto LD, Alves BRC. Does undernutrition during pregnancy affect Histone Deacetylase 5 signaling in the hypothalamus of young offspring? Undergraduate Poster Competition at University of Nevada – Reno. 2019.
4. Lents CA, Thorson JF, Adams H, Petersen SL, Prezotto LD, Berry E, Nonneman DJ. Nutritional regulation of LH secretion in gilts: Hypothalamic expression of kisspeptin and neurokinin B. Journal of Animal Science. 2018.

Nebraska

1. Barnes TB, Beede KA, Merrick EM, Cadaret CN, **Cupp AS**, Yates DT**.** 2018. Impaired muscle stem cell function in cows with high concentrations of androstenedione in their follicular fluid. Proc. West. Sect. Am. Soc. [Transl Anim Sci](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6310365/). 2018 Sep; 2(Suppl 1): S27–S30. doi: [10.1093/tas/txy050](https://dx.doi.org/10.1093%2Ftas%2Ftxy050).
2. **Invited Talk:** Davis, JS, H Talbott, X Hou, JR Wood, **AS Cupp**. Cytokine Expression and Action in the Corpus Luteum. Endocrinology, 2019.
3. Nafziger, S, MA Abedal-Majed, S Tenley, AF Summers, M Hart, J Bergman, SG Kurz, JS Davis, JR Wood, RA Cushman, **AS Cupp**. Attainment and Maintenance of Pubertal Cyclicity May Predict High A4 cows with Reduced Fertility. Gil Greenwald Reproductive and Regenerative Medicine Symposia, University of Kansas Medical Center, October 2018.
4. Springman, SA, MA Abedal-Majed, ML Hart, V Largen, MPS Magamage, SG Kurz, KM Sargent, J Bergman, RM McFee, RA Cushman, JS Davis, JR Wood and **AS Cupp.** Ovarian Cortex from High A4 Cows Secrete Excess Steroid Hormones Contributing to Arrested Follicle Development, Increased Oxidative Stress and Fibrosis Which can be Rescued by Angiogenic VEGFA165. Gil Greenwald Reproductive and Regenerative Medicine Symposia, University of Kansas Medical Center, October 2018.
5. Snider A, RS Gomes, SM Romereim, AF Summers, MA Abedal-Majed, SC Tenley, SG Kurz, J Bergman, RA Cushman, JS Davis, JR Wood, and **AS Cupp**. Altered Blood Plasma and Follicular Fluid Lipid Profiles Predict Alterations in Cell Signaling, Metabolism, and Immune Function in Cows with Androgen Excess. Gil Greenwald Reproductive and Regenerative Medicine Symposia, University of Kansas Medical Center, October 2018.
6. Hart, ML, MA Abedal-Majed, RS Gomes, AP Snider, AF Summers, SG Kurz, JW Bergman, RM McFee, CA Casey, C Lemley, RA Cushman, JS Davis, JR Wood, **AS Cupp**. Cyclicity Phenotype and Ovarian Cortex Androgen Secretion in Androgen Excess Cows are Predictive of Plasma Steroid and Lipids, Liver Enzymes and Follicular Fluid Cytokines. SSR New Orleans, LA 2018.
7. MA Neilson, RS Gomes, SM Romereim, AF Summers, M A Abedal-Majed, SC Tenley, S SG Kurz, JW Bergman, RA Cushman, JS Davis, JR Wood, and **AS Cupp**. Altered Blood Plasma and Follicular Fluid Lipid Profiles Predict Alterations in Cell Signaling, Metabolism, and Immune Function in Cows with Androgen Excess. SSR New Orleans, LA 2018.
8. KA Bochantin, W. Pohlmeier, KM Sargent, S G Kurz, SM Romereim, O Daudu, RM McFee, **AS Cupp**, JR Wood. Microarray Analysis Predicts that Differentially Expressed Genes in Theca Cells from Cows with High Intrafollicular Androstenedione is Regulated by ESR1 and VEGFA Signaling and Increased mRNA Stability. SSR New Orleans, LA 2018**.**
9. S Nafziger, MA Abedal-Majed, S Tenley, AF Summers, ML Hart, MA Neilson, JW Bergman, SG Kurz, JR Wood, RA Cushman, **AS Cupp**. Progesterone Profiles at Puberty May Indicate Future Reproductive Longevity in Beef Heifers. SSR New Orleans. LA 2018.
10. SA Springman, MA, Abedal-Majed, ML Hart, V Largen, MPS Magamage, SG Kurz, KM. Sargent, J Bergman, RM McFee, RA Cushman, JS Davis, JR Wood and **AS Cupp**. Ovarian Cortex from High A4 Cows Secrete Excess Steroid Hormones Contributing to Arrested Follicle Development, Increased Oxidative Stress and Fibrosis Which can be Rescued by Angiogenic VEGFA165**.** SSR New Orleans. LA 2018**.**
11. AP Snider, SM Romereim, AF Summers, BE Pohlmeier, RM. McFee, SG. Kurz, JS. Davis, JR Wood, **AS Cupp**. Exposure to excess androgen in the ovarian microenvironment results in altered granulosa cell function with altered steroidogenesis, signal transduction, cyclicity and response to male exposure. SSR New Orleans. LA 2018**.**
12. **INVITED TALK: Cupp AS**. Effects of Ovarian Microenvironment on Folliculogenesis. PCOS Focus Session, SSR New Orleans, LA 2018.

New Mexico

1. Ferranti, E.M, B.H. Aloqaily, C.A. Gifford, C.A. Löest, J.C. Wenzel, and J.A. Hernandez Gifford. 2018. Lipopolysaccharide modulation of ovarian hormonal profile. Proc. West. Sec. Amer. Soc. Anim. Sci.
2. Aloqaily, B.H., E. M. Ferranti, A. F. Summers, C. A. Gifford, and J.A. Hernandez Gifford. 2018. Intra-ovarian WNT3A modulates estrogen mediated reproductive events and estrus behavior in cattle. Proc. West. Sec. Amer. Soc. Anim. Sci.

Pennsylvania

1. Liu, W.-S., Chang, T.C., Zhang, Y.Y., Liu, Z.H., Deng, X.M. (2018) A gene interaction network during spermatogenesis in ruminants. Conference Abstract, International Plant and Animal Genome Research (PAG) XXVI, January 13-17, 2018. San Diego, CA. P461.
2. Liu, W.-S., Lu, C., Rossi, R.M., Wang, A.H., Yang, M.Y., Diaz, F. (2018) Deletion of the mouse X-linked Prame gene causes germ cell reduction in spermatogenesis. Conference abstract, SSR2018, New Orleans, P306.
3. Kern, C.H., Liu, W.-S. (2018) Characterized DNA markers in two beef farms. Abstract, Gamma Sigma Delta (GSD) Research Expo, College of Agricultural Sciences, Penn State. Presented by Kern on March 27, 2018.
4. Liu, W.-S., (2018) The enrichment of testis-specific genes on the mammalian X and Y chromosome. Invited presentation in the International Plant and Animal Genome Research (PAG) XXVI, January 11-15, 2019. San Diego, CA.
5. Liu, W.-S., (2018) Functional role of PRAME during spermatogenesis. Invited presentation to the Molecular, Cellular and Integrative Biosciences (MCIBS) graduate program (Huck Institutes), Penn State.

Invited presentations

1. Liu, W.-S., (2018) Y chromosome and male fertility. The College of Animal Science and Technology, China Agriculture University, June 8, 2018. Beijing, PR China.
2. Liu, W.-S., (2018) Why the Y is important? The Institute of Animal Science, CAAS, June 12, 2018. Beijing, PR China
3. Liu, W.-S., (2019) The enrichment of testis-specific genes on the mammalian X and Y chromosome, Plant and Animal Genome Conference, Jan 13, 2019. San Diego, CA.

Texas

1. Quail, L.K., M.E. Mund, D.A. Neuendorff, R.A. d’Orey Branco, J.P. Banta, T.H. Welsh, Jr. and R.D. Randel. 2018. Relationships between antral follicle numbers and postpartum interval in multiparous Brahman cows. J. Anim. Sci. Vol. 96, Suppl. S1. Abstract #28.
2. O’Daniels, S.E., D.G. Riley, D.A. Neuendorff, T.D. Forbes, J.P. Banta, T.H. Welsh, Jr., F.M. Rouquette, Jr. and R.D. Randel. 2018. Comparison of three methods of determining feed efficiency on productivity of Brahman heifers. J. Anim. Sci. Vol. 96, Suppl. S1. Abstract #80.
3. White, S.H., C.M. Latham, C.R. Long, R.D. Randel and T.H. Welsh, Jr. 2018. Differing mitochondrial capacity in two separate skeletal muscles from calm and temperamental Brahman heifers. J. Anim. Sci. Vol. 96, Suppl. S1. Abstract #88.
4. Mund, M.E., L.K. Quail, C.L. Cook, D.A. Neuendorff, J.P. Banta, T.H. Welsh, Jr. and R.D. Randel. 2018. Influence of cell mediated immune responses of Brahman cows on postpartum interval, colostral immunoglobulin concentration and growth of their calves. J. Anim. Sci. Vol. 96, Suppl. S1. Abstract #91.
5. Littlejohn, B.P., D.M. Price, D.A. Neuendorff, J.A. Carroll, R.C. Vann, P.K. Riggs, D.G. Riley, C.R. Long, T.H. Welsh, Jr. and R.D. Randel. 2018. Prenatal transportation stress alters genome-wide DNA methylation in suckling Brahman bull calves. J. Anim. Sci. 96(Suppl. 3):349. Abstract #137.
6. Littlejohn, B.P., D.M. Price, D.A. Neuendorff, J.A. Carroll, R.C. Vann, P.K. Riggs, D.G. Riley, C.R. Long, T.H. Welsh, Jr. and R.D. Randel. 2018. Prenatal stress alters genes in signaling pathways influencing behavior and stress response by differential methylation of DNA. J. Anim. Sci. 96(Suppl. 3):349-350. Abstract.

Accepted Abstracts

1. Littlejohn, B.P., D.M. Price, D.A. Neuendorff, J.A. Carroll, R.C. Vann, P.K. Riggs, D.G. Riley, C.R. Long, T.H. Welsh, Jr., and R.D. Randel. 2019. Awardee Talk- Prenatal transportation stress alters physiology of suckling Brahman calves as mediated by changes in DNA methylation. J. Anim. Sci. National Meeting.
2. Littlejohn, B.P., D.G. Riley, D.A. Neuendorff, C.R. Long, T.H. Welsh, Jr., and R.D. Randel. 2019. Transgenerational influence of prenatal stress on temperament, birth weight and weaning weight of Brahman calves. J. Anim. Sci. National Meeting.
3. Cilkiz, K.Z., E.C. Baker, P.K. Riggs, B.P. Littlejohn, C.R. Long, T.H. Welsh, Jr., R.D. Randel, and D.G. Riley. 2019. Genome-wide DNA methylation alteration in prenatally stressed Brahman heifers calves with the advancement of age. J. Anim. Sci. National Meeting.
4. Baker, E.C., K. Zozik, P.K. Riggs, B.P. Littlejohn, C.R. Long, T.H. Welsh, Jr., R.D. Randel, and D.G. Riley. 2019. Effect of prenatal stress on DNA methylation in Brahman heifers. J. Anim. Sci. National Meeting.
5. Rabalais, M., A. Somenahally, C. Wellman, T.H. Welsh, Jr., D.A. Neuendorff, and R.D. Randel. 2019. Influence of monensin in the diet of temperate and tropically adapted cattle on the ruminal and fecal metabolome and microbiome. J. Anim. Sci. National Meeting.
6. Parades-Sanchez, F.A., E. Cases, G.M. Parra-Bracamonte, W. Arellano-Vera, D.G. Riley, T.H. Welsh, Jr., R.D. Randel, and A. Sifuentes. 2019. Identification of candidate genes related to temperament in Brahman cattle. J. Anim. Sci. National Meeting.
7. O’Daniels, S.E., D.G. Riely, K. Kochan, P.K. Riggs, D.A. Neuendorff, F.M. Rouquette, Jr., R.D. Randel, and T.H. Welsh, Jr. 2019. Comparison of telomere length in age-matched primiparious and multiparious Brahman cows. J. Anim. Sci. National Meeting

Utah

1. Lenz L.H. and Stevens J.R. Visual Exploration of Big Biological Data. Poster presented at Conference on Statistical Practice, Feb. 14-15, 2019.

Wyoming

1. Boss, K. S., C. M. Sutton, K. J. Austin, K. M. Cammack, R. R. Cockrum, B. M. Alexander.. 2019. The effect of aflatoxin B1 treatment on expression of TRPM8 in mouse ovary and testes. WSASAS, Boise, ID and RMRSS, Ft. Collins, CO.
2. Sutton, C. M., K. J. Austin, B. M. Alexander. 2019. The effect of menthol on sexual behavior in rams WSASAS, Boise, ID.
3. Sutton, C. M., K. J. Austin, B. M. Alexander. 2019. Expression of TRPM8 mRNA in the prostate of rams and wethers. WSASAS, Boise, ID and RMRSS, Ft. Collins, CO. WSASAS, Boise, ID and RMRSS, Ft. Collins, CO.

**Thesis and dissertations**

Colorado

1. Katie Knapek, MS. Immunological Gene Expression Changes in the Fetal Thymus After Maternal Infection with Bovine Viral Diarrhea Virus. June, 2018.

Connecticut

1. Thesis: “A Survey of New England Sheep Producers”, Arielle Halpern, May 2019.
2. Thesis: “The Effects of Poor Maternal Nutrition on Offspring Metabolism”, Dominique Martin, May 2018.

Idaho

1. Bloomsburg (Reynolds), Maggie. The Effects of Pre- and Postweaning Nutrition on Fertility and Feed Efficiency in Beef Heifers. Master of Science. December 2018.

Mississippi

1. Keelee McCarty, M.S. in Animal and Dairy Sciences at Mississippi State University; Passed defense on March 1, 2018; Thesis titled, Melatonin implants during pregnancy on maternal hemodynamics and growth of offspring in beef cattle; Major Advisor.

Missouri

1. Megan K. McLean 2018. Role of preovulatory estradiol in uterine and luteal function. University of Missouri. MS Thesis.
2. Lauren Ciernia 2018. Effect of preovulatory estradiol and(or) postovulatory progesterone on the establishment of pregnancy in beef cattle. University of Missouri. MS Thesis.

Montana State

1. Katie Knapek, MS. Immunological Gene Expression Changes in the Fetal Thymus After with Bovine Viral Diarrhea Virus. June, 2018.

Nebraska

1. Hart, Mariah. Alterations in Circulating Steroid Hormones, Lipids, Hepatic Steroid Inactivation Enzymes, and Ovarian Cortex and Follicular Fluid Cytokines in Cows with Androgen Excess. Thesis August 2018.
2. Nafziger, Sarah. Attainment and Maintenance of Pubertal Cyclicity May Predict High A4 Cows with Reduced Fertility. MS Thesis. May 2019.

New Mexico

1. Runyan, C.L. 2018. Successful placental development in sheep: contributions of

CXCL12 signaling on vascularization and angiogenesis. NMSU. Ph.D. Dissertation.

1. Aloqaily,B. 2018. In vivo evaluation of WNT signaling pathway on ovarian folliculogenesis and estradiol synthesis. NMSU. Ph.D. Dissertation.
2. Ferranti, E. 2018. Effects of lipopolysaccharide on beta-catenin, aromatase, and estrogen production in granulosa cells. NMSU. M.S. Thesis.

Texas

1. Quail, L.K. Relationships between antral follicle numbers and postpartum interval in Brahman females. M.S. Thesis, Texas A&M University, August 2018.
2. Mund, M.E. The influence of cell mediated immune response of Brahman cows on calving interval, postpartum interval, colostral immunoglobulin concentration, serum immunoglobulin concentration and growth of their calves. M.S. Thesis, Texas A&M University, December 2018.

Utah

1. Alhojaily S.M. (2019) The Effect of Lactation and Energy Status on Gene Expression in the Main Reproductive Tissues of Lactating Dairy Cattle. Ph.D. Dissertation in Reproduction and Development, Utah State University.
2. Moley L.A. (2019) Epigenetic Reprogramming, Apoptosis, and Developmental Competence in Cloned Embryos. Ph.D. Dissertation in Animal, Dairy, and Veterinary Sciences, Utah State University.
3. Lambert R.M. (2018) Comparing Performance of Gene Set Test Methods Using Biologically Relevant Simulated Data. M.S. Thesis in Statistics, Utah State University. <https://digitalcommons.usu.edu/etd/7377/>

**Peer reviewed Extension Publications**

Idaho

1. Gunn, D. and J. B. Hall**.** 2018. Pregnancy testing in beef cattle. Idaho Extension Bulletin 913 pp. 11.