

VITA
Since Last Promotion

Dr. Michael A. Ballou

Texas Tech University
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Education and Post Graduate Training

Ph D, University of California, Davis, 2007.
Major: Nutritional Biology
Supporting Areas of Emphasis: Immunology

BS, University of California, Davis, 2002.
Major: Animal Science

Academic and Professional Experience

**Professor & Chair, Texas Tech University – Department of Veterinary Sciences.
(September 1, 2018 - Present).**

Associate Dean for Research, Texas Tech University. (September 2014 - August 2019).

**Associate Professor, Texas Tech University – Department of Animal and Food Sciences.
(September 1, 2013 - August 31, 2018).**

TEACHING

Courses Taught

Texas Tech University

ANSC 3305, Applied Animal Nutrition, 2 courses.
ANSC 4000, Internship, 1 course.
ANSC 5000, Professional Internship, 2 courses.
ANSC 5001, Problems in Animal Science, 11 courses.
ANSC 5313, Nutritional Biochemistry in Animals, 9 courses.
ANSC 5403, Biometry, 16 courses.
ANSC 6000, Master's Thesis, 13 courses.
ANSC 6001, Supervised Teaching, 1 course.
ANSC 7000, Research, 17 courses.
ANSC 8000, Doctor's Dissertation, 13 courses.
VSCI 5000, Animal Health and Industry Internship, 3 courses.
VSCI 5001, Special Problems in Veterinary Sciences, 1 course.
VSCI 5100, Animal Diseases - Seminar, 1 course.
VSCI 5302, Animal Diseases in Livestock, 2 courses.
VSCI 5313, Nutritional Biochemistry in Animals, 3 courses.
VSCI 5403, Biometry, 4 courses.
VSCI 5100, Animal Health Seminar #1
VSCI 5100, Animal Health Seminar #2

Directed Student Learning

Committee Chair or Co-Chair

- K Garza, Master's Non-Thesis Committee Chair. (January 2024 - Present).
- A Roehrig, Master's Non-Thesis Committee Chair. (August 2023 - Present).
- C Massey, Master's Non-Thesis Committee Chair. (August 2023 - Present).
- C McDonald, Master's Non-Thesis Committee Chair. (August 2023 - Present).
- M Powell, Master's Non-Thesis Committee Chair. (August 2023 - Present).
- M Anderson, Master's Non-Thesis Committee Chair. (August 2023 - Present).
- J Moody, Master's Non-Thesis Committee Co-Chair. (August 2023 - Present).
- C Byford, Master's Non-Thesis Committee Chair. (May 2023 - Present).
- P Bruno, Master's Non-Thesis Committee Chair. (May 2023 - Present).
- S Vasquez, Master's Non-Thesis Committee Chair. (August 2022 - Present).
- Y Khan, Master's Non-Thesis Committee Chair. (August 2022 - Present).
- K Kohl, Master's Thesis Committee Co-Chair. (August 2021 - Present).
- A Eizmendi, Master's Thesis Committee Chair, "Influence of pegbovigrastim to reduce new intramammary infections during the dry period," Animal & Food Sciences. (June 2021 - Present).
- K Campbell, Master's Non-Thesis Committee Chair. (January 2023 - December 2023).
- A Sarka, Master's Non-Thesis Committee Chair, Interdisciplinary. (January 2021 - December 2023).
- T Key, Master's Non-Thesis Committee Chair. (August 2022 - August 2023).
- A Moon, Master's Non-Thesis Committee Chair, Animal & Food Sciences. (January 2022 - May 2023).
- K Davis, Master's Non-Thesis Committee Chair, Animal & Food Sciences. (January 2022 - May 2023).
- M Sauerwein, Master's Non-Thesis Committee Chair, Animal & Food Sciences. (August 2021 - May 2023).
- E Lipnickey, Master's Non-Thesis Committee Chair, Animal & Food Sciences. (August 2021 - 2022).
- K Grant, Master's Non-Thesis Committee Chair, Animal & Food Sciences. (August 2021 - August 2022).

- E Davis, Dissertation Committee Chair, "Novel microbes that improve health of dairy cattle." (September 1, 2018 - May 2022).
- D Langenkamp, Master's Thesis Committee Chair, "Influence of protein and lipid composition of milk powder on calf health and performance," Animal & Food Sciences. (August 2021 - March 2022).
- K Wallace, Master's Thesis Committee Chair, "Influence of various nutritional interventions to reduce the negative impacts of an Eimeria bovis challenge." (May 15, 2020 - August 2021).
- C Hoff, Master's Thesis Committee Chair, "Neonatal T lymphocyte development in colostrum fed or deprived calves that are vaccinated with an intranasal vaccine." (September 1, 2018 - October 1, 2020).
- B Kasl, Dissertation Committee Chair, "Influence of management on abomasal dynamics and microbial ecology." (September 1, 2017 - October 1, 2020).
- L Rietsma, Master's Thesis Committee Chair, "Effects of oral calcium bolus supplementation on immune cell calcium flux and functionality in primiparous and multiparous dairy cows." (September 1, 2017 - May 10, 2019).
- A Word, Dissertation Committee Chair, "Evaluation of Yeast, Nonsteroidal Anti-Inflammatory, and Metaphylaxis Products in Feedlot," Animal & Food Sciences. (September 1, 2014 - December 10, 2018).
- Y Liang, Dissertation Committee Chair, "Effects of various nutritional supplements on the development, innate immunity, and gastrointestinal health of young dairy calves," Animal & Food Sciences. (September 1, 2015 - August 30, 2018).
- E Davis, Master's Thesis Committee Chair, "Impacts of various milk replacer supplements on the health and performance of high-risk dairy calves," Animal & Food Sciences. (September 1, 2016 - June 10, 2018).

Committee Member

- J Okon, Master's Thesis Committee Member. (August 2023 - Present).
- R Rodrigues, Dissertation Defense Committee Member. (January 2023 - Present).
- C Dornbach, Master's Thesis Committee Member, Animal & Food Sciences. (January 2023 - Present).
- D Line, Master's Thesis Committee Member, Animal & Food Sciences. (August 2022 - Present).
- P Menta, Dissertation Committee Member. (June 1, 2020 - December 2023).
- D Paiva, Master's Thesis Committee Member. (January 2021 - August 2023).
- M Vavari, Dissertation Committee Member, Nutritional Sciences. (August 1, 2019 - August 2023).
- B Bowen, Master's Thesis Committee Member. (2021 - May 2023).

T Smock, Dissertation Committee Member, Animal & Food Sciences. (August 1, 2019 - May 2023).

L Rostoll Cangiano, External Dissertation Evaluation. University of Guelph, Animal Biosciences (January 2019 - January 2023).

K Wesley, Dissertation Defense Committee Member, Animal & Food Sciences. (January 2020 - December 2022).

N Eldridge, Master's Thesis Committee Member, Natural Resources Management. (2019 - May 2022).

C Helmuth, Master's Thesis Committee Member, Animal & Food Sciences. (January 2020 - December 2021).

J Biensch, Master's Thesis Committee Member, Animal & Food Sciences. (August 1, 2019 - August 2021).

L Fernandes, Master's Thesis Committee Member. (June 1, 2019 - August 2021).

ML Celestino, Master's Thesis Committee Member, "Strategies to improve health and performance of transported high risk dairy calves." (August 1, 2018 - June 6, 2020).

P Menta, Master's Thesis Committee Member, "Calcium and energy balance of early lactating Jersey cows and ionized calcium stability of bovine whole blood." (January 1, 2018 - June 1, 2020).

B Nguyen, Dissertation Committee Member, "Effectiveness of a cultural and theory based nutritional education intervention in increasing dietary calcium intake among vietnamese women in Hanoi, Vietnam," Nutritional Sciences. (August 1, 2017 - June 1, 2020).

C Coppin, Master's Thesis Committee Member, Animal & Food Sciences. (August 2019 - May 2020).

RESEARCH

Published Intellectual Contributions

Abstract

Menta Junior, P. R., de Oliveira, E., Lima, F., Ballou, M., Prim, J., Galvao, K., Noyes, N., Machado, V. (2023). *Effect of systemic ceftiofur on cows diagnosed with metritis and classified as high risk for spontaneous cure using a predictive model with farm variables on metritis cure, reproduction, culling, and milk yield* (Suppl. 1 ed., vol. 106, pp. 317-318).

Machado, V., Ballou, M. (2023). *Management of beef-on-dairy calves: Should we raise them differently?* (Suppl. 1 ed., vol. 106, pp. 46).

Menta Junior, P. R., de Oliveira, E., Lima, F., Ballou, M., Prim, J., Galvao, K., Noyes, N., Machado, V. (2023). *Predictive models for metritis cure using farm collected data and hematological variables measured at diagnosis* (Suppl. 1 ed., vol. 106, pp. 150).

- McDaniel, Z., Nagaraja, T., Lawrence, T., Amachawadi, R., Carroll, J., Burdick Sanchez, N., Galyean, M., Hales-Paxton, K., Smock, T., Machado, V., Ballou, M., Broadway, P. R. (2023). *Development of an experimental model for liver abscesses in calves using an acidotic diet and bacterial inoculation* (pp. 218).
- Machado, V., Nagaraja, T., Cox, H., Menta Junior, P. R., Crossland, W., Hales-Paxton, K., Henry, D., Strieder Barboza, C., Cruz Penn, M., Broadway, P. R., Carroll, J., Ballou, M. (2023). *Injecting *F. necrophorum* into the circulation of pre-weaned calves failed as liver abscess challenge models*. (pp. 294).
- Machado, V., Menta Junior, P. R., de Oliveira, E., Lima, F., Ballou, M., Prim, J., Galvao, K., Noyes, N. (2023). *Predictive models for metritis cure using farm collected data and hematological variables measured at diagnosis* (pp. 153).
- Bielamowicz, L. P., Celestino, M. L., Fernandes, L., Menta, P. R., Ballou, M., Neves, R. C., Machado, V. (2022). *Association between bovine respiratory disease and hematological variables during the preweaning period in dairy calves transported to a calf-raising facility* (Suppl. 1 ed., vol. 105, pp. 235).
- Menta, P. R., Oliveira, E., Prim, J. G., Galvao, K. N., Lima, F. S., Ballou, M., Noyes, N. R., Machado, V. (2022). *Effect of systemic ceftiofur therapy on metritis cure, reproductive performance, culling, and milk yield in metritic cows* (Suppl. 1 ed., vol. 105, pp. 43).
- Burrell, T., Ballou, M., Machado, V., Jones, B. W. (2022). *Influence of a proprietary blend of yeast fermentation products, enzymes, and probiotics on production performance of lactating Dairy Cattle* (Suppl. 1 ed., vol. 105, pp. 265).
- Menta, P. R., Oliveira, E., Prim, J. G., Galvao, K. N., Lima, F. S., Ballou, M., Noyes, N. R., Machado, V. (2022). *The association of metritis cure at 5 and 14 days after diagnosis with milk yield, reproductive performance, and culling* (Suppl. 1 ed., vol. 105, pp. 43).
- Menta, P., Silva, T., Guimaraes, I., Paiva, D., Fernandes, Celestino, M., Netto, A., Ballou, M., Machado, V. (2021). *Effect of injectable trace mineral supplementation on peripheral polymorphonuclear leukocyte function, oxidative stress, health, and performance in dairy cows in semi-arid conditions* (vol. 104, Suppl. 1, pp. 211).
- Machado, V., Ballou, M. (2021). *Management Strategies to Optimize Health and Performance of Pre-weaned Calves* (vol. 99 Suppl. 3, pp. 53).
- Vieira-Neto, A., Menta, P., DeWit, C., Fernandes, L., Silva, A., Amaro, F., Ballou, M., Machado, V., Santos, J. (2021). *Role of dietary Ca and 1,25-dihydroxyvitamin D3 on gastrointestinal absorption of Ca in ruminants* (vol. 104, Suppl. 1, pp. 264).
- Menta, P., Oliveira, E., Galvao, K., Lima, F., Ballou, M., Noyes, N., Machado, V., Prim, J. (2021). *The association of hematological variables and data collected at diagnosis with metritis cure in dairy cows* (pp. 98).
- Menta, P., Noyes, N., Lima, F., Ballou, M., Galvao, K., Machado, V. (2020). *Incidence, risk factor, and impact of metritis in dairy cows housed in dry-lots..* Conference of Research Workers in Animal Diseases.
- Machado, V., Celestino, M. L., Oliveira, E., Lima, F., Ballou, M., Galvao, K. (2020). *The association of cow related factors with metritis cure risk, fertility, milk yield, and culling*. Conference of Research Workers in Animal Diseases.

- Kasl, B., Hoff, C., Silva, T., Caetano, I., Machado, V., Carroll, J., Ballou, M. (2020). *Effect of preweaning plane of nutrition on abomasal dynamics in Holstein calves.* American Association of Bovine Practitioners.
- Kasl, B., Hoff, C., Silva, T., Caetano, I., Machado, V., Carroll, J., Ballou, M. (2020). *Effects of plane of nutrition and as-fed milk replacer temperature on abomasal dynamics in Holstein calves.* American Association of Bovine Practitioners.
- Kasl, B., Hoff, C., Silva, T., Caetano, I., Machado, V., Carroll, J., Ballou, M. (2020). *Oral electrolyte composition and fluid meal type influence the abomasal environment in Holstein calves.* American Association of Bovine Practitioners.
- Menta, P., Fernandes, L., Poit, D., Celestino, M., Machado, V., Ballou, M., Neves, R. (2020). Association of calcium and energy balance metabolites in the first 3 days after parturition with disease and production outcomes in multiparous Jersey cows. *JOURNAL OF DAIRY SCIENCE* (vol. 103, pp. 17--17).
- Celestino, M., Fernandes, L., Menta, P., Paiva, D., Ribeiro, T., Silva, T., Neves, R., Ballou, M., Machado, V. (2020). The effect of metaphylactic use of tildipirosin for the control of respiratory disease associated with long-distance transportation of dairy calves. *JOURNAL OF DAIRY SCIENCE* (vol. 103, pp. 104--105).
- Davis, E. M., Wallace, K. P., Hoff, C. K., Liang, Y., Ballou, M. (2020). *Effect of milk powder supplement on high-risk calves fed a component-based milk formula.*
- Kasl, B., Hoff, C. K., Machado, V., Ballou, M. (2020). *Effect of preweaning plane of nutrition on abomasal dynamics in Holstein calves.*
- Davis, E., Wallace, K. P., Hoff, C. K., Rincker, M., Machado, V., Ballou, M. (2020). *Effects of Micro-Aid supplementation on the health and performance of high-risk dairy calves.*
- Reitsma, L., Batchelder, T., Davis, E., Machado, V., Neves, R., Ballou, M. (2020). *Effects of oral calcium bolus on intracellular polymorphonuclear leukocyte calcium and function in primi- and multiparous.*
- Kasl, B., Hoff, C. K., Machado, V., Ballou, M. (2020). *Effects of plane of nutrition and as-fed milk replacer temperature on abomasal dynamics in Holstien calves.*
- Kasl, B., Hoff, C. K., Machado, V., Ballou, M. (2020). *Oral electrolyte composition and fluid meal type influence the abomasal environment in Holstien calves.*
- Machado, V., Galvao, K., Lima, F., Noyes, N., Ballou, M. (2019). *Predicting metritis cure as a path to reducing antimicrobial use in dairy cows* (pp. 164). Chicago, IL: Conference of Research Workers in Animal Diseases.
- Ballou, M., Bradford, B. J. (2019). *Discover Conference 35 Recap - Stress Effects on Health and Production.*
- Alrumaih, A. A., Sarturi, J., Ballou, M., Lemos, B.J. M., Sugg, J. D., Campanili, P. R. B., Ovinge, L., Pellarin, L. A. (2018). Dry-rolled corn reconstitution using sorghum silage. *Plains Nutrition Council Spring Conference*. San Antonio, TX:.
- Kondratovich, L. B., Sarturi, J., Ballou, M., Mello, A. B., Campanili, P. R. B., Pellarin, L. A., Hanlon, M. E. (2018). Effects of exogenous fibrolytic enzymes on beef cattle fed growing diets: Metabolism study. *Plains Nutrition Council Spring Conference*. San Antonio, TX:.

- Kondratovich, L. B., Sarturi, J., Ballou, M., Mello, A. B., Campanili, P. R. B., Pellarin, L. A., Hanlon, M. E. (2018). *Effects of exogenous fibrolytic enzymes on beef cattle fed growing diets: Metabolism study*. ASAS, Vancouver, CA: Journal of Animal Science.
- Ballou, M. (2018). *Dairy research programs in the southern region: Importance of multi-institution and industry collaboration in moving the dairy industry forward*.
- Ballou, M. (2018). *Effects of supplementing active dry yeast, a blend of probiotic bacteria, or the combination on the performance and total tract digestion of growing steers*.
- Ballou, M. (2018). *Impacts of various milk replacer supplements on the health and performance of high-risk calves*.
- Ballou, M. (2018). *Predicting weekly calf starter intake by measuring calf starter intake once, twice, or three times a week*.
- Alrumaih, A., Sarturi, J., Ballou, M., Lemos, B. J.M., Sugg, J. D., Campanili, P. R. B., Ovinge, L. A., Pellarin, L. A. (2017). *Dry-rolled corn reconstitution using sorghum silage*. Journal of Animal Science.
- Kondratovich, L. B., Sarturi, J., Ballou, M., Sugg, D., Campanili, P. R. B., Reis, B. Q., Melo, A. C.B., Pellarin, L. A., Ovinge, L. A. (2017). *Effects of fibrolytic enzyme on in-vitro true digestibility of by-products commonly fed cattle*. Journal of Animal Science.
- Alrumaih, A., Sarturi, J., Xu, W., Ballou, M., Lemos, B. J.M., Sugg, J. D., Campanili, P. R. B., Ovinge, L. A., Pellarin, L. A. (2017). *Effects of irrigation levels of corn silage hybrids on nutrient profile and in vitro disappearances*. Journal of Animal Science.

Journal Article, Academic Journal

- McDaniel, Z., Salah, H., Deters, A., Shi, X., Nagaraja, T. G., Lawrence, T., Amachawadi, R., Carroll, J., Galyean, M., Ballou, M., Machado, V., Broadway, R., Burdick-Sanchez, N., Smock, T., Davis, E., Tennant, T., Dornbach, C., Hales-Paxton, K., Kohl, K. Development of an Experimental Model for Liver Abscess Induction in Holstein Steers Using an Acidotic Diet-Challenge and Bacterial Inoculation. *Journal of Animal Science*.
- Opheim, T., Sarturi, J., Rodrigues, B., Nightingale, K., Brashears, M., Reis, B., Ballou, M., Miller, M., Casas, D. E. Effects of a novel direct-fed microbial on growth performance, carcass characteristics, nutrient digestibility, and ruminal morphology of beef feedlot steers. *Journal of Animal Science*.
- Cox, H., Menta Junior, P. R., Nagaraja, T. G., Crossland, W., Hales-Paxton, K., Henry, D., Strieder Barboza, C., Broadway, P., Carrol, J. A., Ballou, M., Machado, V. Short Communication: Injecting *Fusobacterium necrophorum* into the peripheral circulation or hepatic portal vein of pre-ruminant Holstein calves failed as experimental liver abscess challenge models. *Applied Animal Science*.
- McDaniel, Z., Salah, H., Deters, A., Shi, X., Nagaraja, T. G., Lawrence, T., Amachawadi, R., Carroll, J., Galyean, M., Ballou, M., Machado, V., Broadway, R., Burdick-Sanchez, N., Smock, T., Davis, E., Tennant, T., Dornbach, C., Hales-Paxton, K., Kohl, K. Validation of an experimental model to induce liver abscesses in Holstein steers using an acidotic diet challenge and intraruminal bacterial inoculation. *Applied Animal Science*.
- McDaniel, Z., Hales-Paxton, K., Nagaraja, T., Lawrence, T., Amachawadi, R., Carroll, J., Burdick Sanchez, N., Galyean, M., Smock, T., Ballou, M., Machado, V., Broadway, P. R. (2023).

- Short Communication: Evaluation of an endotoxin challenge and intraruminal bacterial inoculation model to induce liver abscesses in Holstein steers. *Journal of Animal Science*, 101(skad242).
- Davis, E., Wallace, K., Cruz-Penn, M., Petry, A., Broadway, R., Burdick-Sanchez, N., Carroll, J., Ballou, M. (2022). A dose response investigation of a micronized porous ceramic particle to improve the health and performance of post-weaned pigs infected with *Salmonella enterica* Serotype Typhimurium. *Frontiers in Animal Sciences*.
- Davis, E., Wallace, K. P., Zimmerman, A. J., Siebecker, M. G., Broadway, R., Carroll, J. A., Ballou, M. (2022). A porous ceramic particle with or without a preservative blend did not impair apparent digestibility of macro- and micro-nutrients of post-weaned pigs.. *Translational Animal Science*.
- Forakker, B., Ballou, M., Woerner, D. (2022). Crossbreeding beef sires to dairy cows: cow, feedlot, and carcass performance.. *Translational Animal Science*.
- Silva, T., Guimaraes, I., Menta, P., Fernandes, L., Paiva, D., Ribeiro, T., Celestino, M.-L., Netto, A., Ballou, M., Machado, V. (2022). Effect of injectable trace mineral supplementation on peripheral polymorphonuclear leukocyte function, antioxidant enzymes, health, and performance in dairy cows in semi-arid conditions. *Journal of Dairy Science*.
- Hassanien, H., Galyean, M., Ballou, M., Mahmoud, A., Abdel-Raouf, E., Eweedah, N. (2022). Effects of altering prepartum and postpartum dietary cation-anion difference on calcium concentrations and blood metabolites of Holstein dairy cows. *Journal Animal Science*.
- Helmuth, C. L., Woerner, D., Ballou, M., Manahan, J. L., Coppin, C. M., Long, N. S., Hoffman, A., Young, J. D., Smock, T., Hales, K. E. (2022). Effects of physical activity and feed and water restriction at reimplanting time on feed intake patterns, growth performance, and carcass characteristics of finishing beef steers. *Oxford University Press US*, 6(1), txac008.
- Kasl, B., Machado, V., Henniger, M., Myer, P., Ballou, M. (2022). Feeding an acetate-based oral electrolyte reduces the ex vivo *Escherichia coli* growth potential in the abomasum of calves fed oral electrolytes alone or 30 minutes following a milk feeding compared with feeding a bicarbonate-based oral electrolyte. *Journal of Dairy Science*.
- Montevecchio, A. B., Frotta, W., Merenda, V. R., Jones, K. L., Martin, J. G., Ballou, M., Chebel, R. C. (2022). Heat abatement during the pre-weaning period: effects on growth, feed efficiency, metabolites, and insulin of male Holstein calves. *Journal of Biometeorol.*
- Davis, E., Liang, Y., Batchelder, T., Sellers, M., Ballou, M. (2022). Impacts of various nutraceutical milk replacer supplements on the health and performance of high-risk Holstein calves. *Frontiers in Animal Sciences*.
- Machado, V., Ballou, M. (2022). Overview of common practices in calf raising facilities. *Translational Animal Sciences*.
- Davies, E., Wallace, K. P., Cruz Penn, M. J., Petry, A., Broadway, R., Burdick Sanchez, N., Carroll, J., Ballou, M. (2022). A Dose-Response Investigation of a Micronized Porous Ceramic Particle to Improve the Health and Performance of Post-weaned Pigs Infected With *Salmonella enterica* Serotype Typhimurium. *Front. Anim. Sci.*, 3(Article 872776).
- Lopes, M., Alharthi, A., Lopreiato, V., Abdel-Hamied, E., Liang, Y., Coleman, Dai, H., Correa, M., Socha, Ballou, M., Trevisi, Loor (2021). Maternal supplementation with cobalt sources, folic acid, and rumen-protected methionine and its effects on molecular and functional correlates

- of the immune system in neonatal Holstein calves. *Journal of Dairy Sciences*, 104(8), 9340-9354.
- Sugg, J. D., Sarturi, J., West, C., Ballou, M., Henry, D. (2021). Teff grass for continuous grazing in the Southern High Plains by growing beef steers receiving protein supplements. *Translational Animal Science*.
- Sugg, J. D., Sarturi, J., Henry, D., Ciriaco, F. M., West, C., Ballou, M., Hoffmann, C. A. (2021). Ruminal degradation kinetics, intake, digestibility, and feeding behavior of beef steers offered annual or perennial grass-hay with or without supplementation.. *Journal of animal science*, 99(8).
- Menta, P., Fernandes, L., Poit, D., Celestino, M., Machado, V., Ballou, M., Neves, R. (2021). Association of blood calcium concentration in the first 3 days after parturition and energy balance metabolites at day 3 in milk with disease and production outcomes in multiparous Jersey cows. *Journal of Dairy Science*, 104(5), 5854 - 5866.
- Celestino, M., Menta, P., Fernandes, L., Poit, D., Neves, R., Ballou, M., Caixeta, L., Machado, V. (2021). Short communication: Associations of serum biomarkers of stress and inflammation measured at arrival with health, mortality, and growth of calves transported within the first 4 days of life. *Journal of Dairy Science*, 104(3), 3547 - 3553.
- Burdick-Sanchez, N., Carroll, J., May, N., Hughes, H., Roberts, S. L., Broadway, R., Ballou, M., Richeson, J. (2020). Modulation of the metabolic response using dexamethasone in beef steers vaccinated with a multivalent respiratory vaccine.. *Translational Animal Science*, 4, 324-330.
- Reitsma, L., Batchelder, T., Davis, E., Machado, V., Neves, R., Ballou, M. (2020). Oral calcium supplementation on polymorphonuclear leukocyte intracellular calcium and measures of functionality.. *Journal of Dairy Science*, 103(12), 11876-11888.
- Hudson, R., Tomczak, D., Kaufman, E. L., Ada, A., Carroll, J., Broadway, R., Ballou, M., Richeson, J. (2020). Immune response and performance are influenced by respiratory vaccine antigen type and stress in beef calves. *Animals*, 11, 1119.
- Liang, Y., Hudson, R., Ballou, M. (2020). Supplementing neonatal Jersey calves with a blend of probiotic bacteria improves the pathophysiological response to an oral Salmonella enterica Serotype Typhimurium challenge. *Journal of Dairy Science*, 103, 7351-7363.
- Machado, V., Celestino, M., Oliveira, E., Lima, F., Ballou, M., Galvao, KN (2020). The association of cow-related factors assessed at metritis diagnosis with metritis cure risk, reproductive performance, milk yield, and culling for untreated and ceftiofur-treated dairy cows. *Journal of Dairy Science*, 103(10), 9261--9276.
- Celestino, M. L., Fernandes, L., Menta, P. R., Paiva, D., Ribeiro, T. L., Silva, T., Bilby, T. R., Neves, R., Ballou, M., Machado, V. (2020). The Effect of Metaphylactic Use of Tildipirosin for the Control of Respiratory Disease in Long-Distance Transported Dairy Calves. *Frontiers in Veterinary Sciences*, 7, 632.
- Silva, T. H., Celestino, M. L., Menta, P. R., Neves, R., Ballou, M., Machado, V. (2020). Associations between circulating levels of natural antibodies, total serum immunoglobulins, and polymorphonuclear leukocyte function in early postpartum dairy cows.. *Veterinary immunology and immunopathology*, 222, 110026.
- Word, A. B., Broadway, P. R., Burdick Sanchez, N. C., Hutcheson, J. P., Ellis, G. B., Holland, B. P., Ballou, M., Carroll, J. (2020). Acute immunologic and metabolic responses of beef heifers

- following topical administration of flunixin meglumine at various times relative to bovine herpesvirus 1 and *Mannheimia haemolytica* challenges.. *American journal of veterinary research*, 81(3), 243-253.
- Ballou, M., Davis, E. M., Kasl, B. A. (2019). Nutraceuticals: An Alternative Strategy for the Use of Antimicrobials.. *The Veterinary clinics of North America. Food animal practice*, 35(3), 507-534.
- Alharthi, A. S., Lopreiato, V., Dai, H., Bucktrout, R., Abdelmegeid, M., Batistel, F., Parys, C., Shen, X., Ballou, M., Trevisi, E., Alhidary, I. A., Abdelrahman, M. M., Loor, J. J. (2019). Short communication: Supply of methionine during late pregnancy enhances whole-blood innate immune response of Holstein calves partly through changes in mRNA abundance in polymorphonuclear leukocytes.. *Journal of dairy science*, 102(11), 10599-10605.
- Sharon, K. P., Liang, Y., Sanchez NCB, Carroll, J., Broadway, P. R., Davis, E. M., Ballou, M. (2019). Pre-weaning plane of nutrition and Mannheimia haemolytica dose influence inflammatory responses to a bovine herpesvirus-1 and Mannheimia haemolytica challenge in post-weaning Holstein calves.. *Journal of dairy science*, 102(10), 9082-9096.
- Kondratovich, L. B., Sarturi, J., Hoffmann, C. A., Ballou, M., Trojan, S., Campanili PRB (2019). Effects of dietary exogenous fibrolytic enzymes on ruminal fermentation characteristics of beef steers fed high- and low-quality growing diets1.. *Journal of animal science*, 97(7), 3089-3102.
- Hulbert, L. E., Calvo-Lorenzo, M. S., Ballou, M., Klasing, K. C., Mitloehner, F. M. (2019). Space allowance influences individually housed Holstein male calves' age at feed consumption, standing behaviors, and measures of immune resilience before and after step-down weaning.. *Journal of dairy science*, 102(5), 4506-4521.
- Campanili, P., Sarturi, J., Trojan, S., Ballou, M., Ovinge, L., Lemos, B. (2018). Growing System Effects on Silage Type Selection for the Finishing Phase of Beef Steers. *Journal of Veterinary Science and Medicine*, 6(2).
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- Campanili PRB, Sarturi, J., Ballou, M., Trojan, S., Sugg, J. D., Ovinge, L. A., Alrumaih, A. U., Pellarin, L. A., Hoffman, A. A. (2017). Effects of silage type and inclusion level on ruminal

characteristics and feeding behavior of steers fed finishing diets.. *Journal of animal science*, 95(10), 4623-4637.

Harris, T., Liang, Y., Sharon, K. P., Sellers, M., Yoon, I., Scott, M. F., Carroll, J., Ballou, M. (2017). Influence of *Saccharomyces cerevisiae* fermentation products, SmartCare in milk replacer and Original XPC in calf starter, on the performance and health of preweaned Holstein calves challenged with *Salmonella enterica* serotype Typhimurium.. *Journal of dairy science*, 100(9), 7154-7164.

Presentations Given

Ballou, M. (Presenter Only), Dairy Calf and Heifer Association, "Strategies to Improve Early Life Gastro-Intestinal Health in Calves," DCHA, Denver, CO. (April 2024).

Ballou, M. (Presenter Only), Central Plains Dairy Preconference Symposium, "Early life calf health and performance have long-term impacts on lifetime health and (re)productive performance," Zoetis, Sioux Falls, SD. (March 2024).

Ballou, M. (Presenter Only), Georgia Dairy Producers Annual Meeting, "Challenges and opportunities for beef x dairy calves," Georgia Dairy Association, Savannah, GA. (January 2024).

Ballou, M. (Presenter Only), Dairy Cattle Reproductive Council Annual Meeting, "Early life calf health and performance have long-term impacts on lifetime health and (re)productive performance," DCRC, Salt Lake City, UT. (November 2023).

Ballou, M. (Presenter Only), Dairy Influencer Conference, "Challenges and opportunities for beef x dairy calves," Nutrablend, Pittsburgh, PA. (September 2023).

Ballou, M. (Presenter Only), Central Plains Dairy, "Challenges and opportunities for beef x dairy calves," Sioux Falls, SD. (March 2023).

Ballou, M. (Presenter & Author), Southwest Nutrition Conference, "Nutritional approaches to address emerging challenges with beef x dairy calves," Phoenix, AZ. (February 2023).

Ballou, M. (Presenter & Author), Texas Animal Nutrition Council Meeting, "Calf Nutrition Program for Long-Term Health," Fort Worth, TX. (2022).

Ballou, M., Western Calf Ranch Symposium, "Calf Disease Mitigation," Saskatoon Colostrum, Tula. (2022).

Ballou, M. (Presenter Only), MSG - Scientific Advisory Council, "Commercial Milk Replacer Ingredients and Impacts on Health and Performance," Milk Specialties Global, Minneapolis, MN. (September 2022).

Ballou, M. (Presenter Only), D & D Ingredient Nutritionist Meeting, "Variation and other difficult to control factors impair profits. How do we help ensure we mitigate the negative impacts," Peoria, Illinois. (July 2022).

Ballou, M. (Presenter & Author), California Animal Nutrition Conference, "What matters in my calf nutrition program," Sacramento, CA. (May 2022).

White, J. (Presenter & Author), Hughes, K. (Author Only), Machado, V. (Author Only), Ballou, M. (Author Only), Brown, A. M. (Author Only), Bio Grad Symposium, "Changing microbial

- succession and differential gene expression with probiotics in cattle," TechASM-TTUAB, Lubbock, TX. (April 23, 2022).
- Ballou, M., Milk Specialties, "Component Milk and Transition Feeding," Minneapolis, MN. (2021).
- Ballou, M. A., American Society of Animal Sciences - Midwest Meeting, "Nutraceuticals: Hidden Mechanisms," Omaha Nebraska. (March 2021).
- Ballou, M. A., Western Canadian Dairy Seminar, "Nutraceuticals - An alternative strategy for the use of antimicrobials," Red Deer, Alberta. (March 2021).
- Ballou, M. A., Cornell Nutrition Conference, "Nutraceuticals - An alternative to the use of antimicrobials." (October 20, 2020).
- Ballou, M., Western Canadian Association of Bovine Practitioners, "Calf Immune Development," Calgary, ON, Canada. (January 16, 2020).
- Ballou, M., Western Canadian Association of Bovine Practitioners, "Transition Cow Health: Stress and Immune Function," Calgary, ON, Canada. (January 16, 2020).
- Ballou, M., ADSA Discover Conference, "Nutraceuticals - Role in Adaptive Immunity of Cows," Chicago, IL. (October 29, 2019).
- Ballou, M., Dairy Nutrition Influencer Meeting, "Nutraceuticals - Role and Function in Dairy Cattle," Nutra Blend - Purina Mills, Washington DC. (September 21, 2019).
- Ballou, M., Animal Nutrition Conference of Canada, "Improving the health of transition cows requires a systematic approach," Niagara Falls, Ontario, Canada. (May 15, 2019).
- Ballou, M., Ontario Calf and Veal Producers, "How nutrition can improve the health of performance of dairy calves and heifers," Montreal, Quebec, Canada. (November 27, 2018).
- Ballou, M., Ontario Calf and Veal Producers - Veterinary Meeting, "Nutritional strategies to improve health of calves," Stratsford, Ontario, Canada. (November 25, 2018).
- Ballou, M., ADSA Discover Conference, "A systematic approach is needed to improve immunity and transition success on farms," American Dairy Science Association, Chicago, IL. (October 31, 2018).
- Ballou, M., PMI Veterinary Advisory Meeting, "Nutritional strategies to improve health. What is on the horizon.," PMI, St. Louis, MO. (October 15, 2018).
- Ballou, M., American Association of Bovine Practitioners, "Influence of milk solid nutrition on health of calves and heifers," AABP, Phoenix, AZ. (September 13, 2018).
- Ballou, M., American Association of Bovine Practitioners, "How can we help control gastrointestinal disease in calves," AABP, Phoenix, AZ. (September 12, 2018).
- Ballou, M., Leading Dairy Producer Meeting, "Development of gastrointestinal immunity in dairy calves," Land O Lakes, Wisconsin Dells, WI. (June 6, 2018).
- Ballou, M., Leading Dairy Producer Meeting, "Practical nutrition formulation for dairy calves and heifers," Land O Lakes, Wisconsin Dells, WI. (June 6, 2018).
- Ballou, M., California Animal Nutrition Conference, "Systematic approach to improving periparturient cow health," Fresno, CA. (May 3, 2018).

Ballou, M., Central Plains Dairy Expo, "Nutritional strategies to improve the health and performance of dairy calves," Sioux Falls, SD. (March 28, 2018).

Ballou, M., Central Plains Dairy Expo Pre-Convergence Symposium, "My calves and heifers look good. What does that really mean?," Kemin, Sioux Falls, SD. (March 27, 2018).

Ballou, M., Veterinarian VIP, "Nutritional strategies to improve the health and performance of dairy calves," Purina Mills, St. Louis, MO. (March 14, 2018).

Ballou, M., Purina Large Dairy Producer VIP Meeting, "Nutritional strategies to improve the health and performance of dairy calves," Purina Mills, St. Louis, MO. (February 7, 2018).

Ballou, M., Pacific Northwest Nutrition Meeting, "Systematic approach to improving transition immunity," Boise, ID. (January 18, 2018).

Contracts, Grants and Sponsored Research

Awarded

Ballou, M., Sarturi, J., "Phase 1: In vitro solventogenesis modulated by ruminal inoculum type using cornstarch as substrate," Sponsored by Native Microbials, \$31,238.00. (July 2023 - December 2026).

Ballou, M., "Investigating the Formation of Liver Abscesses in Dairy Influenced Beef Cattle," Sponsored by USDA-ARS, Federal, \$150,000.00. (September 2023 - August 2026).

Ballou, M. A. (Principal Investigator), Machado, V., "Effects of various natural nutritional interventions during the preweaning and postweaning periods on the health and performance of Beef x Dairy calves using spontaneous infection and *Eimeria bovis* infection models," Sponsored by Anpario, Industry/For Profit, \$117,304.74. (March 2024 - December 2025).

Machado, V. (Lead Principal Investigator), Ballou, M. (Principal Investigator), "The impact of a protocol with quorum sensing science-based products on the health of pre-weaned dairy and beef on dairy calves," Sponsored by Animal Health Vision International - AHV, Industry/For Profit, \$56,085.00. (September 1, 2023 - August 31, 2025).

Brown, A. M. (Lead Principal Investigator), Ballou, M. (Principal Investigator), Sanchez-Plata, M. X. (Principal Investigator), Singh, S. (Principal Investigator), "Advanced Multidisciplinary Training in Agricultural Microbiome Science," Sponsored by USDA NIFA, Federal, \$150,000.00. (September 1, 2021 - August 31, 2024).

Ballou, M. A. (Principal Investigator), "Pathogen-host interaction during the development of liver abscesses; local and systemic immune and metabolic responses during *Fusobacterium necrophorum* challenges," Sponsored by Foundation for Food and Agriculture Research, Other Nonprofit Org, \$9,740.00. (September 1, 2021 - August 31, 2023).

Machado, V. (Lead Principal Investigator), Ballou, M. (Principal Investigator), Strieder-Barboza, C. (Principal Investigator), Hales, K. (Principal Investigator), Crossland, W. (Principal Investigator), Henry (Principal Investigator), "Pathogen-host interaction during the development of liver abscesses; local and systemic immune and metabolic responses during *Fusobacterium necrophorum* challenges," Sponsored by Foundation for Food and Agriculture Research, Federal, \$195,138.00.

Ballou, M. (Lead Principal Investigator), "Effects of various nutritional interventions on the health and performance of Holstein bull calves following an *Eimeria bovis* infection," Sponsored by Purina Animal Nutrition LLC, \$34,889.50. (June 1, 2020 - May 31, 2021).

Machado, V. S. (Lead Principal Investigator), Neves, R. (Principal Investigator), Ballou, M. (Principal Investigator), "The metaphylactic use of tildipirosin (Zuprevo™) for the control of Bovine Respiratory Disease (BRD) in pre-weaned high-risk calves housed in individual hutches," Sponsored by Merck Animal Health, Industry/For Profit, \$243,544.00. (January 1, 2019 - December 31, 2020).

Sarturi, J., Ballou, M., "Effects of ABVista feed-grade enzyme on ruminal characteristics and fiber degradability of beef cattle fed forage/roughage-based growing diets," Sponsored by AB Vista, \$79,963.00. (May 6, 2020).

Machado, V. (Lead Principal Investigator), Ballou, M. (Principal Investigator), Noyes, N. (Principal Investigator), Galvao, K. (Principal Investigator), Lima, F., "Predicting Metritis Cure as a Path to Reducing Antimicrobial Use in Dairy Cows," Sponsored by USDA-NIFA Cooperative State Research Ed & Extension Service, Federal, \$464,338.00.

Pending

Ballou, M., "Unraveling the Calf Rumen and Gastrointestinal Microbiome Influence of Management on Microbial Interactions and Enteric Methane Emissions," Sponsored by USDA-NIFA Cooperative State Research Ed & Extension Service, \$648,755.00.

Machado, V. (Lead Principal Investigator), Ballou, M. (Principal Investigator), "Validating a selective therapy strategy for metritis to reduce antimicrobial use in dairy cows," Sponsored by USDA-NIFA Cooperative State Research Ed & Extension Service, Federal, \$649,998.00.

Machado, V. (Lead Principal Investigator), Ballou, M. (Principal Investigator), "Transdermal flunixin meglumine and oral meloxicam as ancillary therapy for diarrhea in pre-weaned dairy calves," Sponsored by American Assn of Bovine Practitioners Fdn, Foundation, \$24,838.00.

Ballou, M., Machado, V., Sponsored by Induction of T-lymphocyte specific responses to *Mannheimia haemolytica* and *Pasteurella multocida* after intranasal immunization during early life of dairy calves - Merck Animal Health, \$225,000.00.

Machado, V. (Principal Investigator), Ballou, M. (Lead Principal Investigator), "Balancing Inflammation in the Gastrointestinal Mucosa is Critical to Reduce Disease," Sponsored by USDA-NIFA Cooperative State Research Ed & Extension Service, Federal, \$499,926.00.

SERVICE

University Service

Committee Member, Space Allocation Committee. (September 1, 2018 - Present).

Committee Member, University Awards Committee. (January 2018 - Present).

Committee Member, School of Veterinary Medicine - Facility Design. (January 1, 2019 - 2021).

Committee Member, LEAD Diversity Committee. (September 1, 2017 - 2021).

Committee Member, Obesity Research Institute Advisory Board. (October 1, 2013 - 2021).

Committee Member, Dairy Barn Design Team. (September 1, 2018 - December 31, 2020).

Committee Member, School of Veterinary Medicine - Faculty Search (Epidemiologist). (August 1, 2019 - March 1, 2020).

Committee Member, School of Veterinary Medicine - Associate Dean for Clinical Programs Search. (June 1, 2019 - December 1, 2019).

Committee Member, School of Veterinary Medicine - Associate Dean for Academic Search. (June 1, 2019 - October 1, 2019).

Committee Member, School of Veterinary Medicine - Faculty Search (Immunologist). (August 1, 2019 - March 1, 2019).

Committee Member, Research Advisory Council. (June 1, 2014 - June 15, 2019).

Committee Member, Institutional Biosafety. (September 1, 2012 - August 30, 2018).

College Service

Committee Member, Davis College of Agricultural Sciences and Natural Sciences - Curriculum Committee. (September 2022 - Present).

Committee Member, CASNR - Strategic Plan. (January 1, 2019 - Present).

Committee Member, CASNR Administrative Council. (June 1, 2014 - Present).

Committee Member, CASNR Quantitative and Statistical Skills. (September 1, 2013 - Present).

Committee Member, CASNR Tenure and Promotion Committee. (January 1, 2019 - September 2022).

Committee Chair, CASNR Research and Graduate Committee. (June 1, 2014 - July 1, 2019).

Committee Member, CASNR Dean's Search. (March 1, 2017 - March 1, 2018).

Department Service

Committee Chair, AFS - Faculty Search (Animal Health, Physiology, Welfare). (September 1, 2019 - 2020).

Committee Chair, Vet Science - Research Assistant Professor Search. (July 1, 2019 - March 1, 2020).

Committee Member, Vet Science - Faculty Search. (December 1, 2019 - 2019).

Committee Chair, Space Allocation. (September 1, 2017 - 2019).

Committee Chair, Curriculum Development Committee. (January 1, 2017 - December 31, 2017).

Professional Service

Board Member/Foundation, American Dairy Science Association - Discover Conference. (2022 - Present).

Board of Directors of a Company, Breedlove Foods Inc. (September 1, 2012 - Present).

Chairperson, USDA-ARS Animal Care and Use Committee. (September 1, 2010 - Present).

Program Organizer, ADSA 38th Discover Conference. (March 1, 2018 - November 1, 2018).

Committee Chair, ADSA Annual Meeting - Animal Health. (September 1, 2017 - August 30, 2018).

Committee Member, USDA-ARS Ogallala Aquifer Research Program. (June 1, 2014 - August 30, 2018).

Public Service

Faculty Advisor, Dairy Club. (September 2022 - Present).

Faculty Advisor, Christian Grads Fellowship. (September 1, 2017 - Present).

Advisor, Amplify Student Ministries. (September 1, 2010 - Present).