## Publications

### Journal Articles

1. Zhan, Y., X. Cao, Y. Xiao, X. Wei, S. Wu, J. Zhu. 2022. Start-up of co-digestion of poultry litter and wheat straw in anaerobic sequencing batch reactor by gradually increasing organic loading rate: methane production and microbial community analysis. Bioresource Technology 354:127232.
2. Zhan, Yuanhang, Yiting Xiao, Leland C. Schrader, and Jun Zhu. 2022. A float meter-based system for self-regulated discharging and feeding in a laboratory semi-CSTR for anaerobic digestion of chicken litter. J. ASABE 65(3): 481-490. <https://doi.org/10.13031/ja.14804>.
3. Chai, L, Y. Zhao, H. Xin, and B. Richardson (2022). Heat treatment for disinfecting egg transport tools. Applied Engineering in Agriculture, 38 (2), 343-350.
4. Guo, Y., Y. Qiao, S. Sukkarieh, L. Chai, D. He. (2021). BiGUR-attention based cow behavior classification using video data for precision livestock farming. Transactions of the ASABE 64 (6): 1823-1833.
5. Wan, Y., R. Ma, L. Chai, Q. Du, R. Yang, R. Qi, K. Zhan. (2021). Determination of bacterial communities in nipple drinking system of cascading cage layer houses. Scientific Reports, 11: 19169.
6. Oladeinde A., Z. Abdo, (20 more authors), S. E. Aggrey, L. Chai, C. Ritz (2021). Gene flux and acid-imposed selection are the main drivers of antimicrobial resistance in broiler chicks infected with Salmonella enterica serovar Heidelberg. mSystems 6 (4), e00729-21.
7. Johnson J., B. Zwirzitz, A. Oladeinde, M. Milfort, S. Aggrey, A. Fuller, T. Looft, L. Chai, G. Zock, M. Sommers, S. Tunim, S. Aggrey (2021). Succession patterns of the bacterial community in poultry litter after bird removal and sodium bisulfate application. Journal of Environmental Quality, 50:923–933.
8. Wan, Y., Ma, R., Zhang, H., Li, L., L. Chai., Qi, R., & Zhan, K (2021). Different Non-cage Housing Systems Alter Duodenal and Cecal Microbiota Composition in Shendan Chickens. Frontiers in Veterinary Science, 1161.
9. Guo, Y., S. Aggrey, A. Oladeinde, J. Johnson, G. Zock. L. Chai (2021). A Machine Vision-Based Method Optimized for Restoring Broiler Chicken Images Occluded by Feeding and Drinking Equipment. Animals.11 (1), 123.
10. Chen, B., Koziel, J.A., Banik, C., Ma, H, Lee, M., O’Brien, S.C., Li, P. Andersen, D.S., Bialowiec, A., & Brown, R.C. 2021. Mitigation of gaseous emissions from stored swine manure with biochar: effect of dose and reapplication on a pilot-scale. Atmosphere 12(1): 96.
11. Trabue, S.L, Kerr, B.J., Scoggin, K.D., Andersen, D.S., Van Weelden, M. 2021. Swine diets impact manure characteristics and gas emissions: Part 1 protein level. Science of the Total Environment 755: 14528.
12. Hwang, O., Scoggin, K. Andersen, D.S., Rol, K., Trabue, S. 2021. Swine manure dilution with lagoon effluent impact on odor reduction and manure digestion. Journal of Environmental Quality 50(2): 336-349.
13. Trabue, S.L., Kerr, B.J., Scoggin, K.D., Andersen, D.S., Van Weelden, M. 2021. Swine diets impact manure characteristics and gas emissions: Part II protein source. Science of the Total Environment 763: 144207.
14. Yang, F. Andersen, D.S., Trabue, S., Kent, A.D., Pepple, L.M. Gates, R.S., Howe, A.S. 2021. Microbial assemblages and methanogenesis pathways impact methane production and foaming in manure deep-pit storages. PloS one 16(8): e0254730.
15. Dougherty, B.W., Andersen, D.S., Helmers, M.J. 2022. Evaluating the impact of Midwestern cropping systems on soil health and soil carbon dynamics. Journal of Soil and Water Conservation 77(1):78-87.
16. Strom, N., Ma, Y., Bi, Z., Andersen, D.S., Trabue, S., Chen, C., Hu, B. 2022. Eubacterium coprostanoligenes and Methanoculleus identified as potential producers of metabolites that contribute to swine foaming. Journal of Applied Microbiology 132(4): 2906-2924.
17. Trabue,, S.L, Kerr, B.J., Scoggin, Andersen, D.S., Van Weelden, M. 2022. Swine diets: Impact of carbohydrate sources on manure characteristics and gas emissions. Science of the Total Environment 825: 153911.
18. Reza, A., L. Chen. 2021. Optimization and modeling of ammonia nitrogen removal form high strength synthetic wastewater using vacuum thermal stripping. Processes 2021, 9(11), 2059. https://doi.org/10.3390/pr9112059
19. He, B. and L. Chen. 2021. Hydrochar as a vehicle for phosphorus cycling from dairy manure to cropland. Global Journal of Engineering Sciences 7(5): 2021. GJES.MS.ID.000672. DOI: 10.33552/GJES.2021.07.000672
20. Pandey, B. and L. Chen. 2021. Technologies to recover nitrogen from livestock manure-a review. Science of the Total Environment. DOI: <https://doi.org/10.1016/j.scitotenv.2021.147098>
21. Bird, K. I., Nichols, V. A., Garay, E. S., Nowatzke, M., Essary, C. R., Post, K. K., ... & Cortus, E. L. (2022). Means, motive, and opportunity: A method for understanding stakeholder agency within food–energy–water systems. Elem Sci Anth, 10(1), 00066. https://doi.org/10.1525/elementa.2021.00066
22. Welles, J.S., Soriano, N.C.T., Dorbu, F.E., Pereira, G.M., Rubeck, L., Timmermans, E.L., Ndayambaje, B., Deviney, A., Classen, J.J., Koziel, J.A. and Cortus, E.L. (2021). Conditions Corresponding to Change: Livestock Development in Select South Dakota Counties. Sustainability 13.19 (2021): 10682. https://doi.org/10.3390/su131910682
23. Sharara, M., Kolesch, R. K., Cortus, E. L., Larson, R. A., Classen, J. J., & Janni, K. A. (2022). Addressing Nutrient Imbalance in Animal Agriculture Systems. Journal of the ASABE, 65(2): 235-249. doi: 10.13031/ja.14661
24. Welles, J; Sharara, M., Castro-Bolinaga, C., Classen, J. Swine CAFO Lagoon Strata Physical and Rheological Characterization. Journal of the ASABE, in preparation
25. Mware, N., M.C. Hall, S. Rajendran, J.E. Gilley, A. Schmidt, S. Bartelt-Hunt, Y. Zhang, and X. Li. 2022. Resistome and mobilome in surface runoff from manured soil as affected by setback distance. Journal of Hazardous Materials. <https://doi:10.1016/j.jhazmat.2022.128278>
26. Zelt, M., Z. Staley, X. Li, B. Wang, D. Miller and A.M. Schmidt. 2021. Antibiotic Resistance in Manure-Amended Agricultural Soils. Nebraska Beef Cattle Report. <https://beef.unl.edu/documents/2021-beef-report/mp110-2021-36.pdf>
27. Uguz, S., Anderson, G., Yang, X., Simsek, E., Osabutey, A. (2022). Cultivation of Scendesmus dimorphus with air contaminants from a pig confinement building. Journal of Environmental Management, 314, 115129.
28. Yang, X., Haleem, N., Osabutey, A., Cen, Z., Albert, K. L., Autenrieth, D. (2022). Particulate matter in swine barns: A comprehensive review. Atmosphere, 13(3), 490.
29. Osabutey, A., Cromer, B., Davids, A., Prouty, L., Haleem, N., Thaler, R., Nicolai, R., Yang, X. (2022). Distribution of airflow and media moisture content across two vertical bed biofilters. AgriEngineering, 4, 179-189.
30. Haleem, N., Jamal, Y., Khan, S.N., Baig, M.A., Wahab, M., Yang, X. (2021). Synthesis of carbon nanotubes (CNTs) from poultry litter for removal of chromium Cr (VI) from wastewater. Materials, 14(18), 5195.
31. Parker, D. B., K. D. Casey, H. M. Waldrip, B. Min, B. L. Woodbury, M. Spiehs, T. Campbell, B. Meyer, and W. Willis. 2021. Temporal and spatial variability of methane emissions from Texas open-lot beef cattle feedyard pens. Transactions of the ASABE 64(6) 1781-1794. http://dx.doi.org/10.13031/trans.14672
32. Parker, D. B., K. D. Casey, W. Willis, and B. Meyer. 2021. Nitrous oxide and methane emissions from beef cattle feedyard pens following large rainfall events. Transactions of the ASABE 64(4) 1211-1225. <http://dx.doi.org/10.13031/trans.14480>
33. Hauda, J. K., Safferman, S. I., & Ghane, E. (2020). Adsorption Media for the Removal of Soluble Phosphorus from Subsurface Drainage Water. International Journal of Environmental Research and Public Health, 2020, 17(20), 7693. <https://doi.org/10.3390/ijerph17207693>.
34. Marklein, A.R., D. Meyer , M.L. Fischer, S. Jeong, T. Rafiq, M. Carr, F.M. Hopkins. 2021. Facility scale inventory of dairy methane emissions in California: Implications for mitigation Earth Syst. Sci. Data, 13, 1151–1166, <https://doi.org/10.5194/essd-13-1151-2021>.
35. Knight, R. M. L.Y. Zhao, and H. Zhu. 2021. Modelling and optimisation of a wire-plate ESP for mitigation of poultry PM emission using COMSOL. Biosystems Engineering, 211, 35-49. <https://doi.org/10.1016/j.biosystemseng.2021.08.026>
36. Tong, X., L.Y. Zhao, R. B. Manuzon, M. J. Darr, R. M. Knight, C. Wang, A. J. Heber, J.Q. Ni. 2021. Ammonia Concentrations and Emissions at Two Commercial Manure-Belt Layer Housed with Mixed Tunnel and Cross Ventilation. Transactions of the ASABE. 64(6): 2073-2087. (doi: 10.13031/trans.14634)
37. Hong, S.-w.; Park, J.; Jeong, H.; Lee, S.; Choi, L.; Zhao, L.; Zhu, H. Fluid Dynamic Approaches for Prediction of Spray Drift from Ground Pesticide Applications: A Review. Agronomy 2021, 11, 1182. <https://doi.org/10.3390/>
38. Knight, R., X. Tong, L. Zhao, R. B. Manuzon, M. J. Darr, A. J. Heber, J. Q. Ni. 2021. Particulate matter concentrations and emission rates at two retrofitted manure-belt layer houses. Transactions of the ASABE. 64(3): 829-841. (doi: 10.13031/trans.14337)
39. Pu, S., X. Rong, J. Zhu, Y. Zeng, J. Yue, T. Lim, and D. Long. 2021. Short-term aerial pollutant concentrations in a Southwestern China pig-fattening house. Atmosphere, 12(1):103. doi:10.3390/atmos12010103.
40. Duong, C. M., T.-T. Lim, and A. H. Wang. 2021. Evaluation of biological-based additive for pollution abatement. Applied Engineering in Agriculture, 37(2): 309-317. doi: 10.13031/aea.14281.
41. Aguirre-Villegas, H.A., R.A. Larson, N. Rakobitsch, M.A. Wattiaux, & E. Silva. 2022. Farm Level Environmental Assessment of Organic Dairy Systems in the U.S. Journal of Cleaner Production, 363. <https://doi.org/10.1016/j.jclepro.2022.132390>
42. Burch, T.R., A.D. Firnstahl, S.K. Spencer, R.A. Larson, & M.A. Borchardt. 2022. Seasonality of Antimicrobial Resistance Genes in Untreated and Anaerobically Digested Dairy Manure Across Seven Full-scale Livestock Production Facilities. Journal of Environmental Quality, 51(3):352-363. <https://doi.org/10.1002/jeq2.20350>
43. Feng, X., R.A. Larson, & M.F. Digman. 2022. Evaluating the Feasibility of a Low-Field Nuclear Magnetic Resonance (NMR) Sensor for Manure Nutrient Prediction. Sensors, 22(7): 2438. <https://doi.org/10.3390/s22072438>
44. Feng, X., R.A. Larson, & M. Digman. 2022. Evaluation of Near-Infrared Reflectance and Transflectance Sensing Systems for Predicting Manure Nutrients. Remote Sensing, 14:293. <https://doi.org/10.3390/rs14040963>
45. Hu, Y., H.A. Aguirre-Villegas, R.A. Larson, & V.M. Zavala. 2022. Conflict resolution of environmental metrics in livestock manure management. ACS ES&T Engineering, 2:819-830. <https://doi.org/10.1021/acsestengg.1c00385>
46. Sharara, M., R.K. Koelsch, E.L. Cortus, R.A. Larson, J.J. Classen, & K.A. Janni. 2022. Addressing nutrient imbalances in animal agriculture systems. Transactions of the ASABE, 65(2):235-249. <https://doi.org/10.13031/ja.14661>
47. Uddin, M.E., H.A. Aguirre-Villegas, R.A. Larson, & M.A. Wattiaux. 2021. Carbon footprint of milk from Holstein and Jersey cows fed low or high forage diet with alfalfa silage or corn silage as the main forage source. Journal of Cleaner Production, 298:126720. <https://doi.org/10.1016/j.jclepro.2021.126720>
48. Tominac, P.A., H.A. Aguirre-Villegas, J.R. Sanford, R.A. Larson, & V.M. Zavala. 2021. Evaluating municipal landfill diversion strategies for organic waste management using environmental and economic factors. ACS Sustainable Chemistry & Engineering, 9(1):489-498. <https://doi.org/10.1021/acssuschemeng.0c07784>

### Conference Proceedings

1. Yuanhang Zhan, Yiting Xiao, Leland C. Schrader, Ndeddy Aka Robinson Jr, Sarah Wu, Jun Zhu. Considering micro-aeration strategy for enhancing methane production in anaerobic digestion of agricultural wastes. ASABE 115th Annual International Meeting. Paper#: 2200429. Houston, TX. July 17-20.
2. Xiao, Y., J. Zhu, M. Vanotti. 2021. Evaluation of Nitrifying, Anammox and Heterotrophic bacteria in a One-Stage Reactor During Direct Treatment of Poultry Litter. ASABE Annual International Meeting paper#: 2100634. July 11-14. Virtual.
3. Bist, R., X. Yang, S. Subedi, Y. Guo, M. Sharma, A. Singh, W. Kim, C. Ritz, D. Jones, P. Regmi, L. Chai\*. 2022. Effects of pullets age and activities on air quality in the cage-free house. 2022 International Poultry Scientific Forum (IPSF), Jan. 24-25, 2022. M118.
4. Guo, Y., A. Oladeinde, R. Rekaya, A. Ghareeb, J.Foutz, G. Zock, R. Bist, S. Aggrey\*, L. Chai. 2022. A Thermal Imaging Method for Evaluating Broiler Growth Parameters. 2022 International Poultry Scientific Forum (IPSF) Jan. 24-25, 2022. P213.
5. Yang, X., R. Bist, S. Subedi, Guo, Y., C. Ritz, L. Chai. 2022. Monitoring litter quality in cage-free facilities with W-36 pullets. 2022 International Poultry Scientific Forum (IPSF) Jan. 24-25, 2022. P280.
6. Chai, L., C. Dunkley, C. Ritz. Air Quality in Commercial Broiler Breeder Houses. (2021) ASABE Annual International Meeting paper. Paper # 2100141.
7. Guo, Y, L. Chai. (2021). Monitoring animal group distribution index with the machine vision-based technology in the poultry house. 2021. ASABE Annual International Meeting # 2100856 (doi:10.13031/aim.202100856).
8. Chen, B., Koziel, J.A., Banik, C., Ma, H.,, Lee, M. O’Brien, S.C., Li, P., Andersen, D.S., Bialowiec, A., Brown, R.C. 2021. Reduction of gaseous emissions from swine manure: effect of biochar does and reapplication. 2021 ASABE Annual International Virtual Meeting.
9. Weyer, S.E., Ramirez, B.C., Andersen, D.S., Smith, B.C. 2021. Swine Carcass Characterization Exposed to a Small- Desiccation Environment. 2021 ASABE Annual International Virtual Meeting.
10. Myers, G.M., Andersen, D.S., Raman, D.R. 2021. Cost assessment of centralizing a swine manure and corn stover co-digestion system for biogas production. 2021 ASABE Annual International Virtual Meeting.
11. Sharara, M., Hopkins, C., Stuckey, J. Evaluating Full-Scale Greenhouse Systems for Lagoon Sludge Drying and Pathogen Reduction (Waste to Worth 2022). Available online at: <https://lpelc.org/evaluating-full-scale-greenhouse-systems-for-lagoon-sludge-drying-and-pathogen-reduction/>
12. Patil, P; Sharara, M., Shah, S., Kulesza, S, Classen, J. Impact of Swine Sludge Inclusion Rate on the Composting Process and Compost Quality (Waste to Worth 2022). Available online at: <https://lpelc.org/impacts-of-swine-sludge-inclusion-rate-on-the-composting-process-and-compost-quality/>
13. Graves, C., Sharara, M. Impact of Sludge on Nutrient Concentration in Anaerobic Swine Lagoon Supernatant (Waste to Worth 2022). Available online at: <https://lpelc.org/impact-of-sludge-on-nutrient-concentration-in-anaerobic-swine-lagoon-supernatant/>
14. A.M. Schmidt, M. Zelt, K. Nixon, D. Lansing, and A. King. 2022. I’m an expert…why aren’t you listening to me?! Proceedings of the 2022 Waste-to-Worth Conference, Oregon, OH, April 18-22, 2022.
15. A.M. Schmidt, M. Zelt, S. Lansing, R. Tikekar, M. Sharara, J. Harrison, and N. Noyes. 2022. Antimicrobial resistance from a One Health perspective: multi-disciplinary university instruction from extension professionals. Proceedings of the 2022 Waste-to-Worth Conference, Oregon, OH, April 18-22, 2022.
16. Zelt, M., A. Patterson, J.C. Ramos Tanchez2, and A.M. Schmidt. 2022. Impacts of social media on public awareness and behavior related to antimicrobial resistance. Proceedings of the 2022 Waste-to-Worth Conference, Oregon, OH, April 18-22, 2022.
17. Osabutey, A.K., Anderson, G., Min, K., Yang, X. (2021). Microalgae for swine wastewater treatment and nutrient removal: Effects of solid separation. In American Society of Agricultural and Biological Engineers (ASABE) 2021 Annual Meeting (virtual).
18. Cen, Z., Brennan, J., Ding, M., Yang, X. (2021). An IoT-based system for remote monitoring of water levels in rangeland water tanks. In ASABE 2021 Annual Meeting (virtual).
19. Cortus, E. L., Samuel, R. S., Yang, X., Thaler, R. C., Hetchler, B. P. (2021). Evaluating gas and particulate matter emissions and downwind concentration impacts using the EPI air filter wall system. In 2021 ASABE 2021 Annual Meeting (virtual).
20. Leon, I., H. Scott, B. Auvermann, K. Bush, K. Casey, B. Pinchak, J. Smith, J. Vinasco, J. Jennings, S. Lawhon, and K. Norman. 2021. Viable Bacteria from Cattle Feedyard Dust: Phenotypic and Genotypic Characterization In: Proc of the Conference of Research Workers in Animal Diseases, Dec 4-7, 2021, Chicago, IL. [Abstract & Oral]
21. Phuyal, D, N. Rajan, R. W. Schnell, W. L. Rooney, B. K. Maharjan, K. D. Casey, D. Zapata, S. Okumoto, N. K. Subramanian, J. Kim, K. Chu, J Aitkenhead-Petersen, and G. V. Subbarao. 2021. Biological nitrification inhibition activity of sorghum genotypes on a typical field soil. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Presentation]
22. Salehin, S. M., N. Rajan, N. Miyanaka, K. D. Casey, P, J. Tomlinson, A. Somenahally, J. E. Mowrer, M. V. Bagavathiannan. 2021. Emission and sequestration of greenhouse gases in organically managed cotton cropping systems. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Presentation]
23. Phuyal, D, N. Rajan, R. W. Schnell, S. M. Salehin, K. D. Casey, W. L. Rooney, B. K. Maharjan, S. Okumoto, and G. V. Subbarao. Effect of biological nitrification inhibition of sorghum on nitrous oxide emission under different nitrogen fertilizer types. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Poster Presentation]
24. Mikanaka, N., N. Rajan, S. T. Pires, S. M. Salehin, K. D. Casey, and P. J. Tomlinson. 2021. Global warming potential of conventional and organic cotton cropping system. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Poster Presentation]
25. Zapata, D., W. Crane, N. Rajan, and K. D. Casey. 2021. The scope of automated soil chamber techniques in improving temporal resolution of soil N2O emissions. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Presentation]
26. Rajan, N., D. Davis, P. Pokhrel, R. W. Schnell, G. Fontana, K. D. Casey, S. S. Strawn, P. J. Tomlinson, J. Kathilankai, S. Herndon, and V. G. Kalani. 2021.Field scale continuous nitrous oxide emission monitoring using eddy covariance. In: Proc of the ASA, CSSA and SSSA International Annual Meetings, Nov 07-10. 2021. [Abstract & Presentation]
27. Leon, I. M., H. M. Scott, B. Auvermann, J. Bush, K. Casey, W. Pinchak, J. Smith, J. Vinasco, J. Jennings, S. Lawhon, K. N. Norman. 2021. Viable bacteria from cattle feedyard dust: Phenotypic and genotypic characterization. In: Proc of the Conference of Research Workers in Animal Diseases. Dec 3-7, 2021, Chicago, IL. [Abstract & Poster]
28. Casey, K. D., D. B. Parker, and H. M. Waldrip. 2021. Exploratory area integrated measurements of nitrous oxide emissions from a beef cattle feedyard in Texas ASABE Paper 2101022. St. Joseph, MI: ASABE. [Abstract & Poster]
29. Mahdaviarab, A. and Z. Liu. Improving Lagoon Wastewater Quality Using a Solar-Powered and Self-Guided Floating Treatment Platform. 2021. ASABE Annual International Meeting, Virtual Conference.
30. Chio, A. A. Edalati, Y. Chen, T. Barzee, H. El-Mashad and R. Zhang. 2021.Production and Application of Compost Products from Dairy Manure for Improving Health and Fertility of Almond Orchard Soils, Presentation at ASABE 2021 Annual International Meeting, July 12-15.
31. Chio, A. A. Edalati, Yi. Chen, T. Barzee, H. El-Mashad and R. Zhang. 2021. Production and application of compost products from dairy manure for improving health and fertility of almond orchard soils, Poster presented at 2021 ASABE CA-NV Annual Meeting.
32. Edalati, A. Pelletization technologies and its application. Presentation at 2021 California Bioresources Alliance Symposium: Pelletization Technologies and its Application.
33. Knight, R., M. Herkins, M. and L.Y. Zhao. 2021. A Review of Electrostatic Precipitation Air Cleaning Technologies for Control of Dust Emissions and Pathogenic Bacteria at Animal Production Facilities. Presented at 2021 International Symposium on Animal Environment and Welfare, Chongqing, China, October 21-23, 2021.
34. Canter, T., Lim, T.-T., and J. A. Zulovich. 2021. Field Experience of Removing and Land Application of Dairy Lagoon Solids. In International Symposium on Animal Environment and Welfare. Rongchang, Chongqing, China.

### Thesis/Dissertations

1. Zock, G. Broiler house particulate matter, aerobiome, and antibiotic resistant e. coli under “raised without antibiotics” (MS). University of Georgia, 2021.
2. Pandey, B., Particle Density, Particle Size, and Nutrient Distribution of Flushed Dairy Manure by Bishnu, University of Idaho, 2021.
3. Welles, J. Considerations for Managing Aging Swine Lagoons in Southeastern United States. North Carolina State University, 2021.
4. Aghdam, S., Environmental and Techno-Economic Assessment of Struvite Recovery from Manure on North Carolina Swine Farms. North Carolina State University, 2021.
5. Mware, N. A. Mitigation Strategies to Reduce Antibiotic Resistance in Agricultural Environments. University of Nebraska – Lincoln, 2021.
6. Knight, R. M. Electrostatic precipitators and electrostatic spray scrubbers for mitigation of particulate matter emissions in poultry facilities (Doctoral Dissertation). The Ohio State University, 2021.
7. Duong C. M. Improvement of Co-Digesting Swine Manure and Waste Kitchen Oil. Ph.D. Thesis. University of Missouri, 2021.

### Extension and Outreach

1. Chai, L. (2022). Manure drying methods in layer houses. Poultry Tips. UGA Poultry-Extension. In Press.
2. Chai, L, S. Aggrey, A. Oladeinde, C. Ritz, T. Applegate (2022). An Automated Approach to Monitoring Poultry Floor Distribution. UGA Extension Bulletin. In Press.
3. Chai, L, C. Dunkley, and C. Ritz (2022). Floor Egg Management in Cage-free Houses. UGA Extension Bulletin. In Press.
4. Chai, L, C. Dunkley, and C. Ritz (2021). Measuring Air Quality in Broiler Breeder Houses in Georgia. Journal of the National Association County Agricultural Agents, 14(2): 1-5. <https://www.nacaa.com/journal/6471176a-01d1-46b7-9f2b-2c70cda7b93e>
5. Chai, L (2021). Sprinkling cooling for cage-free hens. UGA Poultry Tips, July 2021. <https://site.extension.uga.edu/poultrytips/2021/07/sprinkling-cooling-for-cage-free-hens/>
6. Dougherty, B., Pederson, C., Helmers, J.J., Soupir, M.L, Andersen, D.S., Mallarion, A.P., Sawyer, 2021. Effect of manure application timing and cover crops on nitrogen and phosphorus leaching 2016-2020. Iowa State University Research and Demonsrration Farm Progress Reports.
7. Hoover, N.L., Soupir, M.L., Andrsen, D.S., Kansar, R.S. 2021. Environmental Assessment of Long-Term Poultry Manure Applicaiotn: Phase 3. Iowa State University Research and Demonsrration Farm Progress Reports.
8. Chen, L. 2021. A centrifuge improves flushed liquid dairy manure separation efficiencies for solids and nutrients. Journal of Nutrient Management (available at https://issuu.com/hoardsdairyman/docs/jnm\_q1\_feb\_2021\_digital/s/11890723).
9. Chen, L., L. Schott. 2021. Should Producers Test Solid Dairy Manure and Dairy Manure Compost Before Land Application. UI Extension BUL 997 (available at BUL997 Should Producers Test Solid Dairy Manure and Dairy Manure Compost Before Land Application? (uidaho.edu))
10. Schott, L., H. Aguirre-Villegas, R.A. Larson, Sharara, M., J. Sanford, & Z. Liu. 2022. Composting Animal Manure. University of Wisconsin-Extension, Publication No. A4192-00X I-XX-2022.
11. Sanford, J., H. Aguirre-Villegas, R.A. Larson, M. Sharara, Z. Liu, & L. Schott. 2022. Sanford, J., H. Aguirre-Villegas, R.A. Larson, M. Sharara, Z. Liu, & L. Schott. 2022. Biochar Production (Slow Pyrolysis) of Animal Manure. University of Wisconsin-Extension, Publication No. A4192-00X I-XX-2022. University of Wisconsin-Extension, Publication No. A4192-005 I-XX-2022.
12. Liu, Z., H. Aguirre-Villegas, R.A. Larson, M. Sharara, J. Sanford, & L. Schott. 2021. Sloped Screen Separator for Manure. University of Wisconsin-Extension, Publication No. A4192-004 I-12-2021.
13. Sharara, M., H. Aguirre-Villegas, R.A. Larson, J. Sanford, Z. Liu, & L. Schott. 2021. Pelleting Animal Manures. University of Wisconsin-Extension, Publication No. A4192-003 I-09-2021.
14. Larson, R.A., H. Aguirre-Villegas, M. Sharara, J. Sanford, Z. Liu, & L. Schott. 2021. Screw Press Solid Liquid Separation of Manure. University of Wisconsin-Extension, Publication No. A4192-002 I-10-2021.
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3. (Dr. Kick from North Carolina State University) Materials from analysis have been used rather extensively in the classroom. Results published in the College Newsletter. As expected, faculty who gain resources from industrial agricultural activities are not pleased with the findings, but independent reviewers have validated them. Findings are in line with Badgley’s examination of 300 studies comparing the outputs of agro-ecology with industrial agriculture. At stake is the world’s production of healthy food, health generally, well being in communities, the world’s grossly unjust distribution of equity, and the serious environmental risk to humans and animals.
4. The team from the University of Nebraska – Lincoln created a consumer-facing website that was launched in 2022.
5. The team from South Dakota State University finished the development of a Web-Based South Dakota Odor Footprint Tool (Web SDOFT) that allows producers and other stakeholders to calculate the minimal setback distances on any Internet devices (e.g., cell phones and computers).
6. The team from Texas A&M University published a series of YouTube videos that produced with S-1074 members. These videos were requested by producers, farmers, and engineers: <https://www.youtube.com/channel/UCtKWpJ3fKQm6nUFQgL1pU_A>. The current contents include farmer/manager interviews and VR videos of demonstrations and tours.
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