

2025 NE2442 Station Report – Publications

Alabama: Auburn University

Dr. Dianna Bourassa

Peer-Reviewed Publications:

- Adhikari, Y., D.V. Bourassa, S. Poudel, M.A. Bailey, L. Zhang, R.J. Buhr, and K.S. Macklin. 2025. Antimicrobial Resistance Pattern in *Campylobacter* strains Isolated from both No-Antibiotics-Ever (NAE) and Conventional Broiler Complexes: Genotypic and Phenotypic Characterization. *Poultry Science*. 104(10): 105516. <https://doi.org/10.1016/j.psj.2025.105516>.
- McConnell, A., M.R. Riggs, S. Manjankattil, S. Poudel, M.M. Jennings, M.B. Hughes, L. Huber, J. Wang, I. Rawson, R.J. Buhr, and D.V. Bourassa. 2025. Evaluating the efficacy of a novel two-sided drop-through photonic decontamination system on *Salmonella* and *Campylobacter* reduction on broiler parts. *Journal of Food Protection*. 88(9): 100574. <https://doi.org/10.1016/j.jfp.2025.100574>.
- Naeem, M., D.V. Bourassa, S. Rochell, and M. Bedford. 2025. Evaluating the impacts of xylo-oligosaccharides on growth performance of broiler chickens: a meta-analytical approach. *Journal of Applied Poultry Research*. 34(3): 100546. <https://doi.org/10.1016/j.japr.2025.100546>.
- Adhikari, Y., D.V. Bourassa, S. Poudel, M.A. Bailey, R.J. Buhr, and K.S. Macklin. 2025. Genotypic and phenotypic characterization of antimicrobial resistance in *Salmonella* strains isolated from both No-Antibiotics-Ever (NAE) and Conventional broiler complexes. *Poultry Science*. 104(3): 104855. <https://doi.org/10.1016/j.psj.2025.104855>
- Naeem, M. and D.V. Bourassa. 2025. Probiotics in poultry: Unlocking productivity through microbiome modulation and gut health. *Microorganisms*. 13(2): 257. <https://doi.org/10.3390/microorganisms13020257>.
- Adhikari, Y., M.A. Bailey, S. Kitchens, P. Gaonkar, L. Muñoz, S.B. Price, D.V. Bourassa, L. Huber, R.J. Buhr, and K.S. Macklin. 2025. Whole Genome Sequencing and Phylogenetic Analysis of *Salmonella* spp. Isolated from Pullets Through Final Raw Product in the Processing Plant of a Conventional Broiler Complex: A Longitudinal Study. *Microbiology Spectrum*. 13(2): e02090-24. <https://doi.org/10.1128/spectrum.02090-24>.
- Adhikari, Y., M.A. Bailey, D.V. Bourassa, S. Poudel, R.J. Buhr, K.S. Macklin. 2025. A longitudinal study on *Campylobacter* spp. in an integrated broiler complex in the Southeast region of the United States: Prevalence and phylogenetic analysis. *Journal of Food Protection*. 88(1): 100420. <https://doi.org/10.1016/j.jfp.2024.100420>.
- Naeem, M. and D.V. Bourassa. 2024. Optimizing poultry nutrition to combat *Salmonella*: Insights from the literature. *Microorganisms*. 12(12): 2612. <https://doi.org/10.3390/microorganisms12122612>.

Peer-Reviewed Abstracts and Proceedings:

- Hughes, M.B., K.V. Casco, J.S. Garcia, B.A. McCrea, and D.V. Bourassa. Effects of duck breeds and chicken production types on egg quality and functionality. XXth European Symposium on the Quality of Eggs and Egg Products. September 14-17, 2025. Zadar, Croatia.

- Hughes, M.B., K.V. Casco, B. McCrea, J.S. Garcia, and D.V. Bourassa. Effects of duck breeds and chicken production types on egg quality characteristics through fourteen days of egg storage. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Adhikari, Y., S. Manjankattil Rajan, and D.V. Bourassa. Comparative impact of electrical and controlled atmosphere stunning on chicken carcass microbiota: A 16S rRNA sequencing analysis. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Manjankattil Rajan, S., J. Wang, S. Poudel, K.V. Casco, M. Naeem, O. Lockyear, S. Rochell, and D.V. Bourassa. Effect of dietary fat sources on performance, carcass yield, and intestinal histomorphometry of broiler chickens. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Naeem, M., F. Shahzad, N. Tahir, and D.V. Bourassa. Optimizing the inclusion of xylo-oligosaccharides: effects on performance, nutrient digestibility, intestinal morphology, and litter properties in growing broiler chickens. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Poudel, E.A. Flores Granados, S. Rochell, and D.V. Bourassa. Breed-specific variations in tracheal microbiome of broiler chickens. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Rahman, F., E.A. Flores Granados, S. Rochell, D.V. Bourassa, and S. Poudel. Longitudinal analysis of broiler cecal microbiome: Unraveling the species level dynamics across age and sex. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Poudel, S., D.V. Bourassa, and J. Wang. Assessing population dynamics and AMR trends in *Salmonella infantis*. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Bailey, M.A. and D.V. Bourassa. Effect of environmental conditions on survivability of *Campylobacter jejuni* in used broiler litter. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Hughes, M.B., K.V. Casco, J.S. Garcia, B. McCrea, J. An, M. Hayden, S. Cho, and D.V. Bourassa. Effects of duck breeds and chicken production types on egg functionality and sensory evaluation through fourteen days of egg storage. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- McConnell, A.D., M. Jennings, M. Hughes, J. Krings, R.J. Buhr, and D.V. Bourassa. Evaluating the efficacy of photonic decontamination treatment on *Salmonella* reduction on packaged poultry parts. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Paudel, R., D.V. Bourassa, and S. Poudel. Assessing transcriptomic responses of *Salmonella infantis* in litter. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Raut, R., F. Rahman, D.V. Bourassa, and S. Poudel. Impact of *Salmonella infantis* inoculation on poultry litter microbiome. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Manjankattil, S., K.V. Casco Gomez, F.A. Contreras Zelaya, M. Hughes, J.C. Figueroa Sorto, M. Hayden, S. Cho, and D.V. Bourassa. Effect of using antimicrobials in ozonated water as a post chill dip against *Salmonella* on chicken meat. International Association of Food Protection. July 27-30, 2025. Cleveland, OH.
- Naeem, M., D.V. Bourassa, S.J. Rochell, S. Manjankattil, E. Burton, and A. Alkhtib. Impact of increased particle size of wheat on broiler performance, gastrointestinal development, nutrient utilization, and welfare. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

- Naeem, M., D.V. Bourassa, S.J. Rochell, S. Manjankattil, E. Burton, and A. Alkhtib. Impact of bulk density in broiler diets on performance, digestive organs, and litter composition. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Manjankattil, S., J. Wang, S. Poudel, M. Bailey, Y. Adhikari, K.V. Casco, S.J. Rochell and D.V. Bourassa. Effect of dietary fat sources on colonization and dissemination of *Salmonella* in broiler chickens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Wang, J. B. Mallavarapu, P. Patil, D. Subedi, H. Thippareddi, A.K. Singh, D.V. Bourassa, and S. Poudel. A systematic review and meta-analysis on the efficacy of organic acids to reduce *Salmonella* colonization in crop and ceca of broilers. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Casco, K.V., M.V. Baca, S. Poudel, R.J. Buhr, and D.V. Bourassa. Molecular characteristics of *Salmonella* spp. from retail broiler meat. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Poudel, S., F.A. Contreras Zelaya, E.G. Guzman, W.J. Pacheco, R. Hauck, D.V. Bourassa, and K.S. Macklin. Impact of organic acid supplementation on cecal microbiome of broiler chicks inoculated with *Salmonella*. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Adhikari, Y., D.V. Bourassa, S. Poudel, M. Bailey, R.J. Buhr, and K.S. Macklin. Antimicrobial resistance profiling of *Salmonella* recovered from environments of No-Antibiotics-Ever (NAE) and conventional broiler complexes. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Hughes, M., B. McCrea, K.V. Casco, J. Garcia, and D.V. Bourassa. Effects of duck breeds on egg functionality through fourteen days of egg storage. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Baca, M.V., A. McConnell, K.V. Casco, R.J. Buhr, and D.V. Bourassa. Prevalence of *Salmonella* and *Campylobacter* from retail poultry in Alabama. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- McConnell, A., S. Poudel, G. Bharathan, S. Srikumar, I. Rawson, R.J. Buhr, and D.V. Bourassa. Comparative transcriptomic analysis of *Salmonella infantis* following application of a photonic decontamination treatment. Poultry Science Association Latin American Scientific Conference. October 8-10, 2024. Iguazú Falls, Paraná, Brazil.

Invited Presentations:

- Bourassa, D.V. and B.A. McCrea. Egg science. Auburn Troop 34 Science and Technology Meeting, Trail Life USA. April 29, 2025. Auburn, AL.
- Bourassa, D.V. Careers in the poultry industry and Egg Science. Three Amigos Youth Girls Program. January 14, 2025.
- Bourassa, D.V. Formation of the Egg. National Egg Quality School. May 19-22, 2025. Greenville, SC.
- Bourassa, D.V. Egg Processing Plant Sanitation, SSOPs and GMPs. National Egg Quality School. May 19-22, 2025. Greenville, SC.

Extension Activities and Publications:

- Hughes, M. and D.V. Bourassa. Tips for enhancing egg quality and safety from washing to cooking. ACES ANR-3142.
- Bourassa, D.V. Improving product shelf life at the processing plant. WOGS Newsletter, Vol. 24, No 3. December 2024.
- Bourassa, D.V. Rapid screening methods for the detection of pathogens. WOGS Newsletter, Vol. 24, No 2. November 2024.

Dissertation and Thesis:

- Figuroa Sorto, Juan Carlos. M.S., Poultry Science, Auburn University, December 2024. Thesis: Isolation and Application of *Salmonella infantis*-Specific Bacteriophages from Poultry-Associated Samples to Chicken Wing Flats.
- McConnell, Abigail. M.S., Poultry Science, Auburn University, May 2025. Thesis: Evaluation of the effects of photonic decontamination on reduction of *Salmonella* and *Campylobacter* and a comparative transcriptomics analysis following its application on *Salmonella infantis*.
- Adhikari, Yagya. PhD, Poultry Science, Auburn University, December 2024. Dissertation: Isolation, Genomic Analyses and Antimicrobial Resistance Profiling of *Salmonella* and *Campylobacter* Isolated from Different Stages of No-Antibiotic-Ever (NAE) and Conventional Broiler Complexes.

Dr. Wilmer Pacheco

Peer-Reviewed Publications:

- Svihus, B., M. R. Abdollahi, K. G. S. Wamsley, W. J. Pacheco, H. Hetland. 2025. Structural architecture of pelleted broiler diets: A comprehensive narrative review of key factors for an optimized macro- and microstructure. *Poultry Science*. 104(9): 105478. <https://doi.org/10.1016/j.psj.2025.105478>.
- Brizuela, M. J., J. I. Vargas, I. C. Dias, J. P. Gulizia, E. G. Guzmán, J. R. Hernández, C. T. Simões, and W. J. Pacheco. 2025. Influence of local and reimported U.S. and South American corn sources on broiler performance, nutrient digestibility, and processing yield. *Animals*. 15(12): 1770. <https://doi.org/10.3390/ani15121770>.
- Gulizia, J. P., R. W. Tabish, J. I. Vargas, J. R. Hernandez, C. T. Simões, E. G. Guzman, S. J. Rochell, R. Hauck, M. A. Bailey, W. A. Dozier, K. W. McCafferty, and W. J. Pacheco. 2025. Response of broilers subjected to an enteric challenge and fed diets with varying limestone particle sizes and calcium concentrations—part 1: performance, tibia mineralization, and nutrient digestibility. *Poultry Science*. 104(8): 105385. <https://doi.org/10.1016/j.psj.2025.105385>.
- Gulizia, J. P., Z. Khalid, M. T. Terra-Long, W. J. Pacheco, J. I. Vargas, J. R. Hernandez, J. Krehling, K. Macklin, W. A. Dozier, III, K. W. McCafferty, and R. Hauck. 2025. Response of YPM x Ross 708 male broilers to diets containing varying inclusions of phytase, calcium butyrate, and bacitracin methylene disalicylate during the grower and finisher periods—part 2: intestinal health and physiology. *Poultry Science*. 104(3): 104862. <https://doi.org/10.1016/j.psj.2025.104862>.
- Vargas, J. I., Pacheco, W. J., Malcorra, L. A., Starkey, C. W., and Spencer, L. F. 2025. Evaluation of conditioning temperature and retention time in the hygieniser on *Enterococcus faecium*, vitamin stability, metabolizable energy, and amino acid digestibility. *Journal of Applied Poultry Research*. 34(2): 100520. <https://doi.org/10.1016/j.japr.2025.100520>.

- Terra-Long, M. T., A. Pietruska, J. P. Gulizia, T. True, J. Butler, B. A. McCrea, W. J. Pacheco, D. V. Bourassa, and R. Hauck. 2025. Effect of supplementation with *Artemisia absinthium* or pumpkin seed powder on *Ascaridia galli* worm burdens, productivity, nutrient digestibility, and cytokine gene expression in laying hens. *Avian Diseases*. 69(1): 74-81.
<https://doi.org/10.1637/aviandiseases-D-24-00052>.
- Vargas, J. I., A. D. McConnell, J. P. Gulizia, W. J. Pacheco, and K. M. Downs. 2025. Assessing feed color preference of broilers during the starter phase. *Poultry*. 4(1): 2.
<https://doi.org/10.3390/poultry4010002>.
- Gulizia, J. P., J. I. Vargas, S. M. Bonilla, J. R. Hernandez, L. M. Almeida, P. Soster, S. Thuekeaw, B. Hutson, S. Llamas-Moya, T. Duong, and W. J. Pacheco. 2024. Influence of diet nutrient density and a multicarbohydrase containing α -galactosidase on performance, carcass characteristics, breast myopathies, and nutrient utilization of broilers reared from 1 to 42 days of age. *Poultry Science*. 104(1): 104522. <https://doi.org/10.1016/j.psj.2024.104522>.
- Gulizia, J. P., M. T. Terra-Long, Z. Khalid, J. I. Vargas, S. M. Bonilla, J. R. Hernandez, S. Thuekeaw, R. Hauck, K. S. Macklin, W. A. Dozier, III, K. W. McCafferty, and W. J. Pacheco. 2024. Response of YPM x Ross 708 male broilers to diets containing varying inclusions of phytase, calcium butyrate, and bacitracin methylene disalicylate from 1 to 42 days of age—Part 1: Performance, processing yields, and nutrient digestibility. *Poultry Science*. 103(12): 104350.
<https://doi.org/10.1016/j.psj.2024.104350>.
- Vargas, J. I., J. P. Gulizia, J. R. Hernandez, C. T. Simoes, E.G. Guzman, J. Lee, R. Adhikari, S. E. Han, and W. J. Pacheco. 2024. Dose response of xylanase enzyme on ileal viscosity, digestibility of nutrients, and performance of broiler chickens fed wheat-based diets. *Journal of Applied Poultry Research*. 33(4): 100479. <https://doi.org/10.1016/j.japr.2024.100479>.
- Alfaro, G. F., V. Palombo, M. D'Andrea, W. Cao, Y. Zhang, J. Beever, R. B. Muntifering, W. J. Pacheco, S. P. Rodning, X. Wang, and S. J. Moisa. 2024. Hepatic transcript profiling in beef cattle: effects of feeding endophyte-infected tall fescue seeds. *PLoS One*. 19(7): e0306431.
<https://doi.org/10.1371/journal.pone.0306431>.

Peer-Reviewed Abstracts and Proceedings:

- Vargas, J. I., J. P. Gulizia, E. Guzman, E. Rosero, F. Valenzuela, and W. J. Pacheco. Effects of dietary reduction of metabolizable energy and amino acid density on the performance, carcass traits, and nutrient digestibility of broilers from 1 to 49 days. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Guzman, E. G., J. I. Vargas, J. P. Gulizia, J. R. Hernandez, J. Martinez, M. J. Brizuela, F. Contreras, K. Casco, A. Steele, M. A. Bailey, R. Hauck, D. V. Bourassa, K. S. Macklin, and W. J. Pacheco. Impact of litter treatment and organic acid supplementation via drinking water on *Salmonella* prevalence and growth performance in *Salmonella*-challenged broilers. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Urrutia, J. A., T. Boltz, H. Thames, W. J. Pacheco, K. Macklin, C. Magee, and K. G. Wamsley. Maximizing 27 to 35 d growth performance and processing metrics of broilers with and without a subclinical necrotic enteritis challenge through corn particle size and feed quality. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Tabish, R. W., Y. Lin, S. Rochell, W. J. Pacheco, M. A. Bailey, W. A. Dozier, K. W. McCafferty, and R. Hauck. Synergistic effects of soluble and insoluble fiber combinations on the jejunal and cecal

microbiota of broilers with a subclinical enteric challenge. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.

Vargas, J. I., J. P. Gulizia, E. G. Guzman, E. Rosero, F. Valenzuela, J. C. Jespersen, C. D. Coufal, and W. J. Pacheco. Effect of sodium bisulfate inclusion on pellet durability index of broiler diets. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Guzman, E. G., J. I. Vargas, J. P. Gulizia, J. R. Hernandez, J. Martinez, M. J. Brizuela, M. A. Bailey, R. Hauck, D. V. Bourassa, K. S. Macklin, and W. J. Pacheco. Effect of organic acid supplementation on *Salmonella* prevalence and growth performance during a challenge model using male broilers. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Hernandez, J. R., J. P. Gulizia, J. I. Vargas, E. G. Guzman, S. J. Rochell, R. Hauck, and W. J. Pacheco. Effect of feed form, energy level, and conditioning temperature on broiler performance, feed wastage, and nutrient digestibility from 1 to 21 days of age. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Gulizia, J. P., R. W. Tabish, J. I. Vargas, J. R. Hernandez, C. T. Simões, E. G. Guzman, S. J. Rochell, R. Hauck, M. A. Bailey, W. A. Dozier, III, K. W. McCafferty, and W. J. Pacheco. Nutrient digestibility response of male broilers subjected to an enteric challenge and fed diets containing varying limestone particle sizes and calcium concentrations. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Tabish, R. W., J. P. Gulizia, J. I. Vargas, J. R. Hernandez, W. J. Pacheco, S. J. Rochell, M. A. Bailey, W. A. Dozier, K. W. McCafferty, and R. Hauck. Transcriptome analysis of the jejunal mucosa of broiler chickens with subclinical necrotic enteritis fed diets containing varying calcium concentrations and limestone particle sizes. Proceedings of the Sixty-Seventh Annual Meeting of the American Association of Avian Pathologists (AAAP). July 9-11, 2024. St. Louis, MO. p 25.

Invited Presentations:

Pacheco, W. J. 2025. Enhancing feed quality with post-pellet liquid application technologies. SEC Sixth Feed Milling Training, MENA. Online.

Pacheco, W. J. 2025. From mill to farm: streamlining load-out and feed delivery operations. SEC Sixth Feed Milling Training, MENA. Online.

Pacheco, W. J. 2025. The power of communication: enhancing feed quality and poultry performance. SEC Sixth Feed Milling Training, MENA. Online.

Pacheco, W. J. 2025. Feed milling strategies to maximize poultry efficiency. Schothorst Feed Research Webinar. The Netherlands.

Pacheco, W. J. 2025. Importance of soy products in laying hens feeding. 1st USSEC short course in laying hens' nutrition and feeding management. Ifrane, Morocco.

Pacheco, W. J. 2025. Principles of practical laying hens feed management. 1st USSEC short course in laying hens' nutrition and feeding management. Ifrane, Morocco.

Pacheco, W. J. 2025. Effect of particle size on poultry performance and nutrient digestibility. SEC Fifth Feed Milling Training, MENA. Online.

Pacheco, W. J. 2025. Effect of pellet quality on poultry performance and nutrient digestibility. SEC Fifth Feed Milling Training, MENA. Online.

Pacheco, W. J. 2025. Moisture balance during feed processing. SEC Fifth Feed Milling Training, MENA. Online.

- Pacheco, W. J. 2025. Workshop: Process optimization in feed mills. United States Grains Council. Lima, Peru.
- Pacheco, W. J. 2025. Module 3: Batching and mixing operations. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2025. Module 5: Feed conditioning and pelleting operations. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2025. Module 6: Pellet cooling and crumbling. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2025. Module 7: Grinding and particle size reduction operations. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2024. Feed mill design. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2024. Practical exercise: feed mill design. USSEC Feed manufacturing training, Lima, Peru.
- Pacheco, W. J. 2025. Feed milling opportunities. Alabama Feed and Grain Nutrition Seminar, Huntsville, AL.
- Pacheco, W. J. 2025. Feed mills – check list to consider during a feed mill visit. SEC Forth Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Understanding feed ingredients used in feed manufacturing. SEC Forth Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Testing soybean meal quality: methods and best practices. SEC Forth Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Optimizing feed quality and safety: Key strategies for swine nutrition and feed milling operations. Novus Swine Nutrition Forum, Amsterdam, The Netherlands.
- Pacheco, W. J. 2025. Optimizing poultry performance through feed structure. Feed Mill Manager Seminar, Nashville, TN.
- Pacheco, W. J. 2025. Four seasons at the feed mill: adjusting equipment and processes for consistent year-round feed quality. Rendez-vous des meuniers – Aquinac. Drummondville, Quebec, Canada.
- Pacheco, W. J. 2025. Backyard poultry production – general nutrition and mixing your own feed. Connect Extension Webinar.
- Pacheco, W. J. 2025. Critical points in feed mills. Aviagen Training Conference – Latin America (ATC-LA). Panama City, Panama.
- Pacheco, W. J. 2025. Feed conditioning and pelleting: key techniques for sustainable animal feed production. SEC Third Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Feed cooling: key to enhancing pellet durability and performance. SEC Third Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Maximizing efficiency in feed milling: setting paddles in the conditioner and avoiding common mistakes. SEC Third Feed Milling Training, MENA. Online.
- Pacheco, W. J. 2025. Importance of soy products in broiler feeding. 1st USSEC Maghreb SEC on broiler nutrition and feeding management. Rabat, Morocco.
- Pacheco, W. J. 2025. Principles of practical broiler feed management at the feed mill and at the farm. 1st USSEC Maghreb SEC on broiler nutrition and feeding management. Rabat, Morocco.

- Giambrone J., Pacheco, W. J., and D. Brothers. 2025. The history of our societies and the U.S. broiler industry. International Poultry Scientific Forum. Atlanta, GA.
- Pacheco, W. J. 2025. Particle size management in concentrated feeds. Latin American Poultry Summit. Atlanta, GA.
- Pacheco, W. J. 2025. Advances in feed milling, feed milling efficiency, and improvements that prioritize pellet quality. Feed mill master class. Anitox headquarters, Lawrenceville, GA.

Extension Activities and Publications:

- Pacheco, W. J., Fahrenholz, A. C., and C. R. Stark. 2024. Importance of compressed air in feed mills. Feedstuffs Magazine. <https://informamarkets.turtl.co/story/feedstuffs-august-2024/page/11>.

Dissertation and Thesis:

- Gulizia, Joseph. PhD, Poultry Science, Auburn University, May 2025. Dissertation: The impact of feed additives and calcium concentration and source on broiler performance, nutrient utilization, and intestinal health under different disease states. <https://etd.auburn.edu/handle/10415/9767>.

Arkansas: University of Arkansas

Drs. Yi Liang, Shawna Weimer, and Sara Orlowski-Workman

Peer-Reviewed Publications:

- Weaver, A. D., L. R. Bielke, R. D. Malheiros, S. K. Orlowski and A. N. Pullin. 2025. The effect of feed and water provision strategies on broiler breeder pullet performance and welfare. *Frontiers in Veterinary Science*. 12. doi: 10.3389/fvets.2025.1611967.

Conference Papers, Posters, and Presentations:

- Whittle, R., C. Pennicott, A. Perretti, V. Oyeniran, J. Cherry, and S. Weimer. Effect of dietary tryptophan and photoperiod on the fear responses of broilers during the open field test. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (poster).
- Weaver, A. D., L. R. Bielke, R. D. Malheiros, S. K. Orlowski and A. N. Pullin. The effect of feed and water provision strategies on broiler breeder pullet drinking behavior. International Society for Applied Ethology. August 4-8, 2025. Utrecht, The Netherlands. (poster).
- Weaver, A. D., S. K. Orlowski, L. Bielke, R. D. Malheiros, and A. N. Pullin. Validating RFID technology to identify broiler breeder pullets with high and low water use. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).

Delaware: University of Delaware

Dr. Hong Li

- Moore, P., Anderson, K., Martin, J., Li, H., Purswell, J. (Under review). Development and Testing of an Indoor Air Scrubber for Removing Ammonia, Dust, and Pathogens from Air Within Poultry Houses. Submitted to J. Appl. Poultry Research in May 2025.
- Li, H., G. Rollo, 2024. Effects of a water treatment system on broiler performances and environment. PSA 2024 Annual Meeting. Meeting abstract number: 353
- pH Matters: Convenient application and better performance makes PLT® the leading choice. URL: <https://joneshamiltonag.com/wp-content/uploads/PLT-Early-Application-one-pager-WEB-101124.pdf>

Hawaii: University of Hawaii

Dr. Rajesh Jha

Peer-Reviewed Publications:

- Stoehr, N., J. G. Brettschneider, L. Schneider, J. Stracke, R. Jha, and G. Dusel. Live black soldier fly larvae as a substitute for soybean meal and oil in free range laying hens' diet– effects on laying performance and egg quality parameters. Proceedings of BOKU-Symposium. February 27, 2025. Vienna, Austria. p 124-126.
<https://gms.ctahr.hawaii.edu/gs/handler/getmedia.ashx?moid=73691&dt=3&g=12>.
- Ye, X., Y. Yang, Q. Yao, M. Huang, B. Balasubramanian, R. Jha, and W.-C. Liu. 2025. The ameliorative role of phlorotannin on aflatoxin B₁-induced liver oxidative stress and mitochondrial injury is related to the activation of Nrf2 and Nrf1 signaling pathways in broilers. *Journal of Animal Science and Biotechnology*. 16:75. <https://doi.org/10.1186/s40104-025-01210-z>.
- Zhao, Z.-X., Y.-M. Yuan, Z.-H. Zhao, Q.-H Yao, X.-Q. Ye, Y.-Y. Wang, H.-M. Liu, R. Jha, B. Balasubramanian, and W.-C. Liu. 2024. Phlorotannin alleviates liver injury by regulating redox balance, apoptosis, and ferroptosis of broilers under heat stress. *Antioxidants*. 13(9): 1048.
<https://doi.org/10.3390/antiox13091048>.

Peer-Reviewed Abstracts and Proceedings:

- Stoehr, N., F. Geisel, J. G. Brettschneider, L. Schneider, C. K. Weiss, R. Jha, and G. Dusel. Feeding Live Black Soldier Fly Larvae: Effects on Growth Performance and Fatty Acid Profile in Muscle and Liver of Broiler Chickens. 24th European Symposium on Poultry Nutrition. June 23-26, 2025. Maastricht, The Netherlands. (Poster).
- Stoehr, N., J. G. Brettschneider, L. Schneider, J. Stracke, R. Jha, and G. Dusel. Feeding Live Black Soldier Fly Larvae: Impacts on Laying Performance and Egg Quality of Free-Range Lohmann Brown Hens. 24th European Symposium on Poultry Nutrition. June 23-26, 2025. Maastricht, The Netherlands. (Poster).
- Stoehr, N., J. G. Brettschneider, L. Schneider, J. Stracke, R. Jha, and G. Dusel. Live black soldier fly larvae as a substitute for soybean meal and oil in free range laying hens' diet– effects on laying performance and egg quality parameters. BOKU-Symposium. February 27, 2025. Vienna, Austria. (Poster).

Mishra, P., B. Mishra, and R. Jha. Dietary supplementation of microalgae and xylanase influences nutrient transporter and tight junction gene expression in broiler chickens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA, USA. (Poster).

Invited Presentations:

Jha, R. Sustainable pig and poultry production: Issues and opportunities. Konkuk University. October 26, 2024. Seoul, South Korea.

Dr. Birendra Mishra

Peer-Reviewed Publications

Amaz S, Chaudhary A, Mahato P, Jha R, Mishra B. 2025. Pre-hatch thermal manipulation of embryos and post-hatch baicalein supplementation enhanced immune functions in broiler chickens. (Accepted to *Frontiers in Veterinary Science*).

Amaz S, Wasti S, Chaudhary A, Adnan M, Jha R, Mishra B. 2025. Dried plum supplementation increased liver antioxidant capacity, metabolism, and epigenetic markers in broiler chickens under heat stress. *Poultry Science*. 104(4): 104911. <https://doi.org/10.1016/j.psj.2025.104911>.

Amaz S, Chaudhary A, Mahato P, Jha R, Mishra B. 2024. Pre-hatch thermal manipulation of embryos and post-hatch baicalein supplementation increased liver metabolism and muscle proliferation in broiler chickens. *Poultry Science*. 103(11): 104155. <https://doi.org/10.1016/j.psj.2024.104155>.

Peer-Reviewed Abstracts and Proceedings:

Amaz S, Poudel S, Jha R, and Mishra B. Embryonic thermal manipulation improved gut-brain axis coordination (appetite and taste) with or without heat stress in broiler chickens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA, USA. (Poster presentation)

Mahato P, Khadka V, Macklin K, Jha R, and Mishra B. Transcriptional regulation of albumen biosynthesis in the magnum of broiler breeder hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA, USA. (Poster presentation)

Amaz S, Poudel S, Jha R, and Mishra B. Early thermal programming and post-hatch baicalein supplementation enhanced immune response in broiler chickens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA, USA. (Poster presentation)

Georgia: University of Georgia

Peer-Reviewed Publications:

Asali, E., Li, G., Chen, C., Olukosi, O. A., Oluseyifunmi, I., Abaunza, N. M., ... & Banakar, A. (2025). Integration and evaluation of a low-cost intelligent system and its parameters for monitoring three-dimensional features of broiler chickens. *Computers and Electronics in Agriculture*, 237, 110553.

Saeidifar M, Li G, Ramaswamy LM, Chen C, Asali E. AnimalAI: An Open-Source Web Platform for Automated Animal Activity Index Calculation Using Interactive Deep Learning Segmentation. *Animals*. 2025 Aug 3;15(15):2269.

- Oso OM, Mejia-Abaunza N, Bodempudi VU, Chen X, Chen C, Aggrey SE, Li G. Automatic analysis of high, medium, and low activities of broilers with heat stress operations via image processing and machine learning. *Poultry Science*. 2025 Apr 1;104(4):104954.
- Fudge C, Wedegaertner O, Cupo K, Lowery J, Walker L, Edens F, Chen C. Oral inoculation of turkeys with in vitro cultured *Histomonas meleagridis* in cecal contents results in histomonosis. *Journal of Applied Poultry Research*. 2025 Jun 6:100560.
- Lowery J, Chadwick E, Chen C, Beckstead R, Walker L. *Cochlosoma anatis* in Poultry and its Industry Impact. *Avian Diseases*. 2024 Sep 1;68(3):169-74.
- Mohammadilalabadi, H., Li, G., Liu, T., Chen, C., Saeidifar, M., Bodempudi, V., . . . Mandiga, A. (2025). Predicting gait scores of individual broilers in later phases of production based on spatial and temporal kinematic features in early stages. *International Poultry Scientific Forum*.
- Kota, S., Li, G., Liu, T., & Chen, C. (2025). Enhanced Deep Learning Approaches for Reliable Tracking of Broilers in Dense Group Settings. *International Poultry Scientific Forum*.
- Saeidifar, M., Li, G., Chen, C., Liu, T., Asali, E., & Bodempudi, V. (2025). Predicting Footpad Condition and Leg Health in Broiler Chickens Using Recurrent All Pairs Field Transforms for Optical Flow and Advanced Segmentation Models. *International Poultry Scientific Forum*.
- Saeidifar, M., Li, G., Ramaswamy, L., Chen, C., Liu, T., Asali, E., & Bodempudi, V. (2025). A User-Friendly Deep Learning-based Platform for Monitoring Animal Activity Index. *International Poultry Scientific Forum*.
- Lorentz, B., C. Robison and P. Regmi. 2024. RFID-based characterization of space utilization and social structure of laying hens in a multi-tier aviary system. In *Poultry Science Association Annual Meeting*. Louisville, KY

Kentucky: University of Kentucky

Dr. Sunday Adedokun

Peer-Reviewed Publications:

- Bauer, M. M., T. Ao, J. P. Jacob, M. J. Ford, A. J. Pescatore, R. F. Power, and S. A. Adedokun. 2025. Performance, energy, and nutrient utilization benefits with exogenous enzyme supplementation of wheat-soybean meal-based diets fed to 22-day-old broiler chickens. *Poultry Science*. 104(5): 105039. <https://doi.org/10.1016/j.psj.2025.105039>.
- Kpodo, K. R., D. J. Milliken, P. M. Campos, M. Proszkowiec-Weglarz, M. D. Lindemann, and S. A. Adedokun. 2025. Modulating effects of mycotoxin and oxidized oil on intestinal microbiota in broiler chickens. *PLoS One*. 20(3): e0314821. <https://doi.org/10.1371/journal.pone.0314821>.
- Adedokun, S. A., A. Dunaway, and R. Adefoye. 2025. *Coccidia* vaccine challenge and exogenous enzyme supplementation in broiler chicken 2—Effect on apparent ileal nutrient and energy digestibility and intestinal morphology 7 and 14 days post-challenge. *Animals*. 15(3): 401. <https://doi.org/10.3390/ani15030401>.
- Haetinger, V. S., J. Y. Sung, S. A. Adedokun, W. A. Dozier, C. M. Parsons, M. Rodehutsord, and O. Adeola. 2024. Ileal phosphorus digestibility of soybean meal for broiler chickens remains

consistent across institutions in a collaborative study regardless of non-phytate phosphorus concentration in the pre-experimental starter diet. *Poultry Science*. 103(5): 103602. <https://doi.org/10.1016/j.psj.2024.103602>.

Maryland: University of Maryland

Dr. Jonathan Moyle

Peer-Reviewed Publications:

McMillian, Z., Moyle, J., Martin, G., Magnaterra, A., Snyder, A., Weimer, S. 2025. Effects of Circulation Fans on Broiler Welfare Indicators in Commercial Houses During Cold Seasons. *Journal of Applied Animal Welfare Science*. <https://doi.org/10.1080/10888705.2025.2464560>.

Conference Papers, Posters, and Presentations:

Che, S., Goeringer, P., Ghanem, M., Rhodes, J., Perdue, M., Moyle, J. Assessing evolving challenges and educational needs in commercial and backyard poultry management. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (poster).

Mitchell, R., Moyle, J., Che, S. Leveraging AI-driven sentiment analysis and natural language processing to inform extension efforts in the poultry industry. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (poster).

Moyle, J. Manejo de reproductoras. Conservación del huevo embrionado [Breeder Management - Egg Pack]. Decimoséptimo Congreso Internacional AVEM 2025, Aviespecialistas de México (AVEM). March 25-27, 2025. Pachuca, Hidalgo, Mexico. (oral).

Moyle, J. Uso de ventiladores de circulación de aire para mejorar el bienestar de las aves [Using Circulation Fans to Improve Bird Welfare]. Decimoséptimo Congreso Internacional AVEM 2025, Aviespecialistas de México (AVEM). March 25-27, 2025. Pachuca, Hidalgo, Mexico. (oral).

Invited Presentations:

Moyle, J. (2024) Windrowing Litter. Allen-Harim Grower Meetings, Allen-Harim.
Notes & Annotations: 3 talks at three different meetings

Extension Activities and Publications:

Held multiple grower meetings to discuss how using circulation fans can improve bird welfare as well as other newer management techniques.

Hirsh, S., Sater, H., Moyle, J. (2025). Growing giant miscanthus on marginal land. *Agronomy News*, University of Maryland Extension.

Other Publications:

Tabler, T., Moyle, J., Chibanga, J., Maharjan, P., Smith, J., Thornton, T., Moon, J., Christensen, T. (2024). Raising Backyard Chickens: 10 Things to Do That No One Ever Tells You. University of Tennessee Institute of Agriculture.

Michigan: Michigan State University

Drs. Janice Siegford, Daniel Morris, Francine Czerniawski, and Mayra Tsoi

Peer-Reviewed Publications

Toscano MJ, Jalali AS, Siegford JM, and Stratmann A. 2024. Providing ramps during lay has larger impacts on laying hens than ramps at rearing. Poultry Science, 103(10), p.104101.

Tsoi MF, Zyskowski J, Robison C, Dirikolu L, and Buchweitz JP. Toxicokinetics of Imidacloprid and Its Metabolites in Laying Hens and Its Potential Impact on Food Safety. Journal of Agricultural and Food Chemistry Article ASAP DOI: 10.1021/acs.jafc.4c08378

Peer-Reviewed Abstracts and Proceedings

Long Y, Siegford JM, Morris D. 2024. Automatic detection of piling in poultry. Proceedings of the 2024 ASABE Annual International Meeting, Anaheim, California. (poster)

Morris D, Long Y, Ali A., Siegford J. 2024. LED Arrays to reduce Poultry Piling” in European Conference on Precision Livestock Farming, Sep 2024.

Stratmann A, Jalali A, Siegford JM, Toscano MJ. 2024. Long-term effects of ramps provided during rearing and laying phases in laying hens. Proceedings of the XVI European Poultry Conference 2024, Valencia, Spain. (talk)

Conference Papers, Posters, and Presentations

Ma X, Bongiorno V, Jacobs J, Swanson J, Widowski T, Siegford J. 2025. Play in cage-free laying hens: The impact of age and aviary design. 2025 North American Regional Meeting of the International Society for Applied Ethology. (poster)

Baugh K, Siegford J. 2025. Design and implementation of individual fear tests for cage-free laying hens. 2025 North American Regional Meeting of the International Society for Applied Ethology. (poster)

Ellis S, Caston L, Harlander A, Penney M, Sandilands V, Siegford J, Widowski T. 2025. A ramp-to-roost journey: Does keel bone damage or footpad health affect the use of ramps to access elevated structures in older laying hens? 2025 North American Regional Meeting of the International Society for Applied Ethology. (talk)

Tsoi M. 2025. The potential impact of imidacloprid and its metabolites on food safety: a toxicokinetic study in laying hens (oral presentation). Annual AAAP meeting 07/2025 in Portland, OR

Invited Presentations

Morris D. 2024. Automated Interventions for Poultry. Invited seminar for Department of Animal, Michigan State University

Extension Activities and Publications

Siegford J. 2025. Productivity, floor eggs, mortality, behavior and welfare across two cage-free aviary styles. Invited speaker for Layer Breakout Session. Michigan Allied Poultry Industry Winter Poultry Seminar, Hudsonville, MI, February 27, 2025

Siegford J. 2025. Monitoring and managing laying hens using technology. Talk for Poultry Extension Collaborative Virtual Symposium, May 2025. 58 attendees

Minnesota: University of Minnesota

Dr. Anup Kollanoor Johny

Peer-Reviewed Publications:

Peichel, C., Nair, D., Manjankattil, S., Reed, K., Cox, R. B., Donoghue, A., and A Kollanoor Johny. 2025. Effect of trans-cinnamaldehyde and peracetic acid alone or in combination on multidrug-resistant Salmonella Heidelberg on broiler drumsticks under scalding alone or with chilling and storage in sequence. J. Appl. Poult. Res. 34, 100508.

<https://www.sciencedirect.com/science/article/pii/S1056617124001065>

Grace Dewi, Anup Kollanoor Johny, Ranjith Ramanathan. 2025. Cecal Metabolome Profiles of Turkey Poults in Response to Salmonella Heidelberg Challenge with or without Turkey-Derived Lactobacillus Probiotic and Trans-Cinnamaldehyde. Animals 15: 10.3390/ani15142016. <https://doi.org/10.3390/ani15142016>

Shijinaraj Manjankattil, Grace Dewi, Claire Peichel, Medora Creek, Peter Bina, Kay Lerohl, Kerem Deniz, Luna Akhtar, Rober Porter Jr., Sally Noll, and Anup Kollanoor Johny. 2024. Dairy-origin Propionibacterium freudenreichii, turkey-origin Lactobacillus salivarius, and a Salmonella Typhimurium vaccine elicit comparable colonization resistance on drug-resistant Salmonella serotype cocktail (S. Reading, S. Agona, and S. Saintpaul) in commercial turkeys after experimental challenge. J. Appl. Poult. Res. 100428

<https://www.sciencedirect.com/science/article/pii/S1056617124000278>

G. Dewi, S. Manjankattil, C. Peichel, T. J. Johnson, S. Noll, C. Cardona, A. Kollanoor Johny. 2024. Combination of autochthonous Lactobacillus strains and trans-Cinnamaldehyde in water reduces Salmonella Heidelberg in turkey poults Front. Microbiol. 15, 1337428.

<https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2024.1337428/full>

Grace Dewi, Chery Smith, Wayne Martin, Kumar Venkitanarayanan, Anup Kollanoor Johny. Focus Groups Exploring American Consumer Perspectives on Contemporary Poultry Production Reveal Critical Insights to Educate Sustainable Practices for Producers. Front. Sust. Food Sys. 8:1416167 <https://www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2024.1416167/full>

Conference Papers, Posters, and Presentations:

Prabhakaran, D. M., Nair, D. V. T., A. Kollanoor Johny. 2024. Shotgun metagenomics reveals an abundance of tetracycline and aminoglycoside resistomes in turkey ceca in a drug-resistant *Salmonella* challenge-intervention model. IFT Annual Proceedings, 2024 IFT annual meeting, Illinois, Chicago.

D. M. Prabhakaran, and A. Kollanoor Johny. 2024. Towards One Health Driven Sustainable Food Animal Production. Proceedings of the International Training Conference on “Sustainable Food Safety through Livestock Production: A One Health Approach” organized by the National Institute of Agricultural Extension Management, Hyderabad, Telangana State, India (Ministry of Agriculture and Farmers Welfare, Government of India), and Kerala Veterinary and Animal Sciences University, Wayanad, Kerala State, India.

Invited Presentations:

A. Kollanoor Johny. 2025. Breaking down the barriers and developing communication channels between consumers and producers for poultry sustainability - A US perspective. US-Mexico Sustainability Symposium, ANECA conference, Guadalajara, Mexico.

A. Kollanoor Johny. 2025. Understanding Consumer Perspectives on Poultry Production: Insights into Guide Sustainable Practices for Producers. USDA SAS PD's meeting, Minnesota Update.

A. Kollanoor Johny. 2024. 85th Minnesota Nutrition Conference, Microbial Interference Strategies for Sustainable Poultry Production, University of Minnesota, Mankato, Minnesota, United States.

Extension Activities and Publications

A. Kollanoor Johny. 2024. Towards One Health Driven Sustainable Food Animal Production. International Training Conference on “Sustainable Food Safety through Livestock Production: A One Health Approach” organized by the National Institute of Agricultural Extension Management, Hyderabad, Telangana State, India (Ministry of Agriculture and Farmers Welfare, Government of India), and Kerala Veterinary and Animal Sciences University, Wayanad, Kerala State, India.

A. Kollanoor Johny. 2024. Alternatives to Antibiotics and Sustainable Poultry Production. International Webinar by the Poultry Health Consultancy Committee, Poultry Professionals Society. Pakistan.

Dissertation and Thesis

Prabhakaran, D. M. 2024. Exploring the mechanism of anti-*Salmonella* approaches in poultry using in vitro, in vivo, and metagenomics approaches. M.S. thesis submitted to the Department of Animal Science, University of Minnesota graduate program.

Mississippi: Mississippi State University

Dr. Pratima Adhikari

Peer-Reviewed Publications:

Poudel, I., A. Calvert, A. S. Kiess, L. Zhang, and P. Adhikari. 2025. Effect of a *Bacillus*-based probiotic on fecal shedding and cecal colonization of *Salmonella* Enteritidis in laying hens. *Journal of Applied Poultry Research*. 34(2): 100532. <https://doi.org/10.1016/j.japr.2025.100532>.

- Rodewald, E. K., B. C. Jasek, L. Zhang, S. A. Roberts, C. Bortoluzzi, P. Adhikari. 2025. Role of a precision-biotic fed to Dekalb White laying hens at peak production. *Animals*. 15(14): 2095. <https://doi.org/10.3390/ani15142095>.
- Jia, L., M.A. Arick, Chu-Tu Hsu, D. G. Petersen, J. D. Evans, K. Robinson, P. Adhikari and L. Zhang. 2024. Complete genome sequences of two avian pathogenic *Escherichia coli* strains isolated from broilers exhibiting colibacillosis in Mississippi. *Microbiology Resource Announcements*. 13(6): e01020-23. <https://doi.org/10.1128/mra.01020-23>.
- Waters, C., K. Wamsley, C. Wyatt, M. Bedford, M. Elliot and P. Adhikari. Roles of limestone particle size ratios and phytase levels to support late-lay single-cycled laying hens (60-80 weeks of age) with a focus on production and performance. *Poultry Science*. **Under revision**.
- Ovi, F., L. Zhang, L. Jia, K. Robinson, C. Magee, J. Evans, D. Cosby, D. Wilson, P. Adhikari. Intra-tracheal infection model to evaluate the effects of virulence genotypes of avian pathogenic *Escherichia coli* in layer pullets. *Journal of Applied Microbiology*. **Under preparation**.
- Poudel, I., L. Zhang and P. Adhikari. Characterizing microbiome population in *Salmonella* vaccinated and unvaccinated laying hens. **Under preparation**.
- Ovi, F., I. Poudel, T. Lavergne, P. Adhikari. Evaluating the effects of organic acid blends on mitigating colonization and fecal shedding of *Salmonella* Enteritidis in laying hens. *Journal of Applied Microbiology*. **Under preparation**.

Conference Papers, Posters, and Presentations:

- Waters, C., R. Adhikari, J. Lee, D. Paneru, W. K. Kim, R. Kriseldi, M. Elliot, L. Zhang, K. Wamsley, and P. Adhikari. Understanding the branched-chain amino acid interactions on bone morphology of pullets (6-12 weeks of age). International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Oral.
- Cribillero, N. G., C. Wyatt, K. G. Wamsley, T. Boltz, L. Zhang, K. McCafferty, and P. Adhikari. Impact of almond hulls and a xylanase-cellulase enzyme on cecal microbiota in Lohmann LSL-Lite pullets and laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Oral.
- Guardado, Carlos A., F. K. Ovi, T. Lavergne, C. Elrod and P. Adhikari. Use of a yeast blend product to mitigate *Salmonella* Enteritidis in laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Poster.
- Guardado, Carlos A., F. K. Ovi, T. Lavergne, C. Elrod and P. Adhikari. Use of an all-natural, organic certified, yeast blend product to mitigate *Salmonella* Enteritidis in laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Poster.
- Waters, C., R. Adhikari, J. Lee, D. Paneru, W. K. Kim, R. Kriseldi, M. Elliot, L. Zhang, K. Wamsley, and P. Adhikari. Understanding the branched-chain amino acid interactions on bone morphology of pullets at 18 weeks of age. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Poster.
- Adhikari, P., E. von Heimendahl, A. O. Sokale and A. Barri. Effects of supplemental dietary fatty acid monoglycerides on the performance and jejunal gene expression in coccidiosis-vaccinated W-36-layer pullets. European Symposium on Poultry Nutrition. June 23-26, 2025. Maastricht, The Netherlands. Poster.

Invited Presentations:

Adhikari, P. *Salmonella* and egg. National Egg Quality School. May 19-23, 2025. Greenville, SC.

Adhikari, P. Iowa Limestone Resources Research (ILC) podcast. January 8, 2025.

Adhikari, P. USSEC live Q&A session webinar on laying hen and pullet feeding. US Soy Excellence Center. December 6, 2024.

Dissertation and Thesis:

Cribillero, N. G. May 2025. Dissertation Title: Impact of exogenous enzyme supplementation on performance parameters, intestinal health, and the economic returns in pullet and laying hens fed alternative feed ingredients.

Rodewald, E. K. May 2024. Thesis title: Role of a precision biotic and a protease fed alone and in combination to Dekalb White laying hens at peak production phase.

Other (Podcasts):

Adhikari, P. (Host), and I. Poudel (Guest). “Feed additives and *Salmonella*.” The Poultry Nutrition Blackbelt. July 15, 2024.

<https://www.youtube.com/watch?v=LdLXJok3e38&list=PLUd0Fonx275j6F7oMLoHjOYa631M4Xr3y&index=23>

Adhikari, P. (Host), and E. Montiel (Guest). “Feed quality and biosecurity.” The Poultry Nutrition Blackbelt. August 9, 2024.

<https://www.youtube.com/watch?v=mIDgNLoJprY&list=PLUd0Fonx275j6F7oMLoHjOYa631M4Xr3y&index=17>

Adhikari, P. (Host), and Y. Bajgain (Guest). “Microbiota and Poultry Immunity.” The Poultry Nutrition Blackbelt. October 7, 2024. <https://www.youtube.com/watch?v=2NMA-fjhyxA&list=PLUd0Fonx275j6F7oMLoHjOYa631M4Xr3y&index=12>

Adhikari, P. (Host), and G. Archer (Guest). “Feed additives and welfare.” The Poultry Nutrition Blackbelt. November 18, 2024.

<https://www.youtube.com/watch?v=hHR3pa8uRTA&list=PLUd0Fonx275j6F7oMLoHjOYa631M4Xr3y&index=6>

Adhikari, P. (Host), and B. Dozier (Guest). “Career Growth in Poultry Nutrition.” The Poultry Nutrition Blackbelt. December 10, 2024.

<https://www.youtube.com/watch?v=a7qXsl6M1E8&list=PLUd0Fonx275j6F7oMLoHjOYa631M4Xr3y&index=2>

Dr. Timothy Boltz

Peer-Reviewed Publications:

Carroll, M., P. Adhikari, K. G. Wamsley, C. Shen, and T. P. Boltz. 2025. Modeling the thermal inactivation of non-pathogenic and avian pathogenic *Escherichia coli* in broiler mash feed with high initial moisture content using a lab-based circulating water bath. *Journal of Applied Poultry Research*. 100584. In press, pre-proof available. <https://doi.org/10.1016/j.japr.2025.100584>.

- Ayres, V. E., T. P. Boltz, K. M. Bowen, S. Grushecky, J. Wang, and J. S. Moritz. 2025. Applied Research Note: Heating system and feed additive effects on foot pad quality, broiler performance, and immune status. *Journal of Applied Poultry Research*. 34(3): 100557. <https://doi.org/10.1016/j.japr.2025.100557>.
- Coe, C., X. Wang, E. Rowen, R. Stearns, J. Katz, T. P. Boltz, M. S. I. Rion, C. Long, G. Freshour, J. Jaczynski, K. Matak, A. Freshour, Y. Luo, and C. Shen. 2025. Applying Microbial Predictive and Machine Learning Model Data to Evaluate Thermal Inactivation of *Salmonella* and the Surrogate *Enterococcus faecium* in Reconstructed Ground Chicken Meat Affected by Temperature and Salt Concentrations. *Poultry Science*. 104(9): 105422. <https://doi.org/10.1016/j.psj.2025.105422>.
- Rion, M. S. I., C. Coe, J. Katz, G. Freshour, C. Long, K. Matak, A. Freshour, J. Jaczynski, T. P. Boltz, X. Tang, and C. Shen. 2025. Survival of *Salmonella* Typhimurium, *Listeria monocytogenes*, and Their Potential Surrogates on Cantaloupes after Triple-Washing with Hydrogen Peroxide-Peroxyacetic Acid Mixture. *LWT - Food Science and Technology*. 224: 117821. <https://doi.org/10.1016/j.lwt.2025.117821>.
- Coe, C., T. P. Boltz, E. Rowen, J. S. Moritz, G. Freshour, M. S. I. Rion, C. Long, L. Knarr, K. Bowen, J. Jaczynski, K. Matak, A. Freshour, and C. Shen. 2025. Thermal Inactivation of *Salmonella* Surrogate, *Enterococcus faecium*, in Mash Broiler Feed Pelleted in A University Pilot Feed Mill. *Poultry Science*. 104(5): 104998. <https://doi.org/10.1016/j.psj.2025.104998>.

Peer-Reviewed Abstracts and Proceedings:

- Coe, C., T. P. Boltz, E. Rowen, J. S. Moritz, G. Freshour, M. S. I. Rion, C. Long, L. Knarr, K. Bowen, J. Jaczynski, K. Matak, A. Freshour, and C. Shen. 2025. Modeling of the Thermal Inactivation of *Salmonella* Surrogate, *Enterococcus faecium*, in Mash Broiler Feed Pelleted in A University Pilot Feed Mill. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (Abstract 40).
- Long, C. G., C. Coe, T. P. Boltz, and C. Shen. 2025. Assess West Virginia very small poultry producers' knowledge of applying mobile poultry processing unit and Evaluate Vinegar Water Against *Salmonella* Typhimurium, *Campylobacter jejuni*, and surrogate bacteria *Enterococcus faecium* during Chilling of Chicken Carcasses. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (Abstract 83).
- Magee, E. and T. P. Boltz. Evaluating the Impact of Inulin Inclusion on 21 Day Broiler Performance. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (Abstract 464P).
- Grant, T., E. Magee, M. Carroll, and T. P. Boltz. 2025. Evaluation of Formaldehyde and Glycerol Monolaurate Product at Two Inclusions on the Reduction of *Salmonella* and Avian Pathogenic *Escherichia coli* in Mash Broiler Feed. Mississippi State University Spring 2025 Undergraduate Research Symposium. April 9-10, 2025. Starkville, MS. (Abstract P114).
- Grisham, W. C., E. Magee, L. Muñoz, T. Cummings, K. Cookson, P. Stayer, and T. P. Boltz. Evaluating the impact of a tannin-based feed additive on bird performance and commercial *Salmonella* vaccine recovery in four-day-old broiler chicks. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (Abstract P299).
- Magee, E., J. Sands, and T. P. Boltz. Evaluating the effect of feed sanitizer products on feed mill equipment and its impact on feed microbial reduction. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (Abstract M89).

Invited Presentations:

Boltz, T. P., and K. Macklin. 2025. Pre-harvest *Salmonella* control. Mississippi Poultry Association, Inc. Management School. Mississippi State University. May 19-20, 2025. Starkville, MS.

Dr. Kenneth S. Macklin

Peer-Reviewed Publications:

- Pietruska, A., K.S. Macklin, X. Wang, J.T. Krehling, T. Dormitorio, R. Hauck. 2025. Investigation of intestinal health in broiler chickens following *Salmonella* Typhimurium and coccidiosis vaccination and challenge with *Salmonella* Typhimurium. *The Journal of Poultry Science*. 62: 2025009. <https://doi.org/10.2141/jpsa.2025009>.
- Adhikari, Y., M.A. Bailey, D.V. Bourassa, S. Poudel, R.J. Buhr, K.S. Macklin. 2025. A longitudinal study on *Campylobacter* spp. in an integrated broiler complex in the southeast region of the United States: prevalence and phylogenetic analysis. *Journal of Food Protection*. 88 (1): 100420. <https://doi.org/10.1016/j.jfp.2024.100420>.
- Adhikari, Y., D.V. Bourassa, S. Poudel, M.A. Bailey, R.J. Buhr, K.S. Macklin. 2025. Genotypic and phenotypic characterization of antimicrobial resistance in *Salmonella* strains isolated from both No-Antibiotics-Ever (NAE) and conventional broiler complexes. *Poultry Science*. 104 (3): 104855. <https://doi.org/10.1016/j.psj.2025.104855>.
- Adhikari, Y., M.A. Bailey, S. Kitchens, P. Gaonkar, L.R. Muñoz, S.B. Price, D.V. Bourassa, L. Huber, R.J. Buhr, K.S. Macklin. 2025. Whole-genome sequencing and phylogenetic analysis of *Salmonella* isolated from pullets through final raw product in the processing plant of a conventional broiler complex: a longitudinal study. *Microbiology Spectrum*. 13 (2): e02090-24. <https://doi.org/10.1128/spectrum.02090-24>.
- Morris, C.A., D. Neves, M. Carroll, J. Moon, L. Orellana, R. Burin, C. Morris, A. Jasek and K.S. Macklin. 2024. Impact of trace mineral supplementation and translucency score on eggshell quality, hatchability, fertility and chick quality. *Poultry Science*. 104 (1): 104400. <https://doi.org/10.1016/j.psj.2024.104400>.
- Poudel, S., D. Pokhrel, X. Zhang, A.T. Sukumaran, P. Adhikari, A.S. Kiess, K.S. Macklin, and L. Zhang. 2024. *Campylobacter jejuni* from no antibiotics ever (NAE) broilers: prevalence, antibiotic resistance and virulence gene analysis. *Poultry Science*. 103 (12): 104380. <https://doi.org/10.1016/j.psj.2024.104380>.

Peer-Reviewed Abstracts and Proceedings:

- Morris, C.A. L. Orellana, H.N. Nabors, C.A. Waters, P. Adhikari, K. Macklin. 2025. Changes in Eggshell Translucency and Its Relationship with Egg Quality During 28 Days of Cold Storage. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Guzman, E.G., J.I. Vargas, J.P. Gulizia, J.R. Hernandez, J. Martinez, M.J. Brizuela, F. Contreras, K. Casco, A. Steele, M.A. Bailey, R. Hauck, D.V. Bourassa, K.S. Macklin, W.J. Pacheco. Impact of litter treatment and organic acid supplementation via drinking water on *Salmonella* prevalence and growth performance in *Salmonella*-challenged broilers. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC

- Orellana, L.A., C.A. Morris, L. Muñoz, L. Jimenez, T. Roman, T. Salazar, J. Herrera, A. Fernandez, J. Cordero, L. Castro, J. Diego Gonzalez, D. Serrano, K. Macklin. Impact of Oviposition Timing on Egg Quality: Translucency, Speckling, and Shell Characteristics. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Morris, C.A., C.A. Waters, P. Adhikari, K. Macklin. 2025. Impact of 28-day storage on translucency score and eggshell quality parameters of W-36 laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Adhikari, Y., D. Bourassa, S. Poudel, M. Bailey, R. Buhr, K. Macklin. Antimicrobial Resistance profiling of *Salmonella* recovered from environments of No-Antibiotics-Ever (NAE) and Conventional broiler complexes. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Poudel, S., F.A. Contreras Zelaya, E. Guzman, W. Pacheco, R. Hauck, K. Macklin, D. Bourassa. Impact of organic acid supplementation on cecal microbiome of broiler chicks inoculated with *Salmonella*. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Guzman, E.G., J.I. Vargas, J.P. Gulizia, J.R. Hernandez, J. Martinez, M.J. Brizuela, M.A. Bailey, R. Hauck, D.V. Bourassa, K.S. Macklin, W.J. Pacheco. Effect of organic acid supplementation on *Salmonella* prevalence and growth performance during a challenge model using male broilers. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Stumpff, J.A., E.G. Guzman, A. Pietruska, R.W. Tabish, W.J. Pacheco, D.V. Bourassa, K.S. Macklin, R. Hauck. Changes in the litter microbiota of treated and untreated litter of broilers given organic acids in the drinking water. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Extension Activities and Publications:

- Boltz, T. and K.S. Macklin. Preharvest *Salmonella* control. Mississippi Poultry Association Management School. May 19-20, 2025. Starkville, MS.

Dissertation and Thesis:

- Adhikari, Yagya. 2025. PhD Dissertation. Isolation, Genomic Analyses and Antimicrobial Resistance Profiling of *Salmonella* and *Campylobacter* Isolated from Different Stages of No-Antibiotic-Ever (NAE) and Conventional Broiler Complexes.
- Morris, Cassidy. 2025. MS Thesis. Evaluating the use of translucency score as an effective parameter of eggshell quality.

Dr. Maryam Mohammadi-Aragh

Peer-Reviewed Publications:

- Drewry, J.L., Mohammadi-Aragh, M.K., Elliott, K. Evaluation of the spatiotemporal distribution of bacterial populations within hatching egg incubators. *Poultry Science*. Under preparation.

Peer-Reviewed Abstracts:

Drewry, J.L., Mohammadi-Aragh, M.K., Elliott, K., Vechalapu, T.R. Assessing the uniformity of incubators for broiler chickens. American Society of Agricultural and Biological Engineers International Conference. July 13-16, 2025. Toronto, ON.

Mohammadi-Aragh, M.K., Drewry, J.L., Elliott, K. Investigating the spatiotemporal distribution of *Escherichia coli* and aerobic bacteria in commercial hatching eggs. International Poultry Science Forum. January 27-28, 2025. Atlanta, GA.

Conference Papers, Posters, and Presentations:

Drewry, J.L., Mohammadi-Aragh, M.K., Elliott, K., Vechalapu, T.R. Assessing the uniformity of incubators for broiler chickens. American Society of Agricultural and Biological Engineers International Conference. July 13-16, 2025. Toronto, ON.

Mohammadi-Aragh, M.K., Drewry, J.L., Elliott, K. Investigating the spatiotemporal distribution of *Escherichia coli* and aerobic bacteria in commercial hatching eggs. International Poultry Science Forum. January 27-28, 2025. Atlanta, GA.

Ashley, S.D., Mohammadi-Aragh, M.K., Drewry, J.L., Elliott, K. The impact of spatiotemporal environment in a poultry incubator on eggshell surface *E. coli* and aerobic bacteria populations. Mississippi State University Spring Undergraduate Research Symposium. April 9-10, 2025. Mississippi State, MS.

Dr. Luis Muñoz

Peer-Reviewed Publications:

Muñoz, L., C. Escobar, L. Zhang, L. Jia, M. Bailey, D. Bourassa, S. Rochell, B. Chaves-Cordoba, V. Tashiguano, M. Quino, Y. Adhikari, L. Orellana, K. Macklin. Effects of Intermittent and Continuous organic acids in water on antimicrobial activity, intestinal morphology, gut microbiome, and growth performance of *Campylobacter jejuni* challenged or unchallenged broilers. *European Poultry Science*. **Submitted**.

Adhikari, Y., M. Bailey, S. Kitchens, P. Gaonkar, L. Muñoz, S. Price, D. Bourassa, L. Huber, R. Buhr, and K. Macklin. 2025. Whole-genome sequencing and phylogenetic analysis of *Salmonella* isolated from pullets through final raw product in the processing plant of a conventional broiler complex: a longitudinal study. *Microbiology Spectrum*. 13(2): e02090-24.
<https://doi.org/10.1128/spectrum.02090-24>

Peer-Reviewed Abstracts and Proceedings:

Orellana, L., C. Morris, L. Muñoz, L. Jiménez, T. Román, T. Salazar, J. Herrera, A. Fernández, J. Cordero, L. Castro, J. Gonzales, D. Serrano, and K. Macklin. Impact of oviposition timing on egg quality: Translucency, speckling, and Shell characteristics. Oral presentation at the International Poultry Scientific Forum, January 27-28, 2025. Atlanta, GA. Abstract available at:
<https://www.ippexpo.org/education-programs/IPSF/docs/2025-IPSF-Abstracts.pdf>

Grisham, W., E. Magee, L. Muñoz, T. Cummings, K. Cookson, P. Stayer, and T. Boltz. Evaluating the impact of a tannin-based feed additive on bird performance and commercial *Salmonella* vaccine recovery in four-day old broiler chicks. Poster presentation at the International Poultry Scientific

Forum, January 27-28, 2025. Atlanta, GA. Abstract available at:
<https://www.ippexpo.org/education-programs/IPSF/docs/2025-IPSF-Abstracts.pdf>

Dissertation and Thesis:

Riggs, A. 2025. MS Thesis. Feed-based strategies to improve poultry production efficiency.

Dr. Hudson Thames

Peer-Reviewed Publications:

Thames, H. T., Pokhrel, D., Sukumaran, A. T., Dinh, T. T. N., Schilling, M. W., White, S., Ramachandran, R., Macklin, K., Zhang, L. 2025. Behavioral Patterns of *Salmonella* Biofilm Genes. *Microbiology Spectrum*. **Under Revision**.

Peer-Reviewed Abstracts and Proceedings:

Plocher, S. S., Coufal, C., Jespersen, J., Thames, H. T., Zhang, Xue., Wamsley, K. Impact of sodium bisulfate feed inclusions on broiler performance and processing metrics. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Urrutia, J., Thames, H. T., McCafferty, K. W., Magee, C., Pacheco, W. J., Boltz, T., Macklin, K., Wamsley, K. Maximizing 17 to 28 d growth performance of broilers with and without a subclinical necrotic enteritis challenge through corn particle size and feed quality. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Urrutia, Jorge A., Timothy Boltz, Hudson Thames, Wilmer J. Pacheco, Ken Macklin, Christopher Magee, Kelley G. Wamsley. Maximizing 27 to 35 d growth performance and processing metrics of broilers with and without a subclinical necrotic enteritis challenge through corn particle size and feed quality. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.

Fajardo, K. C., Wamsley, K. G., Thames, H. T. Consideration of multiple feed additives trials and the impact on woody breast frequency. Poultry Science Association Annual Meeting, July 14-17, 2025. Raleigh, NC.

Dr. Kelley Wamsley

Peer-Reviewed Publications:

B. Svihus, M.R. Abdollahi, K.G.S. Wamsley, W. Pacheco, H. Hetland. (2025) Structural architecture of pelleted broiler diets: A comprehensive narrative review of key factors for an optimized macro- and microstructure, *Poultry Science*, Volume 104, Issue 9, 2025, 105478, <https://doi.org/10.1016/j.psj.2025.105478>.

Peer-Reviewed Abstracts and Proceedings:

Riggs, A. K., Tillman, N. S., & Wamsley, K. G. S. (2025). Practical assessment of model accuracy to predict broiler starter-phase production goals when fed varying feed forms [Abstract].

International Poultry Scientific Forum, Atlanta, GA. Awarded for "Certificate of Excellence." Poult. Sci. 104 (E-Suppl 1).

Jorge Urrutia, Hudson Thames, Klinton W. McCafferty, Christopher Magee, Wilmer J. Pacheco, Timothy Boltz, Kenneth Macklin, Kelley Wamsley. Maximizing 17 to 28 d growth performance of broilers with and without a subclinical necrotic enteritis challenge through corn particle size and feed quality. Presented at the International Poultry Scientific Forum in Atlanta, GA. Poult. Sci. 104 (E-Suppl 1).

Invited Presentations:

24th ESPN Maastricht, The Netherlands - keynote presentation 6.24.25 "Harnessing Feed and Feed Technology to Optimize Broiler Performance"

Pilgrims Feed Mill Manager Annual Meeting "Optimizing Feed Form by Phase for Broilers"

Dr. Li Zhang

Peer-Reviewed Publications:

Lyte, Joshua M., Mitiku M. Seyoum, Diana Ayala, Jannigje G. Kers, Valentina Caputi, Timothy Johnson, Li Zhang, Joshua Rehberger, Guolong Zhang, Sami Dridi, Brett Hale, Jean E. De Oliveira, Daniel Grum, Alexandra H. Smith, Michael Kogut, Steven C. Ricke, Anne Ballou, Bill Potter, Monika Proszkowiec-Weglarz. 2025. Do we need a standardized 16S rRNA gene amplicon sequencing analysis protocol for poultry microbiota research? *Poultry Science*. 104(7):105242. <https://doi.org/10.1016/j.psj.2025.105242>.

Ye, Xin, Chuan-Yu Hsu, Linan Jia, Xue Zhang, Christopher Magee, Stephanie Whitham, Spencer Leigh, Jeffrey Evans, Li Zhang, Kelsy Robinson. 2025. Dynamic immune response to Avian Pathogenic *Escherichia coli* infection in broiler chickens: Insights into pro-inflammatory and anti-inflammatory cytokine regulation. *Poultry Science*. 104(6):105029. <https://doi.org/10.1016/j.psj.2025.105029>.

Chaudhary, Deepa, Sabin Poudel, Linan Jia, Anuraj Theradiyil Sukumaran, Xue Zhang, Wen-Hsing Cheng, Aaron S. Kiess, Kenneth S. Macklin, and Li Zhang. 2024. Optimization of a loop-mediated isothermal amplification (LAMP) assay for the rapid detection of *Clostridium perfringens*. *Journal of Applied Poultry Research*. 34(2): 100513. <https://doi.org/10.1016/j.japr.2024.100513>.

Isah, Abubakar Shitu, Reshma Ramachandran, Anuraj Theradiyil Sukumaran, Aaron S. Kiess, Claudia D. Castañeda, Timothy Boltz, Kenneth S. Macklin, Hossam Abdelhamed, Li Zhang. 2024. Construction and characterization of bioluminescent *Salmonella* Reading outbreak and non-outbreak Strains. *Microbiology Spectrum*. 13(2): e01263-24. <https://doi.org/10.1128/spectrum.01263-24>.

Isah, Abubakar Shitu, Reshma Ramachandran, Anuraj Theradiyil Sukumaran, Aaron S. Kiess, Claudia D. Castañeda, Timothy Boltz, Kenneth S. Macklin, Hossam Abdelhamed, Li Zhang. 2024. Research Note: Evaluating the vertical transmission potential of *Salmonella* Reading in broiler breeders. *Poultry Science*. 103 (12): 104351. <https://doi.org/10.1016/j.psj.2024.104351>.

Poudel, Sabin, Diksha Pokhrel, Xue Zhang, Anuraj T. Sukumaran, Pratima Adhikari, Aaron S. Kiess, Kenneth S. Macklin, and Li Zhang. 2024. *Campylobacter jejuni* from no antibiotics ever (NAE) broilers: prevalence, antibiotic resistance, and virulence genes analysis. *Poultry Science*. 103(12): 104380. <https://doi.org/10.1016/j.psj.2024.104380>.

Peer-Reviewed Abstracts and Proceedings:

- Jia, Linan, Xin Ye, Mark A. Arick II, Chuan-Yu Hsu, Jeffrey D. Evans, Kelsy Robinson, Pratima Adhikari, Ken Macklin, and Li Zhang. Pangenome analysis reveals distinct evolutionary clusters and transmission patterns of avian pathogenic *Escherichia coli*. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Wang, Manhong, Chuan-Yu Hsu, Mark A. Arick II, Xue Zhang, Pratima Acharya Adhikari, Peixin Fan, Katie Elliott, Ken Macklin and Li Zhang. Genomic characterization of bacterial isolates from broiler chicken cecal microbiota. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Fugate, Hailey, Linan Jia, Xin Ye, Xue Zhang, Pratima Acharya Adhikari, Ken Macklin, Li Zhang. Evaluating the function of *pagP* in avian pathogenic *Escherichia coli* pathogenicity using an embryo challenge model. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Waters, Charis A., Roshan Adhikari, Jason Lee, Ruben Kriseldi, Michael Elliot, Li Zhang, Kelley Wamsley, Pratima Adhikari. Effect of branched-chain amino acid (leucine, isoleucine and valine) interactions on performance in peak hy-line w-36 hens. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Chowdhury, Monzur, Christopher Magee, Jeffrey D. Evans, Palmy R. Jesudhasan, Li Zhang, and Kelsy Robinson. Evaluation of a novel electron beam-killed vaccine against avian pathogenic *Escherichia coli* in chicken. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Ye, Xin, Chuan-Yu Hsu, Linan Jia, Christopher Magee, Spencer Leigh, Jeffrey Evans, Li Zhang, Kelsy Robinson. Development and validation of a TaqMan-based multiplex qPCR assay for profiling pro-inflammatory cytokine responses in avian pathogenic *Escherichia coli* (APEC) infected poultry. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Guardado, Carlos A., Linan Jia, Monzur Chowdhury, Li Zhang, Ken Macklin, Pratima Adhikari. Construction and characterization of bioluminescent avian pathogenic *Escherichia coli* (APEC) strain to understand the pathogenesis of colibacillosis in poultry. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC.
- Fugate, Hailey, Linan Jia, Xin Ye, Xue Zhang, Ken Macklin, Li Zhang. Optimizing a *Campylobacter jejuni* colonization challenge model for food safety intervention assessment in broiler chickens. Reciprocal Meat Conference (RMC). June 22-25, 2025. Columbus, OH.
- Fugate, Hailey, Linan Jia, Xin Ye, Manhong Wang, Christopher Magee, Xue Zhang, Pratima Adhikari, Kelsy Robinson, Li Zhang. Assessment of *pagP* gene function in avian pathogenic *Escherichia coli* pathogenicity using a broiler chick challenge model. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Wang, Manhong, Xin Ye, Hailey Fugate, Chuan-Yu Hsu, Xue Zhang, Peixin Fan, Katie E. Elliott, Pratima Adhikari, Kenneth Macklin, Li Zhang. Isolation of probiotic candidates from broiler chicken ceca using culturomics approach. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.
- Waters, Charis A., Roshan Adhikari, Jason T. Lee, Deependra Paneru, Woo Kyun Kim, Ruben Kriseldi, Michael Elliot, Li Zhang, Kelley Wamsley, Pratima Adhikari. Understanding the branched-chain

amino acid interactions on bone morphology of pullets (6-12 weeks of age). International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Cribillero Chuquihuaccha, Nelly G., Craig Wyatt, Kelley Wamsley, Timothy Boltz, Li Zhang, Klinton W. McCafferty, Pratima Adhikari. Impact of almond hulls and a xylanase-cellulase enzyme on cecal microbiota in Lohmann LSL-Lite pullets and laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Waters, Charis A., Roshan Adhikari, Jason T. Lee, Deependra Paneru, Woo Kyun Kim, Ruben Kriseldi, Michael Elliot, Li Zhang, Kelley Wamsley, Pratima Adhikari. Understanding the branched-chain amino acid interactions on bone morphology of pullets at 18 weeks of age. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Jia, Linan, Chuan-Yu Hsu, Xue Zhang, M. W. Schilling, Kelley Wamsley, Pratima Adhikari, Li Zhang. Differential expression of genes in fatty acid metabolism and inflammation pathways in Pectoralis major of broilers with woody breast myopathy. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Jia, Linan, Hailey Fugate, Chuan-Yu Hsu, Jeffrey Evans, Kelsy Robinson, Pratima Adhikari, Li Zhang. Growth characterization and genetic validation of a genetically manipulated *pagP*-deficient avian pathogenic *Escherichia coli* strain. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Ye, Xin, Chuan-Yu Hsu, Linan Jia, Christopher Magee, Stephanie Whitham, Spencer Leigh, Jeffrey Evans, Li Zhang, Kelsy Robinson. Development of a Taqman Multiplex Real-time qPCR Assay for Proinflammatory Gene Detection in Samples Infected with Avian Pathogenic *Escherichia coli* (APEC). International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Shrestha, Sunita, Linan Jia, Chuan-Yu Hsu, Mark A. Arick II, Kelsy Robinson, Li Zhang. Novel sequencing-based method for *E. coli* O-Serogroup typing enhances poultry disease surveillance. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA.

Invited Presentations:

Zhang, Li. Identification of novel antigens for a universal vaccine against avian colibacillosis. Mississippi Poultry Association (MPA) Poultry Health Seminar. February 19, 2025. Jackson, MS.

Dissertation and Thesis:

Fugate, Hailey. 2025. MS Thesis. Assessment of *pagP* gene function in avian pathogenic *Escherichia coli* pathogenicity using different challenge models.

North Carolina: North Carolina State University

Dr. Kenneth E. Anderson

Peer-Reviewed Publications:

- Gulabrai, B.P., A. N. Pullin, K. E. Anderson, and A.S. Kiess, 2025. Research Note: Stress responses in different genetic strains of laying hens housed in a cage-free environment. *Poultry Science*. 104(8): 105295. <https://doi.org/10.1016/j.psj.2025.105295>.
- Alig, B. N., K. E. Anderson, D. M. Malheiros, K.L. Harding, and R. D. Malheiros. 2025. Assessment of the Effects of Stocking Density on Laying Hens Raised in Colony Cages: Part II—Egg Production, Egg Quality, and Welfare Parameters. *Poultry*. 4(3): 28. <https://doi.org/10.3390/poultry4030028>.
- Alig, B. N., K. E. Anderson, and R. D. Malheiros. 2025. Assessment of the effects of stocking density on laying hens raised in colony cages: Part 1—The effect of density, time of day and hen age on behavior and aggression. *Poultry*. 4(3): 27. <https://doi.org/10.3390/poultry4030027>.
- Gulabrai, B.P., A.S. Kiess, K.E. Anderson, and A.N. Pullin. 2025. The influence of genetic strain on fear and anxiety responses of laying hens housed in a cage-free environment. *Poultry Science*. 104(7): 105201. <https://doi.org/10.1016/j.psj.2025.105201>.
- Harding, K., E. Boot, J. O. Evan, S. B. Shah, R.D. Malheiros, K. E. Anderson. 2025. The Comparative Effects of Ventilation Shutdown with Heat (VSDH), Relative Humidity (VSDHRh), or CO₂ (VSDCO₂) on Broiler Electroencephalogram (EEG), Blood Chemistry and Gene Expression. *Journal of Applied Poultry Research*. 34(3): 100541. <https://doi.org/10.1016/j.japr.2025.100541>.
- Malheiros, D. M., R. D. Malheiros, K. E. Anderson, and P. R. Ferket. 2025. Broiler Breeders Fed Diets Supplemented with Conventional or Lipid Matrix Microencapsulated Trace Minerals at Standard or High Levels: Part II. Influence on Hatching Egg Quality. *Poultry*. 4(2): 18. <https://doi.org/10.3390/poultry4020018>.
- Malheiros, D. M., R. D. Malheiros, K. E. Anderson, and P. R. Ferket. 2025. Broiler Breeders Fed Diets Supplemented with Conventional or Lipid Matrix Microencapsulated Trace Minerals at Standard or High Levels: Part I. Influence on production, skeletal integrity, and intestinal histomorphology of broiler breeders. *Poultry*. 4(2): 17. <https://doi.org/10.3390/poultry4020017>.
- Gulabrai, B. P., A.N. Pullin, K. E. Anderson, and A. S. Kiess. 2025. The influence of genetic strain on production and egg quality amongst four strains of laying hens housed in a cage-free environment. *Poultry Science*. 104 (6): 105073. <https://doi.org/10.1016/j.psj.2025.105073>.
- Harding, K., E. Boot, J. O. Evan, S. B. Shah, R.D. Malheiros, K. E. Anderson. 2025. Determining how Different Ventilation Shutdown Plus (VSD+) Methods Change the Electroencephalography, Blood Chemistry, Corticosterone, and Heat Shock Protein 70 (HSP70) of Laying Hens. *Frontiers in Physiology*. 16. <https://doi.org/10.3389/fphys.2025.1534385>.

Peer-Reviewed Abstracts and Proceedings:

- Poudel, Ishab, and K.E. Anderson. Oregano-Derived Essential Oils: Effects on Egg Production and Eggshell Quality in Laying Hens. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. Abstract 273, p. 104.
- Reid, T.O., Wysocky, R., Poudel, I, Anderson, K. Effects of the shift from caged to aviary housing systems on commercial laying hen egg grade and quality. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract M21, p.11.
- Brannan, KE, Wysocky, B, Anderson, K. Effect of dietary inclusion of *Saccharomyces cerevisiae* fermentation product (Original XPC™) and stocking density on production performance and egg quality in brown egg strain laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract T190, p.71.

- Harding, K., Boot, E., Evans, J., Shah, S., Malheiros, R., Anderson, K. Evaluating the effects of ventilation shutdown plus heat (VSDH), carbon dioxide (VSDCO₂), and nitrogen gas (VSDN₂) on laying hen electroencephalograms (EEGs). International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract P225, p.84.
- Poudel, I., Reid, T.O., Wysocky, B., Harding, K., Anderson, K. Analysis of Nine Laying Hen Production in Cage and Cage-Free Environments: 41st North Carolina Layer Performance and Management Test. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract P303, p.111.
- Dexter-Boone, L., Freeland, S., Taniguchi, M., Zheng, H., Anderson, K., Reid, T.O., Kiess, A., Campbell, Y.L. The effect of rearing systems and heat treatments on liquid egg white functionality. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract P330, p.121.
- Munmun, A.R., Caceres, J.C., Sigmon, C.S., Poudel, I., Vu, T., Wysocky, B., Malheiros, R., Anderson, K., Toomer, O.T., Campbell, Y.L. Meat quality of hens fed an unblanched high-oleic peanut diet. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract P331, p.121.
- Toomer, O.T., Poudel, I., Vu, T., Malheiros, R., Wysocky, B., Anderson, K. The effects of an unblanched high-oleic peanut diet on layer performance, and the fatty acid profile and quality of the eggs produced. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. Abstract P366, p.134.
- Lowery J., Mendoza M., Sigmon C., Wysocky R., Kiess A., Anderson K., Walker L. Determining Whether *Campylobacter* Can Invade the Avian Ovum and Where in the Hen Reproductive Tract It May Occur. International Poultry Scientific Forum. January 29-30, 2024. Atlanta, GA. Abstract P217, p. 69.
- Gulabrai, B. P., K.E. Anderson, A.S. Kiess, and A.N. Pullin. Using a startle test to evaluate fearfulness in three genetic strains of cage-free laying hens. 57th Congress of the International Society for Applied Ethology. July 22-26, 2024. Pontificia Universidade Catolica do Parana (PUCPR), Curitiba, Brazil.

Invited Presentations:

- Anderson, K.E. 2025. "Pre-Harvest Food Safety Plan: Implementing Pest Monitoring and Control." Proceedings of the National Egg Quality School, Section IV, p.1-28, 31st Annual National Egg Quality School. May 19-22, 2025. Park City, UT.
- Anderson, K.E. 2025. "Cleaning Eggs and Conserving Egg Quality." Proceedings of the National Egg Quality School, Section IV, p.1-28, 31st Annual National Egg Quality School. May 19-22, 2025. Park City, UT.

Extension Activities and Publications:

- Anderson, K. E and I. Poudel. 2025. Report of the Forty-First North Carolina Layer Performance and Management Test from 17 TO 69 Weeks of Age: Vol. 41, No. 2. April 2025.
https://poultry.ces.ncsu.edu/wp-content/uploads/2025/04/41-NCLPMT-17-69_wk-Cycle-RPT-Vol-41-No-2-final.pdf?fwd=no

Dissertation and Thesis:

- Harding, Kari Lyn. Evaluating the impact of different ventilation shutdown techniques for emergency depopulation. (Under the direction of Dr. Kenneth E. Anderson).
- O'Lear Reid, Taylor Kaitlyn. Pullet and Laying Hen Performance in Different Housing Environments and Dietary Interventions for Extended Lay. (Under the direction of Dr. Kenneth E. Anderson).
- Malheiros, Dimitri Moraes. Influence of Stress in Laying Hens in Differing Cage Densities and Mitigation of Stress Responses Due to Parasitic Infection and Insulin Sensitivity. (Under the direction of Dr. Kenneth E. Anderson).

Dr. Lin Walker

Peer-Reviewed Publications:

- Campbell, Y.L., Walker L.L., Bartz B.M., Eckberg J.O., Pullin A.N. 2025. Outdoor access versus conventional broiler chicken production: Updated review of animal welfare, food safety, and meat quality. *Poultry Science*. 104(4): 104906. <https://doi.org/10.1016/j.psj.2025.104906>.

Conference Papers, Posters, and Presentations:

- Lowery J., O'Lear Reid T., Anderson K., Kiess A., Sigmon C., Wysocky R., Tahir Y., Walker L. Assessing *Salmonella* survival and invasion on shell eggs during refrigeration. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (oral).
- Tahir Y., Lowery J., Chang K., He-DeMontaron A., Concepcion J., Grimes J., Campbell Y., Walker L. Population and prevalence of *Salmonella*: A Comparison between conventional floor-pen and silvopasture housing systems in fast and slow-growing broiler birds. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (poster).
- Lowery J., Proszkowiec-Weglarz M., Tahir Y., Concepcion J., He-DeMontaron A., Grimes J., Campbell Y., Pullin A., Walker L. Examining the cecal microbiota of conventional and slow growing broilers in floor pen and silvopasture rearing systems. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (oral).
- He-DeMontaron A., Grimes J., Campbell Y., Walker L., Pullin A. Comparing broiler mobility and foot health between two breeds in silvopasture and conventional environments. Poultry Science Association Annual Meeting. July 14-17, 2025. Raleigh, NC. (oral).
- He-DeMontaron A., Grimes J., Campbell Y., Walker L., Pullin A. Slow-growing versus fast-growing broiler behavior in a silvopasture environment. International Society for Applied Ethology. August 4-8, 2025. Utrecht, The Netherlands.
- Tahir Y., Vu T., Lowery J., Mendoza M., Chang K., Rysdon K., Ibiwoye D., Sigmon C., Toomer O., Walker L. Effect of peanut skin as an antimicrobial feed additive against *Salmonella* in broilers. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).
- Tahir Y., Lowery J., Mendoza M., Sigmon C., Subbiah J., Gowda N., Coufal C., Walker L. Impact of sodium bisulfate and water activity on *Salmonella* survival in poultry litter. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (poster).
- Lowery J., Sigmon C., Rysdon K., Chang K., Heil C., Walker L. Designing and testing PCR primers for *Cochlosoma anatis* detection in commercial turkey poults. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).

- He-DeMontaron A., Grimes J., Campbell Y., Walker L., Pullin A. The effect of silvopasture environment and genetic strain on broiler performance. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).
- Caceres J., Sobreira C., Munmun A., Sigmon C., Pullin A., Grimes J., Walker L., Campbell Y. The effect of silvopasture (vs indoor) environment and broiler breed on meat quality. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).
- Sigmon C., Lowery J., Walker L. Determining the optimal strain and pass for *Histomonas* feed additive trial. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (poster).
- Munmun A., J., Sigmon C., Tahir Y., Vu Th., Toomer O., Walker L., Campbell Y. The effect of peanut skin supplemented corn/soy diet on broiler meat quality. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (poster).

Extension Activities and Publications:

- Walker, Lin. "Understanding Moisture-Salmonella Relationship to Maximize PLT Use in Poultry Houses." 2025. Lancaster Farming. https://www.lancasterfarming.com/farming-news/poultry/understanding-moisture-salmonella%20-relationship-to-maximize-plt-use-in-poultry-houses/article_4702b0f8-accb-4f11-8b54-ad8c49e40178.html

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Conference Papers, Posters, and Presentations:

- Blair, Jennifer, and Mike E. Persia. Effects of dietary energy and emulsifier on the performance and energy storage of pullets and young laying hens. International Poultry Scientific Forum. January 27-28, 2025. Atlanta, GA. (oral).