**S1076 Final Report of Outputs**

**Project meetings**

* 2019, Hybrid meeting, hosted by New Mexico State University in La Cruces, New Mexico (19 in person participants and 3 remote participants)
* 2020, hosted by USDA CMAVE in Orlando, Florida (33 in person participants)
* 2021, Virtual, hosted by North Carolina State University (50 virtual participants)
* 2022, Virtual, hosted by Oklahoma State University (50 virtual participants)
* 2023, Hybrid meeting, hosted by USDA CMAVE in Orlando, Florida (22 in person participants and 27 virtual participants)

**Publications**

2018

1. Burgess, E. R., D. M. Johnson, and C. J. Geden. 2018. Mortality of the house fly (Diptera: Muscidae) mortality after exposure to combinations of *Beauveria bassiana* (Hypocreales: Clavicipitaceae) with the polyol sweeteners erythritol and xylitol. Journal of Medical Entomology 55: 1237-1244. <https://pubmed.ncbi.nlm.nih.gov/29860387/>
2. Cruise, A., D. W. Watson, and C. Schal. 2018. Ecological succession of adult necrophilous insects on neonate *Sus scrofa domesticus* in central North Carolina. *PLoS One*, *13*(4), p.e0195785. <https://doi.org/10.1371/journal.pone.0195785>
3. Gerry, A. 2018. Cattle ectoparasites in extensive and intensive cattle systems. The Welfare of Cattle. Editors: T. Engle , D. Klingborg, B. Rollin. Taylor & Francis. p. 39-50.
4. Gerry, A. and A. Murillo. 2018. Promoting biosecurity through insect management at animal facilities. Biosecurity in Animal Production and Veterinary Medicine. Editors: Jeroen Dewulf, Filip Van Immerseel. ACCO Publishers. Leuven, Netherlands. p.243-281.
5. Hanai, D., M. H. Yoshimizu, and J. G. Scott. 2018. The insecticide resistance allele kdr-his has a fitness cost in the absence of insecticide use. Journal of Economic Entomology, 111: 2992-2995. <https://pubmed.ncbi.nlm.nih.gov/30277509/>
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9. Meisel, R. P., and J. G. Scott. 2018. Using genomic data to study insecticide resistance in the house fly, *Musca domestica*. Pesticide Biochemistry Physiology. 151: 76-81. <https://pubmed.ncbi.nlm.nih.gov/30704717/>
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11. Mullens, B. A., D. Soto, and A. C. Gerry. 2018. Sex ratios and mating status of the horn fly on pastured cattle as a function of repellent-oil treatments. Journal of Medical Entomology. 55(5): 1325-1329. <https://doi.org/10.1093/jme/tjy058>
12. Xu, Y., S. Tao, N. Hinkle, M. Harrison, and J. Chen. 2018. *Salmonella*, including antibiotic-resistant *Salmonella*, from flies captured from cattle farms in Georgia, U.S.A. Science of the Total Environment 616-617: 90-96. <https://pubmed.ncbi.nlm.nih.gov/29107782/>
13. Zahn, L., and A. Gerry. 2018. House fly (*Musca domestica*) laboratory rearing protocol - Gerry lab (UC Riverside) v1 (protocols.io.vbse2ne). Protocols.io. [dx.doi.org/10.17504/protocols.io.vbse2ne](https://dx.doi.org/10.17504/protocols.io.vbse2ne)
14. Zhu, J.J., S. C. Cermak, J. A. Kenar, G. Brewer, K. F. Haynes, D. Boxler, P. D. Baker, D. Wang, C. Wang, A. Y. Li, and R. D. Xue, 2018. Better than DEET repellent compounds derived from coconut oil. *Scientific Reports*, *8*(1), pp.1-12. <https://www.nature.com/articles/s41598-018-32373-7>

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2. Burgess, E. R., S. M. Watkins, B. H. King, K. Chantos-Davidson, A. N. Kremer, J. C. Tournear, J. Morrow, T. J. Hagen, and E. R. Gaillard. 2019. Dissemination of imidacloprid through dairy cattle manure and its effect on the biological control agent, *Spalangia endius* (Hymenoptera: Pteromalidae), and a filth fly host, *Musca domestica* (Diptera: Muscidae). Journal of Economic Entomology. 112: 974-980. <https://doi.org/10.1093/jee/toy386>
3. Burgess, E. R. and C. J. Geden. 2019. Larvicidal potential of the polyol sweeteners erythritol and xylitol in two filth fly species. Journal of Vector Ecology 44: 11-17.
4. Deguenon, J.M., N. Travanty, J. Zhu, A. Carr, S. Denning, M. H. Reiskind, D. W. Watson, M. Roe, and L. Ponnusamy. 2019. Exogenous and endogenous microbiomes of wild-caught *Phormia regina* (Diptera: Calliphoridae) flies from a suburban farm by 16S rRNA gene sequencing. Scientific Reports, 9(1), p.20365. <https://www.nature.com/articles/s41598-019-56733-z>
5. Deguenon, J.M., J. Zhu, S. Denning, M. H. Reiskind, D. W. Watson, and R. M. Roe. 2019. Control of filth flies, *Cochliomyia macellaria* (Diptera: Calliphoridae), *Musca domestica* (Diptera: Muscidae), and *Sarcophaga bullata* (Diptera: Sarcophagidae), using novel plant-derived methyl ketones. Journal of Medical Entomology, 56 (6): 1704-1714. <https://pubmed.ncbi.nlm.nih.gov/31237324/>
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7. Glaize, A., E. Gutierrez-Rodriguez, I. Hanning, S. Díaz-Sánchez, C. Gunter, A. H. van Vliet, W. Watson, and S. Thakur. 2020. Transmission of antimicrobial resistant non-O157 *Escherichia coli* at the interface of animal-fresh produce in sustainable farming environments. International Journal of Food Microbiology, 319, p.108472. <https://doi.org/10.1016/j.ijfoodmicro.2019.108472>
8. Hogsette, J. A. 2019. Turning ultraviolet light traps on and off increases their attraction to house flies (Diptera: Muscidae). Journal of Insect Science 19(1): 22;1-3. <https://doi.org/10.1093/jisesa/iey126>
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10. Hubbard, C. B. and A. C. Gerry. 2019. Evaluation of spider venom toxin–based insecticide to control house flies, 2018. Arthropod Management Tests, 44(1). <https://doi.org/10.1093/amt/tsz006>
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12. McDermott, E. G., B. A. Mullens, C. E. Mayo, E. B. Roark, C. R. Maupin, A. C. Gerry, and G. L. Hamer, G. L. 2019. Laboratory evaluation of stable isotope labeling of *Culicoides* (Diptera: Ceratopogonidae) for adult dispersal studies. Parasites and Vectors, 12: 411. <https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-019-3671-9>
13. McKay, L., K. DeLong, S. Schexnayder, A. Griffith, D. Taylor, P. Olafson, and R. T. Trout Fryxell. 2019. Cow-calf producers’ willingness to pay for bulls resistant to horn flies, *Haematobia irritans* (L.) (Diptera: Muscidae). Journal of Economic Entomology. 112(3): 1476-1484.<https://pubmed.ncbi.nlm.nih.gov/30768165/>
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2. Burgess, E. R., C. J. Geden, K. H. Lohmeyer, B. H. King, E. T. Machtinger, and J. G. Scott. 2020. Toxicity of fluralaner, a companion animal insecticide, relative to industry‑leading agricultural insecticides against resistant and susceptible strains of filth flies. Scientific Reports 10:11166. <https://www.nature.com/articles/s41598-020-68121-z>
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* Boxler, D. J. “Flies on Pastured Cattle,” Sioux Nation Ag Center, June 2022.
* Boxler, D. J. Late Season Pasture Fly Control, Vet-Advantage Magazine, September 2022.
* Hinkle, Nancy C. “Bloodsucking Flies on Georgia Cattle.” *Georgia Cattleman* magazine, March 2022. (pp. 30-31)
* Hinkle, Nancy C. “Deer Flies, Yellow Flies, Horse Flies: *Chrysops, Diachlorus, Tabanus* spp. (Insecta: Diptera: Tabanidae).” University of Georgia *IPM Newsletter*, September 2022.
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**Other creative products**

2018

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* Boxler, D. J. “Managing Horn Flies on Pastured Cattle,” UNL BeefWatch Webinar Series. May.

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* Boxler, D. J**.** “Flies on Pastured Cattle,” UNL Beef Podcasts, May.
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**Presentations**

2018

* Hinkle, Nancy C. “Arthropod Pests in Animal Agriculture.” Departmental Seminar, Clemson University, Clemson, SC, February 19, 2018. (invited)
* Hinkle, Nancy C., Annie Rich, Sierra King, Elizabeth Slater, and Ari Wernick. “Flying Fomites: Insects as Mechanical Vectors.” Population Biology of Vector-borne Diseases: A Symposium at the Center for the Ecology of Infectious Diseases, Odum School of Ecology, University of Georgia, Athens, GA, February 24, 2018. (poster)
* Hinkle, Nancy C. and Elizabeth Slater. “Animal Ectoparasites and Their Impacts on Humans.” 92nd Annual Meeting of the Southeastern Branch of the Entomological Society of America, Orlando, Florida, March 4-7, 2018.
* Hinkle, Nancy C., Yumin Xu, Sha Tao, Mark Harrison, and Jinru Chen. “Flies as *Salmonella* Vectors in Georgia Animal Agriculture.” 82nd Annual Meeting of the Georgia Entomological Society, Unicoi State Park and Lodge, Helen, Georgia, April 4-6, 2018.
* Hinkle, Nancy C. “Animal Pests that Bother Humans.” 41st Annual Meeting of the Georgia Mosquito Control Association, Georgia Center for Continuing Education, Athens, GA, October 18, 2018.
* Hogsette, J. A. 2018. Development of an attract and kill device for stable flies, Stomoxys calcitrans, using commercially available materials. American Mosquito Control Association 84th Annual Meeting, Kansas City, MO, Feb 26 – Mar 2, 2018.
* Hogsette, J. A. 2018. Efficacy of Knight Stick Stable Fly Traps increases when traps are protected by electric fence and placed close to host animals. The 15th Arbovirus Surveillance and Mosquito Control Workshop, St. Augustine, FL, March 20-22, 2018.
* Hogsette, J. A. 2018. Traps and Monitoring. International Stable Fly Workshop, San Jose and San Carlos, Costa Rica. April 16-20, 2018.
* Hogsette, J. A. 2018. Fly Control in the Food Environment (1.5-hour invited talk). Food Plants Seminar, Advancements in Pest Management Strategies. Hershey, PA, June 5-6, 2018.
* Hogsette, J. A, 2018. Stable fly and house fly studies at the European Biological Control Laboratory, Thessaloniki, Greece. Livestock Insects Workers Conference, San Juan, Puerto Rico, June 16-20, 2018.
* Hogsette, J. A. 2018. Attraction of stable flies and mosquitoes to pesticide-coated stickers designed for house fly management. Society of Vector Ecology. Fish Camp, CA, October 7-11, 2018.
* Hogsette, J. A. 2018. Stable fly and house fly studies at the European Biological Control Laboratory, Thessaloniki, Greece. European Society of Vector Ecology. Palermo, Italy, October 22-26, 2018.
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* King, Sierra, Annie Rich, and Nancy Hinkle. 2018. “Using Laboratory Rearing to Determine Optimal Larval Density.” 82nd Annual Meeting of the Georgia Entomological Society, Unicoi State Park and Lodge, Helen, Georgia, April 4-6, 2018. .
* King, Sierra, Nancy C. Hinkle, and Annie Rich. 2018. “Optimal *Anopheles quadrimaculatus* Larval Density for Laboratory Rearing.” University of Georgia College of Agricultural and Environmental Sciences Undergraduate Research Symposium, Conner Hall, Athens, GA, April 11, 2018. (5th place)
* Linthicum, K. J., J. Becnel, U. Bernier, S. Britch, C. Geden, J. Hogsette and D. Kline. 2018. Mosquito and Fly Surveillance and Control Research at the USDA-ARS Center for Medical, Agricultural and Veterinary Entomology: Solving Operational Challenges. American Mosquito Control Association 84th Annual Meeting, Kansas City, MO, Feb 26-Mar 2, 2018.
* Rich, Annie, Nancy Hinkle and Seth Irish. “Death by Cattle: Zooprophylaxis and Endectocide Efficacy in the Control of *Anopheles* Mosquitoes.” American Mosquito Control Association Annual Meeting, Kansas City, MO, February 26-March 2, 2018. (honorable mention)
* Rich, Annie, Nancy C. Hinkle, Seth Irish, and Timothy Pringle. “Insecticidal Zooprophylaxis: Eprinomectin-treated Cattle as Malaria Mosquito Control.” 92nd Annual Meeting of the Southeastern Branch of the Entomological Society of America, Orlando, Florida, March 4-7, 2018.
* Rich, Annie, Nancy Hinkle, Seth Irish, and Timothy Pringle. 2018. “Death by Cattle: Zooprophylaxis and Endectocide Efficacy in the Management of Malaria Mosquitoes.” 82nd Annual Meeting of the Georgia Entomological Society, Unicoi State Park and Lodge, Helen, Georgia, April 4-6, 2018.
* Rich, Annie, Seth Irish, T. Dean Pringle, and Nancy C. Hinkle. 2018. “Death by Cattle: Eprinomectin Endectocide Efficacy in the Management of Malaria Mosquitoes (*Anopheles quadrimaculatus)*.” UGA Entomology Department seminar, Athens, GA, July 5, 2018.
* Rich, Annie E., Seth R. Irish, T. Dean Pringle, Michael D. Green, and **Nancy C. Hinkle**. “Luring Malaria Vectors to Their Death: Evaluating the Potential of Bovine Zooprophylaxis Using Eprinomectin.” 48th Annual Society for Vector Ecology Conference, Tenaya Lodge, Yosemite National Park, CA, October 7-11, 2018. (poster)
* Rich, Annie E., Seth R. Irish, T. Dean Pringle, Michael D. Green, and Nancy C. Hinkle. “Evaluating the Potential of Bovine Zooprophylaxis Using Eprinomectin: Luring Malaria Vectors to Their Death?” 41st Annual Meeting of the Georgia Mosquito Control Association, Georgia Center for Continuing Education, Athens, GA, October 18, 2018. (poster)
* Scott, J. G. 2018. Detection of resistance in insect vectors of human disease: The Road Forward” Keynote Speaker, Worldwide Insecticide Resistance Network, Biannual Meeting, Singapore, October 2018.
* Scott, J. G. 2018.Evolution of insecticide resistance is unpredictable: Lessons learned from the *Drosophila* Genetic Reference Panel, American Chemical Society National Meetings, Boston, MA, August 2018.
* Scott, J. G. 2018. Life and death at the voltage sensitive sodium channel: Evolution in response to insecticide use, NCSU, Department of Entomology and Plant Pathology, Raleigh, NC February 2018.
* Wernick, Ari, Nancy Hinkle, Annie Rich, Sierra King, and Elizabeth Slater. 2018. “Efficacy Evaluation of LongRange Eprinomectin Solution on Bluetongue Virus Vectors: *Culicoides sonorensis*.” 82nd Annual Meeting of the Georgia Entomological Society, Unicoi State Park and Lodge, Helen, Georgia, April 4-6, 2018.
* Geden CJ, Burgess ER, and Johnson DM. Effectiveness of combination of *Beauveria bassiana* and the artificial sweeteners erythritol and xylitol against adult house flies. Entomological Society of America National Meeting, Vancouver, British Columbia, November 2018.
* Watson, D. W., 2018. Fly and Ectoparasite Control. Cattle Conference, Scotland Co, CES Lumberton, NC
* Watson, D. W., 2018. Pest management issues for livestock and poultry. BASF, Durham, NC
* Watson, D. W., 2018. Beneficials and Pests of the Pasture Ecosystem. Pastureland Ecology Workshop, NRCS. Goldsboro, NC
* Watson, D. W., 2018. Biology and Management of Pests of Pastured Cattle. Agent training conference, CES. Raleigh, NC
* Watson, D. W. 2018. Troubleshooting insects in dry stack compost. Chapel Hill, NC
* Fowler, F., Denning, S., Hu S., Fellner, V. Lorenzen M, Dunn R. and Watson DW. 2018 Mixing the message: Can homogenizing substrates confound scientific results. National ESA Meeting, Vancouver, BC
* Fowler, F., Denning, S., Hu S., Fellner, V. Lorenzen M, Dunn R. and Watson DW. 2018. Are dung beetles more important than we thought. Livestock Insect Workers Conference, San Juan, PR.
* Watson, W., and Denning, S. 2018. Effects of geraniol spray repellent on the dispersal of horn fly (Haematobia irritans). National ESA meeting, Vancouver, BC
* Watson W, Reiskind, M, Roe, M., Carr, A., Hung, K., Zhu J, Denning, S. and Figurskey A. 2018. Characterization of filth fly populations associated with food pits in rural/suburban habitat. Livestock Insect Workers Conference, San Juan, PR.
* Carr, A., Reiskind, M, Denning, S., Figurskey A., Hung, K. and Watson, D.W. 2018. Novel two-choice olfactometer bioassay for filth fly response to attractant odorants. Livestock Insect Workers Conference, San Juan, PR.
* Trout Fryxell RT, P. Olafson, S. Schexnayder, K. DeLong, L. McKay, A. Griffith, K. Friesen, D. Taylor, J. Keele, L. Kuehn, M. Staton, and E. Psota. November 2018. Finding the trait in the pasture: some cattle ARE resistant to *Haematobia irritans* and producers are willing to pay for the trait. 10-min submitted presentation, Entomological Society of America / Entomological Society of Canada, Vancouver, BC Canada.
* Davis, T., D. Kline, B. Mullens, M. Papeᶊ, and R. Trout Fryxell. November 2018. Molecular barcoding and niche modeling analysis of horse flies in the southeastern United States. 10-min graduate student competition, Entomological Society of America / Entomological Society of Canada, Vancouver, BC Canada.
* Davis, T., D. Kline, B. Mullens, M. Papes, J. K. Moulton, and R. Trout Fryxell. January 2018. Molecular barcoding and niche modeling analysis of horse flies in the southeastern United States. Multistate Project Stemp-1076: Fly Management in Animal Agriculture Systems and Impacts on Animal Health and Food Safety. *Received travel fellowship to present research at this meeting.*
* McKay, L. S., S. Schexnayder, K. L. DeLong, A. Griffith, M. Staton, J. Keele, L. Kuehn, D. Taylor, K. Friesen, P. Olfason, and R. T. Trout Fryxell. January 2018. Tennessee cow-calf producers’ value horn fly resistant beef cattle. USDA-ARS Multistate Project Stemp-1076: Fly Management in Animal Agriculture Systems and Impacts on Animal Health and Food Safety. *Received travel fellowship to present research at this meeting.*
* Trout Fryxell RT, McKay, DeLong, Schexnayder, Griffith, Staton, Psota, Taylor, Friesen, Kuehn, Keele, and Olafson. June 2018. A justification to produce sustainable beef and our 5-year plan to get us moving in that direction. Livestock Insect Workers Conference, San Juan, PR.
* Davis, T., D. Kline, B. Mullens, M. Papes, J. K. Moulton, and R. Trout Fryxell. June 2018. Molecular barcoding and niche modeling analysis of horse flies in the southeastern United States. Livestock Insect Workers Conference, San Juan, PR. *Received $500 student travel fellowship to present research at this meeting.*
* McKay, L. S., S. Schexnayder, K. L. DeLong, A. Griffith, M. Staton, J. Keele, L. Kuehn, D. Taylor, K. Friesen, P. Olfason, and R. T. Trout Fryxell. June 2018. Tennessee cow-calf producers’ value horn fly resistant beef cattle. Southern Extension Economics Committee Meeting. Myrtle Beach, SC.

2019

* Burgess ER, Geden CJ, Johnson DM, and King BH. Developing polyols as filth fly insecticides: current findings and future directions. Entomological Society of America National Meeting, St. Louis, MO, November 2019.
* Hinkle, Nancy C., Yumin Xu, Jinru Chen, Sha Tao, and Mark Harrison. “*Salmonella* Isolation from House Flies Collected from Beef and Dairy Operations and Associated Antibiotic Resistance.” Multistate Project S-1076: Fly Management in Animal Agriculture Systems and Impacts on Animal Health and Food Safety.” Las Cruces, NM, January 16-17, 2019.
* Hinkle, Nancy C. “Biters, Blood-suckers, and Diseases – O My! Pests of Animal Agriculture.” Departmental seminar, UGA Department of Entomology, Athens, GA, February 11, 2019.
* Hinkle, Nancy C., Yumin Xu, Jinru Chen, Sha Tao, Mark Harrison, and Aubree Kelly. “Arthropods as Vectors of Human Pathogens in Animal Agriculture.” 93rd Annual Meeting of the Southeastern Branch, Entomological Society of America. Mobile, AL, March 3-6, 2019.
* Hinkle, Nancy C., Aubree R. Kelly, Yumin Xu, Sha Tao, Mark Harrison and Jinru Chen. “Roles of Flies and Beetles Associated with Animal Agriculture in Salmonella Maintenance and Transmission.” Joint Meeting of the World Association for the Advancement of Veterinary Parasitology, the American Association of Veterinary Parasitologists, and the Livestock Insect Workers Conference. Madison, WI, July 7-11, 2019.
* Hinkle, Nancy C. “Health Advocacy: Getting Research Out of Dusty Journals to People Who Can Use It.” Member Symposium: Unabashed Advocation of Arthropods: Living Tribute to Justin O. Schmidt. Annual Meeting of the Entomological Society of America, St. Louis, MO, November 17-20, 2019.
* Hogsette, J. A. 2019. Development of attract and kill systems for mosquitoes using readily available materials. American Mosquito Control Association Annual meeting, Orlando, FL, February 25-March 1, 2019.
* Hogsette, J. A. 2019. Update on fly traps against biting flies and filth flies. The 16th Annual Surveillance and Mosquito Control Workshop, St. Augustine, FL, March 26-28, 2019.
* Hogsette, J. A. 2019. Stable fly’s economic impacts and control efforts. The 6th International Forum for Surveillance and Control of Mosquitoes and Mosquito-borne Diseases. Xiamen, China, and The Vector/Pest Management Workshop, Taipei, Taiwan, May 26-June 1, 2019.
* Hogsette, J. A. and J. E. Cilek. 2019. Evaluation of the DynaTrap FlyLight against House Flies, *Musca domestica* L. and Stable Flies, *Stomoxys calcitrans* (L.) (Diptea: Muscidae) under indoor conditions. Livestock Insects Workers Conference (in conjunction with the WAAVP), Madison, WI, July 7-11, 2019.
* Hogsette, J. A. and D. L. Kline. 2019. Is there a decrease in attraction when mosquito traps are enclosed in screen fabric. Society of Vector Ecology 49th Annual Meeting, San Juan, Puerto Rico, Sept 22-26, 2019.
* Nayduch D, and S Neupane (2019). Bacterial communities associated with the gut of female house flies collected from three environmental niches in Kansas. Livestock Insect Workers Conference, Madison, WI, USA. July 7-11
* Nayduch D, S Neupane, and J Thompson (2019). Environmental and sex effects on bacterial carriage by adult house flies (*Musca domestica*). Entomological Society of America Meeting, St. Louis, MO, USA. November 17-20.
* Trout Fryxell, R. T. November 2019. Past, present and future contributions and needs for veterinary entomology in the United States and Canada. Entomological Society of America, St. Louis, MO.
* Trout Fryxell, R. T. January 2019. Horn Flies! Why they love cattle and why controlling them may reduce the incidence of mastitis. National Mastitis Council, Savannah GA.
* Trout Fryxell, R. T.*,* L. McKay, K. DeLong, S. Schexnayder, A. Griffith, M. Staton, E. Psota, D. Taylor, K. Friesen, J. Kuehn, L. Keele, and P. Olafson. June 2019. Examining cattle producer management of horn flies, *Haematobia irritans* (L.) (Diptera: Muscidae). Joint meeting of the Livestock Insect Workers Conference, American Association of Veterinary Parasitology, and the World Association of Veterinary Parasitology. Madison, WI.
* Wernick, Ari and Nancy Hinkle. “Temperature Tolerance and Distribution of *Culicoides sonorensis* in a Thermogradient Box Apparatus.” 83rd Annual Meeting of the Georgia Entomological Society, Lake Blackshear Resort & Golf Club, Cordele, GA, April 10-12, 2019. (Second Place B.S. Oral Competition)
* Watson, D. W. 2019. Beneficials and Pests of the Pasture Ecosystem. Pastureland Ecology Workshop, NRCS. Goldsboro, NC Annual event
* Watson, D. W. 2019. Managing Fire Ants and Flies in NC Pastures. Lee Co. Cooperative Extension Service, Sanford, NC
* Watson, D. W. 2019. Dispersal of Horn Flies. Wayne Co. Goldsboro, NC
* Watson, D. W., 2019. Dairy Fly Management. Davidson Co. CES, Lexington, NC
* Davis, T., D. Kline, B. Mullens, M. Papeş, J. K. Moulton, R. T. Trout Fryxell. January 2019. Molecular barcoding and niche modeling analysis of horse flies in the southeastern United States. American Mosquito Control Association Annual meeting, Orlando, FL.
* Davis, T., D. Kline, B. Mullens, M. Papeş, J. K. Moulton, R. T. Trout Fryxell. January 2019. Molecular barcoding and niche modeling analysis of horse flies in the southeastern United States. Tennessee Mosquito and Vector Control Association. Nashville, TN.

2020

* Neupane S, and Nayduch D. (2020). Bacterial Diversity and Community Structure in the Female House flies Associated with Cattle Farms in the Mid-Western USA. Entomological Society of America Meeting, virtual 11-25.
* Pickens, V., B. Hall, B. Davis, G. Brooke, S. Neupane, D. Nayduch. 2020. Microbial carriage of house flies from confined cattle operations in northeast Kansas. K-State Graduate Research, Arts, and Discovery Forum. Manhattan, KS. March 25-26.
* Pickens, V., B. Hall, S. Neupane, B. Davis, G. Brooke, D. Nayduch. 2020. Carriage of bacteria and tetracycline resistance by adult house flies (Musca domestica L.) at confined cattle operations. Entomological Society of America Annual Meeting. Virtual. November 16-19.
* Smith, K.V., K.L. DeLong, A.P. Griffith, C.N. Boyer, S. Schexnayder, R.T. Trout Fryxell. “Evaluation of Farm Demographics and Producer Perceptions that Influence Cow-Calf Producer Horn Fly Management Costs in Tennessee and Texas.” Student Presentation. Entomological Society of America Annual Meeting. Virtual Conference due to Covid-19. November 11-25, 2020.
* Fucello, A., T., Thomas, T. Rickman, P. Olafson, D. Taylor, B. Olukolu, and R. T. Trout Fryxell. 2020. Discovering and identifying single nucleotide polymorphisms (SNPs) in stable flies (*Stomoxys calcitrans* L.). 10-min undergraduate student competition, Entomological Society of America. *Virtual.*  *Awarded the President’s Prize (1st)*
* Smith, K., K. L. DeLong, A. P. Griffith, C. N. Boyer, S. Schexnayder, R. T. Trout Fryxell. 2020. Evaluation of farm demographics and producer perceptions that influence cow-calf prodder horn fly management costs in Tennessee and Texas. 10-min graduate student competition, Entomological Society of America. *Virtual.*
* Luc, E. K., L. G. Schneider, R. T. Trout Fryxell, and G. M. Pighetti. 2020. *Staphylococcus* mastitis pathogens are present in milk and horn fly populations. American Dairy Science Association, *Virtual.*
* Luc, E. K., E. Psota, L. G. Schneider, R. T. Trout Fryxell, and G. M. Pighetti. 2020. The relationship between fly load and somatic cell count on organic dairy herds. National Mastitis Council, Orlando FL.

2021

* Boxler, D. J. “Managing Horn Flies.” University of Minnesota, Summer Beef Essentials. May.
* Hall, B, Davis B, Ewell K, Broke G, Pickens V, Neupane S, and Nayduch D. (2021). Food preference behavior of adult house flies. Entomological Society of America Meeting, Denver, Oct 31-Nov 3.
* Hinkle, Nancy C., Ashley Ling, Taylor Krause, Dean Pringle, Samuel E. Aggrey, and Romdhane Rekaya. “Genetic Study of Horn Fly Abundance in Beef Cattle.” Multistate Project S-1076: Fly Management in Animal Agriculture Systems and Impacts on Animal Health and Food Safety meeting. January 5-8, 2021. (virtual)
* Hogsette, J. A., A. Slorzado, E. F. Vargas and R. Castro. 2021. Evaluation of stable fly traps and attractants in pineapple fields in Costa Rica. Entomology Society of America Annual Meeting, Denver, CO, October 31-November 3, 2021 (virtual).
* Hogsette, J. A. 2021. Update on Stable fly, *Stomoxys calcitrans* (L.), Traps for Field Use. 7th International Forum for Surveillance and Control of Mosquitoes and Mosquito-borne Diseases, Dalian, China, August 15-18, 2021 (virtual)..
* Hubbard, C. What’s Bugging Your Feet? Bites and Blood Suckers. *Invited Speaker*. Western University of Health Sciences: College of Podiatric Medicine, Chino Valley Medical Center and Kaiser Permanente Central Valley Medical Center Didactics Conference. 27 September 2021.
* Hubbard, C., and A.C. Murillo. Stability of behavioral resistance to imidacloprid in the house fly (*Musca domestica*). Entomological Society of America Annual Meeting, Denver, Co. 31 October 2021.
* Ling, Ashley S., Taylor Krause, Amanda Warner, Jason Duggin, Bradley Heins, Nancy Hinkle, Samuel E. Aggrey, Dean Pringle, and Romdhane Rekaya. “Genetic parameters of thrombin as a proxy for horn fly abundance in beef cattle.” Joint Meeting of the American Society of Animal Science, Canadian Society of Animal Science, and Southern Section American Society of Animal Science, Louisville, KY, July 14-17, 2021. (poster)
* Krause, Taylor, Ashley S. Ling, Amanda Warner, Jason Duggin, Bradley Heins, Nancy Hinkle, Samuel E. Aggrey, Dean Pringle, and Romdhane Rekaya. “Association between thrombin and horn fly abundance in beef cattle.” Joint Meeting of the American Society of Animal Science, Canadian Society of Animal Science, and Southern Section American Society of Animal Science, Louisville, KY, July 14-17, 2021. (poster)
* Espinoza, Natalia Belen., Dorcas H. Franklin, Anish Subedi, Miguel L. Cabrera, N.C. Hinkle, and Lawton Stewart. “Influence of Filth Flies on Nitrogen Gaseous Losses from Cattle Manure.” Annual Meeting of the American Society of Agronomy, Salt Lake City, UT, Nov. 7-10, 2021. (poster)
* Brooke, G., V. Pickens, and D. Nayduch. 2021. The adult house fly (*Musca domestica* L.) and other environmental sources of coliforms at Kansas beef farms. Entomological Society of America Annual Meeting. Denver, CO. October 31-November 3.
* Neupane S, Pickens V, Talley JL, Swiger SL, and Nayduch D. (2021). Spatiotemporal variation of bacterial communities in female house flies associated with beef cattle farms. Entomological Society of America Meeting, Denver, Oct 31-Nov 3.
* Pickens, V., B. Hall, B. Davis, S. Neupane, G. Brooke, K. Ewell, T. Purvis, D. Nayduch. 2021. Carriage of multi-drug resistant bacteria by adult house flies (*Musca domestica* L.) at Kansas dairies and feedlots. Entomological Society of America North Central Branch Meeting. Virtual. June 21-23.
* Pickens, V., B. Hall, B. Davis, E. Bird, K. Ewell, G. Brooke, T. Purvis, K. Yeater, C. Olds, D. Nayduch. 2021. Carriage of bacteria and multi-drug resistant bacteria by house flies at Kansas dairy and beef operations. Kansas State University Research and State. Manhattan, KS. October 27.
* Pickens, V., B. Hall, B. Davis, K. Ewell, G. Brooke, S. Neupane, D. Nayduch. 2021. Adult house fly (*Musca domestica* L.) carriage of bacteria and antimicrobial resistance at Kansas cattle operations. Entomological Society of America Annual Meeting. Denver, CO. October 31-November 3.
* Burgess ER. Fluralaner as a new mode of action agrochemical for the control of filth flies: current findings and future directions. American Chemical Society National Meeting, August 2021.
* Watson, D. W., Livestock pest management and treatment demonstration. Johnston Co. Cattlemans Assoc. meeting, June 10, 2021. Certification credits given.
* Smith, K.V., K.L. DeLong, A.P. Griffith, C.N. Boyer, S. Schexnayder, R.T. Trout Fryxell. “Evaluation of Farm Demographics and Producer Perceptions that Influence Cow-Calf Producer Horn Fly Management Costs in Tennessee and Texas.” Selected Presentation. Southern Agricultural Economics Association Annual Meeting. Virtual Conference due to Covid-19. February 6-9, 2021.

2022

* Scott, J. G. 2022. Understanding the molecular basis of CYP-mediated insecticide resistance. International Conference on Cytochrome P450, Washington DC, July 2022.
* “Scott, J. G. 2022.Evolution of different *kdr* alleles in *Aedes aegypti*” American Chemical Society National Meetings, Chicago, IL August 2020.
* Scott, J. G. 2022. Lessons Learned from Decades of Investigations into Insecticide Toxicology” American Chemical Society National Meetings, Chicago, IL August 2020.
* Hogsette, J. A. 2022. Final testing of an attract and kill device for stable flies. The 17th Annual Arbovirus, Surveillance and Mosquito Control Workshop, St. Augustine, FL, March 29-31, 2022.
* Hogsette, J. A. 2022. Research during the Covid-19 years. Livestock Insects Workers Conference, Dallas, TX, June 5-8, 2022.
* Hubbard, C. Bugs and Bovids: Solving Veterinary Entomology Problems Utilizing Behavior. *Invited Speaker*. Department of Entomology Seminar Series. UC Riverside, Riverside, CA. 26 September 2022.
* Hubbard, C., and A.C. Murillo. Concentration dependent detection of imidacloprid in behaviorally resistant house flies (*Musca domestica* L.). Livestock Insect Worker Conference Annual Meeting, Dallas,Texas. 6-9 June 2022.
* Hubbard, C., and A.C. Murillo. *Invited Speaker*. Concentration dependent feeding of imidacloprid in behaviorally resistant house flies (*Musca domestica* L). Entomological Society of America, Entomological Society of Canada, and Entomological Society of British Columbia Joint Annual Meeting, Vancouver, B.C. 16 November 2022.
* Kline, D. L. and J. A. Hogsette. 2022. Techniques for evaluation of spatial repellents against mosquitoes and other biting flies. Society of Vector Ecology, 8th International Congress, Honolulu, HI, Sept 19-23, 2022.
* Linthicum, K., D. L. Kline. J. Hogsette, C. J. Geden, S. Gibson, A. S. Estep and E. J. Norros. 2022. USDA-ARS Center for Medical, Agricultural and Veterinary Entomology (CMAVE). Mosquito and Fly Research Unit Overview. The 17th Annual Arbovirus, Surveillance and Mosquito Control Workshop, St. Augustine, FL, March 29-31, 2022.
* Boxler, D. J. “Pasture Flies: Their Impact and Management Options,” (Virtual). Minnesota Veterinary Medical Association Conference, February 2022.
* Boxler, D. J. “Cattle Lice: Biology and Control Options,” (Virtual), Minnesota Veterinary Medical Association Conference, February 2022.
* Boxler, D. J. “Cattle Ectoparasites,” Cattleman U, pre-recorded presentation, June 2022.
* Boxler, D. J. Cattleman U – On-line (live) program for cattle owners, members in 30 states and Canada. A panel discussion on pasture beef production, my focus was on cattle ectoparasites. August 2022.
* Neupane S, Pickens V, Talley JL, Swiger SL, and Nayduch D. (2022). Affecting the abundance, prevalence and diversity of bacterial communities in female house flies associated with dairy cattle farms. Livestock Insect Workers Conference (LIWC), Dallas, TX, June 5 - 8.
* Nayduch D, Neupane S. (2022). Abundance, prevalence, and diversity of bacterial communities in female house flies (*Musca domestica* L.) associated with beef cattle farms. Society of Vector Ecology 8th International Congress, Honolulu, HI, September 19 - 23.
* Nayduch D, Neupane S, Pickens V, Purvis T, Hall B, and Brooke G. (2022). Should house fly sex be considered in risk assessment and pest management? Livestock Insect Workers Conference (LIWC), Dallas, TX, June 5 - 8.
* Pickens, V. and C. Olds. 2022. Our beef with house flies: Understanding fly movement and behavior for risk assessment and improved fly management. 10th International Integrated Pest Management Symposium, Denver, CO. February 28-March 3. (Infographic).
* Pickens, V., C. Olds, and D. Nayduch. 2022. Factors influencing house fly carriage of antimicrobial resistant bacteria at Kansas dairies and feedlots. 8th International Congress of Society of Vector Ecology Conference. Honolulu, HI. September 19-23.
* Pickens, V., E. Bird, C. Olds, and D. Nayduch. 2022. Characterizing multi-drug resistant coliforms carried by house flies collected from Kansas dairy and beef cattle operations. *Invited Speaker*. Entomological Society of America, Entomological Society of Canada, and Entomological Society of British Columbia Joint Annual Meeting. Vancouver, Canada. November 13-16.
* Watson, D. W., 2022. Beneficials and Pests of the Pasture Ecosystem. Pastureland Ecology Workshop, NRCS. Goldsboro, NC
* Watson, D. W., 2022. Pasture fly management on Cattle. Agent training conference, CES. Raleigh, NC
* Smith, K.V., R. T. Trout Fryxell, S. M. Schexnayder, S. H. Ward, D. W. Watson. U.S. organic dairy farm trends for fly and pathogen management and barriers to adopting organic practices. On-Demand (Virtual) Poster. Joint Entomological Society of America, Entomological Society of Canada, and the Entomological Society of British Columbia Annual Meeting. November 13-16, 2022. graduate student poster competition, Entomological Society of America / Entomological Society of Canada, Vancouver, BC Canada. *Virtual Poster.*

**Extension/Stakeholder Presentations**

2018

* Hinkle, Nancy C. “Vector-Borne Pathogens from a One Health Perspective.” University of Georgia One Health Club, Athens, GA, January 11, 2018.
* Hinkle, Nancy C., Raymond Fitzpatrick, Robert Waldorf, Greg Pittman, William Lovett, Richard Evans, David Daniel, Caitlin Jackson, Trey Gafnea, Joel Burnsed, Lee Jones, and Annie Rich. “Options for Horn Fly Control on Georgia Beef Herds.” 2018 Extension Conference, Rock Eagle, Eatonton, GA. January 23-25, 2018. (First Prize)
* Hinkle, Nancy C., Raymond Fitzpatrick, Robert Waldorf, Greg Pittman, William Lovett, Richard Evans, David Daniel, Caitlin Jackson, Trey Gafnea, Joel Burnsed, Lee Jones, and Annie Rich. “Field Comparisons of Options for Horn Fly Control on Georgia Beef Herds.” Northeast Georgia Beef Cattle Short Course, UGA Livestock Instructional Arena, Athens, GA, February 7, 2018.
* Hinkle, Nancy C. ”External Parasite Management.” 2018 Southeast Georgia Master Cattleman Program, Wheeler Co., Alamo, GA, February 27, 2018.
* Hinkle, Nancy C. “Biology, Behavior and Control of Pest Flies.” Pacific Northwest Pest Management Conference, Hood River, OR, March 2-3, 2018. [140 attendees]
* Hinkle, Nancy C. “Fly Control on Georgia’s Pastured Cattle.” Hart County Cattlemen’s Association, Hartwell, GA, April 19, 2018. [60 attendees]
* King, Sierra, Ari Wernick, Brenna Latorre-Murrin, and Nancy C. Hinkle. “Insect Variety and Career Opportunities in Entomology.” Georgia Senior 4-H Camp UGA Experience, Athens, GA. July 5, 2018.
* Hinkle, Nancy C., Raymond Fitzpatrick, Robert Waldorf, Greg Pittman, William Lovett, Richard Evans, David Daniel, Caitlin Jackson, Trey Gafnea, Joel Burnsed, Lee Jones, and Annie Rich. “Horn Fly Control Options on Beef Herds.” National Association of County Agricultural Agents, Chattanooga, TN, July 29-August 2, 2018. (poster)
* Hinkle, Nancy C., Raymond Fitzpatrick, Robert Waldorf, Greg Pittman, William Lovett, Richard Evans, David Daniel, Caitlin Jackson, Trey Gafnea, Joel Burnsed, Lee Jones, and Annie Rich. “Horn Fly Control Options on Beef Herds.” Epsilon Sigma Phi Annual Meeting, Athens, GA, September 7, 2018. (poster)
* Hinkle, Nancy C. ”External Parasites on Georgia’s Pastured Cattle.” 2018 Northwest Georgia Master Cattleman Program, Whitfield Co., Dalton, GA, September 11, 2018.
* Hinkle, Nancy C. “Back to the Future: Impact of Facilities and Flock Management on Insects and Mites.” 2018 Georgia Layer Conference, Georgia Poultry Lab, Gainesville, GA, September 24, 2018.
* Hinkle, Nancy C. “House Flies are Public Health Pests.” Public Health Workshop, UGA, Griffin, GA, October 30, 2018. (webinar)
* Hogsette, J. A. 2018. Fly control in the food environment. IPM for Food Plants Seminar, “Advancements in Pest Management Strategies,” Hershey, PA, June 5-6, 2018.
* Loftin, K. M. “Controlling External Parasites of Cattle.” Four States Ag Expo, Texarkana, TX, Feb. 1, 2018
* Loftin, K. M. “Major Insect Pests of Livestock” North Arkansas Beef and Forage Clinic, Salem, AR, Feb. 27, 2018
* Loftin, K. M. “Controlling Livestock Pests.” Beginning Farmers and Ranchers College, Malvern, AR, March 15, 2018
* Loftin, K. M. “Arthropod pests of horses: ID, Biology and Control.” Westark Horse Show Association, Clarkesville, AR, March 24, 2018
* Loftin, K. M. ”Managing insect pests of cattle.” Arkansas County Cattlemen’s Association meeting, Dewitt, AR May 1, 2018
* Loftin, K. M. “External Parasites of Horses.” Arkansas Gaited Horse Club, Springdale, AR, May 21, 2018
* Boxler, D. J. 2018. Managing Horn Flies in Nebraska. Production Improvements in Cow Systems. Beef Profit Tips. Ithaca, NE.
* Boxler, D. J. “External and Internal Parasites,” UNL State of Beef Conference – 2018. North Platte, NE.
* Boxler, D. J. “Managing Horn Flies in Nebraska,” Cedar County Vet Meeting. Hartington, NE.
* Boxler, D. J. “Ectoparasite Management.” West Central Cattlemen’s Day. Tryon, NE.
* Machtinger, E. T.2018. Death to the $#%! flies.! Straight from the Horse Doctor’s Mouth. Springhill Equine, Newberry, FL July 11.<https://springhillequine.libsyn.com/s1e7-death-to-the-flies>

2019

* Hinkle, Nancy C. “Fly Control on Georgia’s Pastured Cattle.” Laurens County Cattlemen’s Association, Oconee EMC Building, Dudley, GA, February 21, 2019.
* Hinkle, Nancy C. “Blood-sucking Pests on Georgia’s Pastured Cattle.” Quitman, Brooks County, Georgia, February 25, 2019. [76 attendees]
* Hinkle, Nancy C. “External Blood-Sucking Pests on Georgia Cattle.” Three Rivers Cattlemen’s Association, McRae, Georgia, March 14, 2019.
* Hinkle, Nancy C. “Litter Beetles, Maggots and Other Lovely Neighbors.” Lamar County Cooperative Extension Nutrient Management Program, Barnesville, GA, June 13, 2019.
* Sumreddee, Pattarapol, Amanda Warner, Dean Pringle, Nancy Hinkle, and Romdhane Rekaya. “Horn Flies: Can Genetics Help Solve This Billion Dollar Problem?” J. Phil Campbell REC Corn Boil, Watkinsville, GA, June 25, 2019.
* Hinkle, Nancy C. “Ectoparasites and Poultry Pests: Everything Old is New Again.” 2019 Georgia Layer Conference, Georgia Poultry Lab, Gainesville, GA, September 23, 2019.
* Hinkle, Nancy C. “External Parasite Management on Georgia’s Pastured Cattle.” Northeast Georgia Master Cattleman Program, Jasper and Morgan Counties, Shady Dale, GA, October 8, 2019.
* Hinkle, Nancy C. “Horn Flies and Asian Longhorned Ticks: Control of Cattle Ectoparasites.” Union County Cattlemen’s Association, Georgia Mountain Research and Extension Center, Blairsville, GA, October 29, 2019. (45 attendees)
* Hinkle, Nancy C. “Flies.” Public Health Workshop, UGA Center for Urban Agriculture and Georgia Department of Public Health, Griffin, GA, October 30, 2019. (Zoom) (20 attendees)
* Pittman, Greg, David Daniel, Amanda Warner, Taylor Krause, Dean Pringle, Nancy Hinkle, and Romdhane Rekaya. “Developing an Image-Based Assessment Technique for On-Host Horn Fly Numbers.” Georgia Association of County Agricultural Agents Annual Meeting, Dublin, GA, November 4-6, 2019. (200 attendees)
* Hinkle, Nancy C. “What’s Biting Me?” In-House Rollins National Broadcast (3 times), Rollins Learning Center, Atlanta, GA, November 5, 2019. (873 live viewers) [1 hour]
* Loftin, K.M. “Pest Update: Buffalo gnats, parasites of cattle and forage pests.” Arkansas Cattlemen's Associations Meeting, Stuttgart, AR, Feb. 12, 2019.
* Scharko, Patty and Nancy C. Hinkle. “Fly Control.” County Cattlemen’s Association Meeting. May 9, 2019.
* Machtinger, E. T.2019. The case of the tail swisher: Identifying and controlling pests on equine farms. Horse World Expo, Harrisburg, PA. February 28.

2020

* Boxler, D. J. “Cattle Ectoparasites.” West Central Cattlemen’s Day. Ogallala, NE.
* Hinkle, Nancy C. “Ectoparasites of Georgia Pastured Beef Herds.” Southeast Georgia Master Cattleman Course, Ware County, Waycross, GA, January 28, 2020.
* Hinkle, Nancy C. “Controlling Ectoparasites on Georgia’s Pastured Beef Cattle.” Tri-State Cattlemen’s Association, Rock Spring, Walker County, GA, February 18, 2020. (65 attendees)
* Hinkle, Nancy C. “Controlling Horn Flies on Pastured Cattle.” Beef Tips’n Advice, webinar, Athens, GA, June 25, 2020. (37 attendees)
* Hinkle, Nancy C. “Beef Cattle Pest Control – Flies and Ticks.” Georgia Master Cattlemen webinar, Forsyth County sponsor, Cumming, GA. October 1, 2020. (Zoom, 54 attendees)
* Loftin, K. M., "Fly Control on Cattle," Four States Agriculture Expo - Texas AgriLife and University of Arkansas Division of Agriculture, Four States Fairgrounds, Texarkana, AR, United States. (February 6, 2020).
* Smith, K.V., K.L. DeLong, A.P. Griffith, C.N. Boyer, S. Schexnayder, R.T. Trout Fryxell. “Evaluation of Farm Demographics and Producer Perceptions that Influence Cow-Calf Producer Horn Fly Management Costs in Tennessee and Texas.” Poster. University of Tennessee Beef and Forage Center Research and Recommendations Meeting. Virtual Conference due to Covid-19. December 15, 2020.
* Machtinger, E. T.2020.Know your flies: The story of tailoring fly control to the fly, Tack box talk. July 24. <https://www.buzzsprout.com/242373/4701002>
* Machtinger, E. T. 2020.Stop Bugging me! Understanding and controlling pests and vectors on equine farms. Pennsylvania State University Horse Health Symposium, State College, PA. January 25.

2021

* Boxler, D. J. “Pasture Fly and Cattle Lice Control Strategies,” UNL Cow Symposium. Albion, NE. August.
* Boxler, D. J. “Pasture Fly and Cattle Lice Control Strategies, UNL Gudmundsen Sandhills Laboratory 22nd Annual Open House. Whitman, NE. August.
* Hinkle, Nancy C. “Household Flies: Biology, Behavior, and Control.” Georgia Pest Control Association, Adapting & Overcoming Adversity: Dalton Winter Conference, Dalton, GA. January 12-14, 2021. (130 attendees)
* Hinkle, Nancy C. “Management of Beef Cattle Pests – Flies and Ticks.” Georgia Master Cattlemen webinar, Turner and Wilcox Counties sponsor, March 2, 2021. (Zoom, 41 attendees)
* Hinkle, Nancy C. “AgriUnity Beef Cattle Pest Control – Flies and Ticks.” AgriUnity Beef Cattle/Pasture Management Series Session 6, Fort Valley State University, April 5, 2021. (Zoom, 33 attendees)
* Hinkle, Nancy C. “Managing External Cattle Pests.” Mid-Georgia Cattlemen’s Association membership meeting, Forsyth, GA, Sept. 9, 2021. (94 attendees)
* Hinkle, Nancy C. “Recognizing and Treasuring Good Bugs.” Session with a Scientist, Georgia Aquarium, Sept. 14, 2021. (Zoom, 11 attendees)
* Hinkle, Nancy C. “Fly Control.” Jr. Herd Builder training (Dylan Davis). Sept. 16, 2021.
* Hinkle, Nancy C. “Georgia Cattle and Control of Flies and Ticks.” Northeast Georgia Master Cattlemen, Comer, GA, Oct. 4, 2021.
* Hinkle, Nancy C. “External Parasites of Small Ruminants.” Master Small Ruminant series for Upson/Monroe/Lamar counties, Thomaston, GA, Oct. 26, 2021. (32 attendees)
* Loftin, K. M., "Fly Control in Broiler Breeder Production." NWA Poultry Federation Monthly Meeting. March 10, 2021.
* Loftin, K. M., Cattle Health Series, "Cattle Health Seminar: Ticks and Flies." UACES, ZOOM. February 25, 2021.
* Olds, C. L. Integrated Pest Management. Kansas State University Beef Stocker Unit field day, 30 September 2021.

2022

* Hinkle, Nancy C. “Insect and Mite Pests in Poultry Production.” UGA CAES Extension Training Session SES-023959. January 27, 2022. (1.5 hr., 3 attendees, Zoom)
* Hinkle, Nancy C. “Livestock Pests.” UGA CAES Extension Training Session SES-023965. February 2, 2022. (1 hr., 13 attendees, Zoom)
* Hinkle, Nancy C., Raymond Fitzpatrick, and Greg Pittman. “Controlling Flies This Year.” Athens Beef Cattle Short Course, UGA Livestock Arena, Athens, GA, Feb. 8, 2022. (93 attendees)
* Hinkle, Nancy C. “Beef Cattle Pest Control.” Walton County Cattlemen’s Association, Monroe, GA. Feb. 15, 2022. (46 attendees)
* Hinkle, Nancy C. “Horn Flies – The Billion Dollar Cattle Pest and Options for Its Suppression.” Georgia Cattlemen’s Association annual meeting, Savannah, GA, Feb. 16-18, 2022. (14 attendees)
* Hinkle, Nancy C. “Pest Management: Techniques for Long-Term Success.” Georgia Cattlemen’s Association annual meeting, Savannah, GA, Feb. 16-18, 2022. (53 attendees)
* Hinkle, Nancy C. “Pests of Georgia Cattle.” Southeast Georgia Master Cattlemen’s class, Swainsboro, GA, Feb. 22, 2022. (37 attendees)
* Hinkle, Nancy C. “Using the *Georgia Pest Management Handbook* to Successfully Control Pests of Georgia Cattle.” Baldwin County Cattlemen’s Association, Milledgeville, GA, February 24, 2022.
* Hinkle, Nancy C. “Pests of Georgia Cattle.” Appling County Cattlemen, Webinar, April 26, 2022.
* Hinkle, Nancy C. “Equine Pests and Protecting Your Horse.” Troup County Horse Symposium, Lagrange, GA, April 30, 2022. (23 attendees)
* Hinkle, Nancy C. “External Insect Pest Control.” AgriUnity Cattle Producers’ Organization, hosted by Fort Valley Extension, May 23, 2022. (virtual, 38 attendees)
* Hinkle, Nancy C. “Stinging and Biting Insects.” Gwinnett County Extension Webinar, July 26, 2022. (virtual, 14 attendees)
* Hinkle, Nancy C. “External Pest Control for Georgia Cattle.” Franklin County Cattlemen’s Association, Franklin County Agriculture Center, Carnesville, GA, August 8, 2022.
* Hinkle, Nancy C. “Control of External Parasites on Small Ruminants.” Northwest Georgia Master Small Ruminant program, Rock Spring, Walker County, Georgia, August 11, 2022.
* Machtinger, E. T.2022. Flying insects on equinefacilities. Straight from the Horse Doctor’s Mouth. Springhill Equine, Newberry, FL. May 17.<https://springhillequine.libsyn.com/s5e13-flying-things-with-dr-erika-machtinger>
* Hinkle, Nancy C. “Controlling External Parasites of Georgia Cattle.” Master Cattlemen’s Program, Northwest Georgia, Carrollton, GA, September 27, 2022. (67 attendees)
* Hinkle, Nancy C. “Georgia’s Most Common Critters: Peridomestic Insects” plus a two-hour field trip for the Georgia Master Naturalist program, Elachee Nature Science Center, Gainesville, GA, September 30, 2022. (10 participants)
* Hinkle, Nancy C. “Flies and Asian Longhorned Ticks on Cattle.” Little River Cattlemen’s Association Annual Fall Field Day, Kent Countyline Cattle, Warrenton, GA, Oct. 6, 2022. (63 participants)
* Hinkle, Nancy C. “Biting and Stinging Arthropods.” Noon Lunch and Learn, Henry County, McDonough, GA, Oct. 11, 2022. (20 participants)
* Hinkle, Nancy C. “Flies and Ticks on People and Animals.” Oconee County Pesticide Recertification, Oconee County Extension Office, Watkinsville, GA, November 21, 2022. (29 attendees)
* Loftin, K. M., December County Agent Training, "Cattle Diseases: Flies and Ticks," UA CES, 4-H Center, Ferndale, AR. December 6, 2022.
* Loftin, K. M., Animal Science Field Day, "Alternative Methods of Fly Control." UA Animal Science Field Day, Beef Cattle Farm - Cow/Calf Unit, Savoy, AR, United States. April 28, 2022.
* Loftin, K. M. “Assessing IGR efficacy against horn flies in cattle manure” - Yell County Cattlemen’s Association. August 19,2022.
* Pickens, V. and C. Olds. 2022. Incriminating house flies as carriers of AMR and MDR bacteria. Kansas Livestock Association and Kansas State University Research and Extension Ranch Management Field Day. Thayer, KS. August 16.
* Burges ER. Pursuing new tools for animal production IPM. Invited talk at North Florida Livestock Agents Group. Gainesville, FL. February 2022.
* Smith, K, R. Trout Fryxell, S. Schexnayder, S. Ward, W. Watson. 2022. US organic dairy farm trends for fly and pathogen management and barriers to adopting organic practices. Poster Display. National Entomological Society of America Meeting. Vancouver, BC, Canada, Nov 14, 2022.
* Smith, K.V., K.L. DeLong, A.P. Griffith, C.N. Boyer, S. Schexnayder, R.T. Trout Fryxell. “Costs of Horn Fly (Diptera: Muscidae) Control for Cow-Calf Producers in Tennessee and Texas.” Poster. University of Tennessee Steak and Potatoes Field Day. August 26, 2022.

**Teaching**

* Hinkle, Nancy C. “Biting Flies,” “Non-biting Flies,” and “Myiasis,”
  + 99 pre-professional (pre-med/pre-vet) students in UGA’s Medical Entomology class, Spring 2018.
  + 127 pre-professional students (pre-med/pre-vet) in UGA’s Medical Entomology class, Spring 2019.
  + 161 pre-professional students (pre-med/pre-vet) in UGA’s Medical Entomology class, Spring 2020.
  + 139 pre-professional students (pre-med/pre-vet) in UGA’s Medical Entomology class, Spring 2021.
  + 129 pre-professional students (pre-med/pre-vet) in UGA’s Medical Entomology class, Spring 2021.
* Burgess, Edwin R. UF’s Medical and Veterinary Entomology lecture,.
  + Filth flies (Diptera) of medical and veterinary importance
    - 26 undergraduate students, Fall 2021
    - 10 undergraduate and 27 graduate students Spring 2022
    - 19 undergraduate students Fall 2022.
  + Bot flies and myiasis
    - 26 undergraduate students, Fall 2021
    - 10 undergraduate and 27 graduate students Spring 2022
    - 19 undergraduate students Fall 2022.
  + ID of Diptera adults
    - 23 undergraduate students, Fall 2021
    - 8 undergraduates and 25 graduate students Spring 2022.
    - 19 undergraduate students Fall 2022.
  + ID immature Diptera
    - 23 undergraduate students, Fall 2021
    - 8 undergraduates and 25 graduate students Spring 2022.
    - 19 undergraduate students Fall 2022.
  + Watson, D. W. Medical Veterinary Entomology ENT 582. North Carolina State University
    - 2018 Taught half of the class 9 graduate students.
  + Watson, D. W. Ectoparasites of Cattle and Vectors of Disease. Diseases of Farm Animals, VMP 420. North Carolina State University
    - 2018 lecture to 70 undergraduate students.
    - 2019 lecture to 60 undergraduate students
    - 2020 lecture to 68 undergraduate students
    - 2021 lecture to 61 undergraduate students.
    - 2022 lecture to 48 undergraduate students.
  + Watson, D. W. 2021 Forensic Entomology and Evidence Collection Practices. PCC 274 Introduction to Forensic Science. Nelson Venueza Benitez IR, Textiles Chemistry.
  + Watson, D. W., 2021 Expert Witness. Forensic Entomology ENT 305. Michael Reiskind IR
  + Trout Fryxell, R. T. Impacts of Insects & Plant Diseases on Human Societies at the University of Tennessee (EPP 201). 3 credit hour course.
    - Fall 2020: mixed instruction (hybrid and online) to 49 undergraduate students
    - Fall 2021: In-person instruction to 20 undergraduate students and online asynchronous instruction to 25 undergraduate students
    - Fall 2022: In-person instruction to 19 undergraduate students and online asynchronous instruction to 28 undergraduate students
  + Trout Fryxell, R. T. Medical and Veterinary Entomology at the University of Tennessee (EPP 425 / 525). 3 credit hour course (2 hrs of lecture and 1 hr of laboratory).
    - Spring 2018: 11 students (7 undergraduate students and 4 graduate students)
    - Spring 2020: 11 students (6 undergraduate students and 5 graduate students)
    - Spring 2022: 14 students (13 undergraduate students and 1 graduate student)

**Media Interviews**

2018 Hinkle, N.C. Eight interviews on Horn Flies, House Flies, Ticks

2019 Hinkle, N.C. Three interviews on Horn Flies

2020 Hinkle, N.C. Twelve interviews on Horn Flies, Murder Hornets, Lice,

2022 Hinkle, N.C. 11 interviews on Horn Flies, Eye Gnats, Ticks