

MICHELLE L. SOUPIR
Associate Professor
Agricultural & Biosystems Engineering Department
Iowa State University

EDUCATION

Ph.D.	2008	Biological Systems Engineering	Virginia Tech
M.S.	2003	Biological Systems Engineering	Virginia Tech
B.S.	1999	Biological and Agricultural Engineering	Kansas State University

PROFESSIONAL EXPERIENCE/APPOINTMENTS

2014- present	Associate Professor, Teaching and Research in the Agricultural and Biosystems Engineering Department, Iowa State University, Ames, IA.
2008 – 2014	Assistant Professor, Teaching and Research in the Agricultural and Biosystems Engineering Department, Iowa State University, Ames, IA.
2001-2008	Graduate Research Assistant, Biological Systems Engineering Department, Virginia Tech, Blacksburg, VA.
2000-2001	Environmental Engineer, Camp Dresser and McKee Inc., Kansas City, MO.

AREAS OF SPECIALIZATION

- Research program in the areas of fate and transport of microorganisms and emerging contaminants, NPS pollution control, and water quality monitoring and modeling
- Teaching program in the areas of water quality and watershed-scale modeling
- Member of the graduate faculty and courtesy appointment in Civil, Construction and Environmental Engineering Department
- Member of graduate faculty in Environmental Science and Sustainable Agriculture programs

HONORS AND AWARDS

- College of Engineering Professional Progress Award, 2016, Kansas State University
- Exemplary Faculty Mentor, 2015, Office of the Senior Vice President and Provost at ISU
- New Holland Young Researcher Award, 2014, ASABE
- ASABE Young Engineer of the Year, 2014, Iowa Section
- Early Career Engineering Faculty Research Award, 2014, Iowa State University
- CALS Early Achievement in Research Award, 2013, Iowa State University
- Outstanding Recent Alumna, Biological Systems Engineering Dept., 2012-2013, Virginia Tech

PUBLICATIONS

Refereed Journal Articles (50 published or in press)

* BS, MS, or Ph.D. student supervised by Soupir; **Postdoc or Research Associate supervised by Soupir; ± Paper derived from Soupir's graduate work

1. Hoover, N.L.**, M.L. Soupir, R.D. VanDePol, T.R. Goode, and J.Y. Law*. (in press). Technical note: Pilot scale denitrifying bioreactors for replicated field research. *Applied Engineering in Agriculture*.

2. Liang, X.*, C. Liao*, M.L. Thompson, M.L. Soupir, L.R. Jarboe, P.M. Dixon. 2016. Diversity in properties of *E. coli* derived from stream water and sediment. *Frontiers in Microbiology*. DOI: <http://dx.doi.org/10.3389/fmicb.2016.01732>
3. Hruby, C.E.*, M.L. Soupir, M. Shelley, T.B. Moorman, R.S. Kanwar. 2016. Effects of Tillage and Poultry Manure Application Rates on Salmonella and Fecal Indicator Bacteria Concentrations in Tiles Draining Des Moines Lobe Soils. *Journal of Environmental Management*. 171:60-69.
4. Zwonitzer, M.R.*, M.L. Soupir, L.R. Jarboe, D.R. Smith. 2016. Quantifying attachment and antibiotic resistance of *Escherichia coli* from conventional and organic swine manure. *Journal of Environmental Quality*. DOI: 10.2134/jeq2015.05.0245
5. Luby, E.M.*, T.B. Moorman, M.L. Soupir. 2016. Fate and transport of tylosin-resistant bacteria and macrolide resistance genes in artificially drained agricultural fields receiving swine manure application. *Science of the Total Environment*. 550:1126-1133.
6. Pandey, P.K.*, M.L. Soupir, Rehmann C.R., Ikenberry, C. 2016. Modified SWAT Model for Developing TMDLs for Bacteria. *Journal of the American Water Resources Association*.
7. Hoover, N.L.*, A. Bhandari, M.L. Soupir, and T.B. Moorman. 2016. Woodchip Denitrification Bioreactors: Impact of Temperature and Hydraulic Retention Time on Nitrate Removal. *Journal of Environmental Quality*. 45:803-812.
8. Gali, R.K.*, M.L. Soupir, A.L. Kaleita, P. Daggupati. 2015. Identifying potential locations for grassed waterways using terrain attributes and precision conservation technologies. *Transactions of the ASABE*. 58(5) DOI: 10.13031/trans.58.10995
9. Liao, C.*, X. Liang*, M.L. Soupir, L.R. Jarboe. 2015. Cellular, particle and environmental properties influencing attachment in waters: A review. *Journal of Applied Microbiology*. 119 (2): 315-330.
10. Hoover, N.L.*, R.S. Kanwar, M.L. Soupir, C. Pederson. 2015. Phosphorus Transport in Soil under Long-Term Applied Poultry Manure. *Water Air and Soil Pollution*. 226:138. DOI: 10.1007/s11270-015-2403-9
11. Pandey, P.K.*, G.B. Pasternack, M. Majumder, M.L. Soupir, M.S. Kaiser. 2015. A neighborhood statistics model for predicting stream pathogen indicator levels. *Journal of Environmental Monitoring and Assessment*. 187(3): 124. DOI: 10.1007/s10661-014-4228-1
12. Gali, R.K.* and Soupir, M.L. 2015. Near shore beach volume modeling approach for setting beach bacteria TMDLs: A case study, Hickory Grove Lake, Iowa. *Applied Engineering in Agriculture*. 31(1): 73-82.
13. Pandey, P.K., S. Biswas, V.K. Vaddella, M.L. Soupir. 2015 *Escherichia coli* persistence kinetics in dairy manure at moderate, mesophilic, and thermophilic temperatures under aerobic and anaerobic environments. *Bioprocess and Biosystems Engineering*. 38(3): 457-467. DOI: 10.1007/s00449-014-1285-3
14. Liang, X.*, M.L. Soupir, S. Rigby, L.R. Jarboe, W. Zhang. 2014. Flow cytometry as a method to partition between freely suspended *E. coli* and *E. coli* attached to clay particles. *Journal of Applied Microbiology*. 117:1730-1739. DOI: 10.1111/jam.12660
15. Pandey, P.K.*, Soupir, M.L. 2014. Assessing relationships between in-stream *Escherichia coli*, total suspended sediment, and water nutrients during storm flow in an Agricultural Watershed in Iowa. *Transactions of the ASABE*. 57(6): 1571-1581. DOI: 10.13031/trans.57.10371
16. Ikenberry, C.D, M.L. Soupir, K.E. Schilling, C.S. Jones, A. Seeman. 2014. Nitrate-nitrogen export: Magnitude and patterns from drainage districts to downstream river basins. *Journal of Environmental Quality*. 43(6): 2024-2033. DOI: 10.2134/jeq2014.05.0242.
17. Pandey, P.K., P. Kass, M.L. Soupir, S. Biswas, V. Singh. 2014. Contamination of water resources by pathogenic bacteria. *AMB Express*. 4:51 DOI 10.1186/s13568-014-0051-x
18. Garder, J.L.*, T.B. Moorman, and M.L. Soupir. 2014. Occurrence and movement of total and tylosin resistant enterococci, *erm* genes, and tylosin in tile-drained agricultural fields receiving swine manure application. *Journal of Environmental Quality*. 43:1484-1493.

19. Pandey, P.K.*, Sethi, L.N., Pholane, L.P., Soupir, M.L., Panda, S. N. 2014. Growth performance and economic analysis of Indian major Carps and Tilapia in Rainwater Ponds. *Fisheries Technology*. 51(2).
20. Brown, S.B.*, C.D. Ikenberry*, M.L. Soupir, J. Bisinger, J.R. Russell. 2014. Predicting time cattle spend in streams to quantify direct deposition of manure for TMDL development. *Applied Engineering in Agriculture*. 30(2): 187-195. DOI 10.13031/aea.30.10393
21. Zheng, W., Y. Zhao, H. Xin, B. Li, R.S. Gates, Y. Zhang, and M. Soupir. 2014. Airborne particulate matter and bacteria reduction from spraying slightly acidic electrolyzed water in an experimental aviary laying-hen system. *Transactions of the ASABE*. 57(1):229-236.
22. Yang, Z., H. Xin, D. Zhao, W. Zheng, W. Tian, H. Ma, K. Liu, H. Hu, T. Wang, M. Soupir. 2014. Free chlorine loss during spray of membrane-less acidic electrolyzed water and its antimicrobial effect on airborne bacteria from poultry houses. *Annals of Agricultural and Environmental Medicine*. 12(2): 249-255.
23. Zheng, W., Y. Zhao, H. Xin, B. Li, R. Gates, Y. Zhang, M. Soupir. 2013. Concentrations and size distributions of airborne particulate matter and bacteria in an experimental aviary laying-hen housing system. *Transactions of the ASABE*. 56(6): 1493-1501.
24. Hoang, T.T.T.*, M.L. Soupir, A. Bhandari, and P. Liu. 2013. Occurrence of tylosin-resistant enterococci in swine manure and tile drainage systems under no-till management. *Water Air and Soil Pollution*. 224:1754. DOI 10.1007/s11270-013-1754-3
25. Pandey, P.K. *, P. van der Zaag, M.L. Soupir, and V.P. Singh. 2013. A model for predicting supplemental irrigation and potential rainwater harvesting for rainfed agriculture. *Water Resources Management*. 27(8) 3145-3164. DOI 10.1007/s11269-013-0340-1.
26. Pandey, P.K. * and M.L. Soupir. 2013. Assessing the impacts of streambed sediment on total *E. coli* load over a range of flows. *Journal of the American Water Resources Association*. 49(6) 1261-1269 DOI: 10.1111/jawr.12079.
27. McDaniel, R.L.*, M.L. Soupir, Tuttle, R.*, and A. Cervantes*. 2013. Release, dispersion, and resuspension of *E. coli* from direct fecal deposits under controlled flows. *Journal of the American Water Resources Association*. 49(2): 319-327. DOI:10.1111/jawr.12022.
28. McDaniel, R.L.* and M.L. Soupir. 2013. Relationships between manure particle and *E. coli* transport from direct fecal deposits under steady-state flows. *Water Air and Soil Pollution*. 224(2). DOI:10.1007/s11270-013-1444-1.
29. Nguyen, H.Q., R.S. Kanwar, N. Hoover*, P. Dixon, J. Hobbs, C. Pederson, M.L. Soupir. 2013. Long-term effects of poultry manure application on nitrate leaching in tile drainage water. *Transactions of the ASABE*. 56(1): 91-101.
30. Nguyen, H.Q., N. Hoover*, R.S. Kanwar, P. Dixon, J. Hobbs, C. Pederson, M.L. Soupir. 2012. Effects of repeated surface application of poultry manure crop yield, N uptake and soil nitrate residual from a corn-soybean rotation. *Journal of Research*, published by Punjab Agricultural University, Ludhiana, India.
31. Pandey, P.K. *, Soupir, M.L. 2012. Impacts of temperatures on biogas production in dairy manure anaerobic digestions. *International Journal of Engineering and Technology*. 4(5): 1793-8244.
32. ±Gali, R., M.L. Soupir and S. Mostaghimi. 2012. Transport of nutrients from various pastureland management scenarios. *Journal of Environmental Monitoring*. 14(9): 2421-2429. DOI:10.1039/C2EM30390F.
33. Pandey, P.K. *, M.L. Soupir, M. Haddad, J. J. Rothwell. 2012. Assessing the impacts of watershed indexes and precipitation on spatial in-stream *E. coli* concentrations. *Ecological Indicators*. 23:641-652. DOI: 10.1016/j.ecolind.2012.05.023.
34. Pandey, P.K.* and M.L. Soupir. 2012. A new method to estimate the variation of hourly and long term average daily global solar radiation on horizontal surface. *Atmospheric Research*. 114-115:83-90. DOI:10.1016/j.atmosres.2012.05.012.

35. Pandey, P.K. *, M.L. Soupir, and C.R. Rehmman. 2012. A model to predict resuspension of *E. coli* from streambed sediments. *Water Research*. 46: 115-126. DOI:10.1016/j.watres.2011.10.019
36. Liu, P., M.L. Soupir, M.R. Zwonitzer*, B. Huss*, L.R. Jarboe. 2011. Association of antibiotic resistance in agricultural *Escherichia coli* isolates with attachment to quartz. *Applied and Environmental Microbiology*. 77(19): 6945-6953. DOI: 10.1128/AEM.00717-11.
37. Pandey, P.K. *, M.L. Soupir, V.P. Singh, and S.N. Panda. 2011. Modeling rainwater storage in distributed reservoir systems in humid subtropical and tropical savannah regions. *Water Resources Management*. 25(13): 3091-3111. DOI:10.1007/s11269-011-9847-5.
38. Pandey, P.K.* and M.L. Soupir. 2011. *E. coli* inactivation kinetics in anaerobic digestion of solid dairy manure under low, mesophilic and thermophilic temperatures. *AMB Express*. DOI:10.1186/2191-0855-1-18.
39. Pandey, P.K. *, P.M. Ndegwa, M.L. Soupir, J.R. Alldredge, and M. Pitts. 2011. Efficacies of inocula on the startup of anaerobic reactors treating dairy manure under stirred and unstirred conditions. *Biomass and Bioenergy*. 35(7): 2705-2720. DOI: 10.1016/j.biombioe.2011.03.017.
40. ±Soupir, M.L. and S. Mostaghimi. 2011. *E. coli* and enterococci attachment to particles in runoff from high and low vegetative cover grassland. *Water, Air and Soil Pollution*. 216: 167-178. DOI:10.1007/s11270-010-0524-8.
41. Pandey, P.K. *, P.M. Ndegwa, J.R. Alldredge, M. Pitts, and M.L. Soupir. 2010. Modeling effects of granules on the start-up of anaerobic digestion of dairy wastewater with Langmuir and extended Freundlich equations. *Bioprocess and Biosystems Engineering*. 33(7): 833-845. DOI: 10.1007/s00449-010-0406-x.
42. ±Soupir, M.L., S. Mostaghimi, and T. Dillaha. 2010. Attachment of *Escherichia coli* and enterococci to particles in runoff from bare soils. *Journal of Environmental Quality*. 39(3): 1019-1027. DOI:10.2134/jeq2009.0296.
Selected for inclusion in the Research Highlight program from ASA-CSSA-SSSA.
43. Rehmman, C.R. and M.L. Soupir. 2009. Importance of interactions between the water column and the sediment for microbial concentrations in streams. *Water Research*. 43: 4579-4589. DOI: 10.1016/j.watres.2009.06.049.
44. Soupir, M.L., S. Mostaghimi, and C.E. Mitchem, Jr. 2009. A comparative study of stream-gaging techniques employed during low flows. *Journal of the American Water Resources Association*. 45(1): 110-122. DOI: 10.1111 / j.1752-1688.2008.00264.x.
45. ±Soupir, M.L., S. Mostaghimi, and J. Lou. 2008. Die-off of *E. coli* and enterococci in dairy cowpats. *Transactions of the ASABE*. 51(6): 1987-1996.
46. ±Soupir, M.L., S. Mostaghimi, and N.G. Love. 2008. A method to partition between attached and unattached *E. coli* in runoff from agricultural lands. *Journal of the American Water Resources Association*. 44(6): 1591-1599. DOI: 10.1111 / j.1752-1688.2008.00262.x.
47. ±Benham, B.L., C. Baffaut, R.W. Zeckoski, Y.A. Pachepsky, K.R. Mankin A.M. Sadeghi, K.M. Brannan, M.L. Soupir, and M.J. Habersack. 2006. Modeling pathogen fate and transport in watersheds to support TMDLs. *Transactions of the ASABE*. 49(4):987-1002.
48. ±Soupir, M.L., S. Mostaghimi, and E.R. Yagow. 2006. Nutrient transport from livestock manure applied to pastureland using phosphorus-based management strategies. *Journal of Environmental Quality*. 35:1269-1278.
49. ±Soupir, M.L., S. Mostaghimi, E.R. Yagow, C. Hagedorn, and D.H. Vaughan. 2006. Transport of fecal bacteria from poultry litter and cattle manures applied to pastureland. *Water, Air and Soil Pollution*. 169(1-4):125-136.
50. Soupir, M.L., S. Mostaghimi, A. Masters, K.A. Flahive, D.H. Vaughan, A. Mendez, and P.W. McClellan. 2004. The effectiveness of polyacrylamide (PAM) in reducing runoff, TSS and nutrient losses from construction sites. *Journal of the American Water Resources Association*. 40(1): 53-66.

GRANT ACTIVITIES

Externally Funded Projects (\$2,830,690 as PI, \$3,535,478 as co-PI)

- Drainage water quality from manure-treated soybean crops: Bio-Electrical Modification of woodchip bioreactors for enhanced performance. **M. Soupir**, N.L. Hoover, T.B. Moorman. Iowa Soybean Association. \$69,493. 10/1/16 to 9/30/17.
- Woodchip bioreactors for improved water quality. M. Soupir, N.L. Hoover, T. Moorman, T. Isenhardt Iowa Nutrient Reduction Center. \$49,925. 10/1/15 to 9/30/16.
- Impacts of prairie pothole hydrology on field-scale nitrogen and phosphorus loss. S.J. Hall, A.L. Kaleita, M.L. Soupir, A. VanLoocke. Iowa Nutrient Reduction Center. \$61,192. 10/1/16 to 9/30/18.
- Edge-of-Field nitrate reduction strategies: investigating monomethylmercury production in anaerobic environments designed for denitrification. W. Crumpton, M. Soupir, C. Judge. Iowa Nutrient Reduction Center. \$67,730. 10/1/16 to 9/30/17.
- Drainage water quality impacts of agricultural management practices: timing of manure application and use of a winter cereal rye cover crop project. M. Helmers. A. Mallarino, D. Andersen, J. Sawyer, M. Soupir, C. Pederson. Iowa Pork Producers. \$173,887. 01/01/16 – 12/31/19.
- Effect of Manure Application Timing and Management on the Persistence and Transport of Antibiotics and Antibiotic-Resistant Bacteria in Corn and Soybean Production Systems. M. Soupir, T.B. Moorman, A. Howe, D. Andersen. National Pork Board. \$251,549. 2/1/16-1/31/19.
- Evaluation of subsurface drainage on P losses in the Black Hawk Lake Watershed, Iowa. C. Brendel and M. Soupir. Iowa Water Center. \$5,000 (plus \$10,000 ISU cost share). 1/1/16 – 12/31/16.
- Diversity of Antibiotic Resistance genes and Transfer Elements Quantitative Monitoring (DARTE-QM) for Environmental Samples. A. Howe, M. Soupir, H. Allen, T. Moorman, and S. Hinsa. USDA-NIFA-AFRI Food Safety Challenge. \$999,346. 01/01/16 – 12/31/19.
- Does increasing landscape diversity in farmed closed depressions (potholes) increase profitability and ecosystem services? A.L. Kaleita, A. VanLoocke, M.L. Soupir, E. Heaton. \$121,494. Leopold Center for Sustainable Agriculture. 1/1/16 to 12/31/17.
- Woodchip bioreactors for improved water quality. **M.L. Soupir**, N.L. Hoover, T.B. Moorman, T. Isenhardt. Iowa Nutrient Reduction Center. \$73,621. 10/1/15 to 9/30/16.
- Monitoring and assessment of closed depressions. A.L. Kaleita and **M.L. Soupir**. \$264,859 (plus \$88,487 ISU cost-share). U.S. EPA Region 7 Wetland Development Grant Program. 1/1/16 to 12/31/18.
- Drainage water quality from manure-treated soybean crops: Bio-Electrical Modification of woodchip bioreactors for enhanced performance. **M. Soupir**, N.L. Hoover, T.B. Moorman. Iowa Soybean Association. \$68,577. 10/1/15 to 9/30/16.
- Metagenomic analysis and modeling of environmental resistance to agricultural antibiotics. **M. Soupir**, A. Howe and T. Moorman. Center for Health Effects of Environmental Contaminants. \$30,000. 8/15 to 7/16.
- Impact of laying hen manure applications on water quality under continuous corn – Phase 2. R. Kanwar (PI) and **M. Soupir**. Iowa Egg Council. \$137,728. 4/15 to 3/18.
- An innovative system to improve environment and productivity of aviary hen housing. H. Xin, Y. Zhao, T. Wang, S. Millman, T. Sheperd, **M. Soupir**, R. Parsons. AFRI, USDA NIFA. \$500,000. 10/1/14 to 9/30/17.

Augment 2013 Proposal: Research & Assessment of Woodchip Tile Denitrification Bioreactors: Optimal Design/ Performance and Experimental Bioreactor Installation and Study. Iowa Nutrient Research Center. **M. Soupir** and M. Honeyman. \$20,000. 7/1/14 to 6/30/15.

Drainage water quality impacts of current and future agricultural management practices. Iowa Nutrient Reduction Center. M. Helmers, **M. Soupir**, A. Mallarino, C. Pederson. \$43,242. 6/30/14 to 5/31/16.

National Water Quality Initiative (NWQI) Monitoring in the Black Hawk Lake Watershed. Iowa Department of Natural Resources. **M. Soupir**, A. Kaleita, M. Helmers. \$461,661. 7/1/14 to 12/30/19.

Hydrologic impacts of microwetlands in the Des Moines Lobe. A.L. Kaleita (PI) and **M.L. Soupir**. Iowa DNR. \$38,556. 1/15/14 to 1/31/15.

Simple and fast detection of pathogens in recreational waters. R. Cademartiri (PI) and **M. Soupir**. Center for Health Effects of Environmental Contaminants. 3/14 to 2/15. \$30,000.

Simple and Fast Detection of Bacteria in Recreational Waters. Water Environment Research Federation. R. Cademartiri (PI) and **M. Soupir**. \$195,513 (\$105,384 WERF, \$90,132 ISU cost-share). 3/1/14 to 2/1/16.

Simple and Fast Detection of *E. coli* in Agricultural Water Sources and Runoff. Leopold Center for Sustainable Agriculture. Cademartiri (PI) and **M. Soupir**. \$20,000. 1/1/14 to 12/31/14.

Research & Assessment of Woodchip Tile Denitrification Bioreactors: Optimal Design/ Performance and Experimental Bioreactor Installation and Study. Iowa Nutrient Research Center. **M. Soupir**. \$80,000. 10/1/13 to 9/30/15.

Persistence and Transport of Veterinary Antibiotics and Antibiotic-Resistant Bacteria in Midwestern Farming Systems. USDA-NIFA AFRI Renewable Energy, Natural Resources, and Environment (RENRE): Soil, Air, and Water Processes in Agroecosystems. T. Moorman, **M. Soupir**, D. Busch, R. Malone. \$460,000 (\$226,510 sub-contract to ISU). 10/1/13 to 9/30/16.

Drainage water quality from manure-treated soybean crops: Assessment of woodchip bioreactors for edge-of-field treatment. Iowa Soybean Association. **M. Soupir** (PI), N. Hoover, T. Moorman, M. Helmers. \$136,296. 10/1/13 to 9/30/15.

Genetic and environmental factors driving *E. coli* attachment to particles in streams. **M. Soupir (PI)**, L. Jarboe, M. Thompson. National Science Foundation. \$304,554. 10/1/2012 to 9/30/2015.

Evaluation of pothole wetland impacts on downstream water quantity and quality, and analysis of tile drain management as a potential tool for water resource protection. **M. Soupir (PI)**, C. Ikenberry, P. Gassman. Agriculture's Clean Water Alliance. \$20,000. 3/1/12 to 5/30/13.

Occurrence and Movement of Antibiotics, Antibiotic Resistant Bacteria and Resistance Genes in Tile-Drained Agricultural Fields Receiving Swine Manure Application. **M. Soupir (PI)**, T. Moorman, M. Helmers. National Pork Board. \$172,127. 4/1/12 to 3/31/15.

Sequence analysis of transferable genes encoding bacterial attachment and multi-drug resistance. L. Jarboe (PI), **M. Soupir**, C. Logue, L. Nolan. Center for Health Effect of Environmental Contamination, University of Iowa. \$30,000. 6/1/12 to 5/31/13.

Modeling Supplement: Hickory Grove Lake Watershed Management Plan. **M. Soupir (PI)**. Iowa DNR Watershed Planning Grant Program. \$3,600. 7/1/11 to 12/31/12.

REU Supplement: Resuspension of *E. coli* in Sediment Laden Streams. National Science Foundation CBET-0967845. **M. Soupir (PI)**. \$5,625. 5/01/12 to 8/31/12.

Investigation of bacteria transport and resistance mechanisms and implications for water quality from confinement swine and beef grazing production systems in Iowa. **M. Soupir**, M.

Thompson, M. Helmers (Thompson, Soupir and Helmers are equal PIs), L. Jarboe R. Kanwar, A. Mallarino. Leopold Center for Sustainable Agriculture. \$162,100. 3/1/12 to 2/28/15.

Impact of laying hen manure applications on water quality under continuous corn. R. Kanwar (PI) and **M. Soupir**. Iowa Egg Council. \$120,000. 6/11 to 12/14.

Hickory Grove Lake Watershed Management Plan. **M. Soupir (PI)** and M. Helmers. Iowa DNR Watershed Planning Grant Program. \$63,880 (State - \$41,969, ISU cost-share - \$21,911). 7/1/11 to 12/31/12.

Occurrence and Movement of Antibiotic Resistant Bacteria and Resistance Genes in Tile-Drained Agricultural Fields Receiving Swine Manure Application. National Pork Board. **M. Soupir (PI)**, T. Moorman, A. Bhandari. \$29,743. 10/01/10 to 10/01/11.

Improving a watershed scale model to integrate wetlands into watershed planning. U.S. EPA Region 7 Wetland Development Grant Program. **M. Soupir (PI)**, P. Gassman, M. Jha, W. Crumpton, and M. Helmers. \$303,390 (Federal - \$225,998, ISU cost-share - \$77,392). 10/01/10 to 4/30/13.

REU Site: Sustainable Production and Processing for Biomass-Derived Fuels of the Future. National Science Foundation EEC-1004227. PIs: R. Raman (PI), **M. Soupir**, A. Bhandari; Collaborators: M. Darr, D. Grewell, T. Kim, M. Helmers, A. Kaleita, and R. Anex. \$311,790. 9/1/10 to 8/31/13.

Resuspension of *E. coli* in Sediment Laden Streams. National Science Foundation CBET-0967845. **M. Soupir (PI)**. \$365,000. 6/01/10 to 5/31/13.

Hickory Grove Water Quality Improvement Plan. Iowa Department of Natural Resources. **M. Soupir (PI)**, M. Helmers and A. Bhandari. \$148,718. 12/01/09 to 12/31/12.

National Academy of Engineering Travel Grant to Changsha, China. **M. Soupir**. \$2,000. 10/17/09 to 10/21/09.

REU Site: Summer Undergraduate Research Experiences in Biogeosciences at Iowa State University. National Science Foundation EAR-0851669. PIs: U. Sunday Tim, S. Mickelson and A. Kaleita; Collaborators: R. Kanwar, G. Takle, M. Helmers, B. Crumpton, **M. Soupir**, A. Bhandari. \$351,513. 8/15/09 to 7/31/12.

Improving SWAT for developing TMDLs for bacteria. U.S. EPA Region 7 TMDL Program. **M. Soupir (PI)** and C. Rehmann. \$78,830. 1/1/09 to 12/31/11.

The Potential Role of Poultry Manure Fertilizer in Pathogen and Pharmaceutical Contamination of Soil and Water. Iowa Egg Council. R. Kanwar and **M. Soupir**. \$90,000. 6/30/08 to 6/29/11.

An International Perspective on Agricultural Waste Management. U.S. Department of Agriculture, Food and Agricultural Sciences National Needs Graduate Fellowships Graduate Program – Special International Study or Thesis/Dissertation Research Travel Allowances. 2005-00730. **M. Soupir (PI)**, S. Mostaghimi, A. Dietrich. Amount: \$10,000. Duration: 8/15/05 to 6/1/07.

RESEARCH LABORATORY AND STAFF MANAGEMENT

Supervision of Professional Staff

Name	Position	Responsibilities	Dates
Leigh Ann Long	Research Associate II	Manage WQRL and NWQI Monitoring of Black Hawk Lake Watershed	5/12 - present
Natasha Hoover	Research Associate II	Manage woodchip bioreactor research projects	5/12 - present
Loren Shires	Research Associate	Manage WQRL	8/10 - 5/11

Professor In Charge of Research and Teaching Laboratories

Name	Location	Purpose	Dates
WQRL - Micro	4205 Sukup	Soupir research lab - BSL2	6/14 - present
WQRL - Nutrients	4207 Sukup	Service Lab - nutrient analysis	6/14 - present
Hydrology Lab	0208 Sukup	Recirculating Flume	6/14 - present
Land and Water Resources Teaching Lab	4208 Sukup	Undergraduate and graduate instruction	6/14 - present
Support Space	4201 and 4204 Sukup	Autoclave, dishwasher, coolers	6/14 - present

STUDENT ADVISING

Served as postdoctoral research advisor for the following students

Name	Project	Dates
Bailey Sullivan	USDA project on antibiotics and resistant organisms <u>Current position:</u> University of Arkansas - Lecturer	1/14 - 6/15
Pramod Pandey	NSF project on resuspension of <i>E. coli</i> in streams <u>Current position:</u> University of California -Davis Extension Specialist	8/12 - 5/13

Served as Major Professor or Co-major Professor for the following graduate students (25 total, 6 PhD and 10 MS graduated)

Name	Degree/Position	Thesis Title
Elliot Rossow ³	Ph.D. Agronomy begun 5/16	
Emily Martin	M.S. Env Science begun 8/16	
Alex Martin ⁶	M.S. ABE begun 5/16	
Katherine van der Woude	M.S. Sustainable Agriculture begun 5/16	
Ji Yeow Law	B.S./M.S. ABE begun 8/15	
Conrad Brendel	M.S. ABE begun 5/15	
Miguel Chavez-Santoscoy ⁵	M.S. CBE begun 8/14 Completed 7/16 <u>Current position:</u> PhD Student, ISU	Fast and inexpensive bacteria detection method for recreational waters
Elizabeth Luby ³	Ph.D. AE begun 8/14	
Chenkai Wu	M.S. ABE begun 8/13 Completed 2/16	Long term effect of poultry manure application on water quality, yield under a corn-corn system in Iowa
Ross Tuttle	M.S. ABE begun 1/13 <u>Current position:</u> Civil Engineer, I+S Group, Storm Lake, IA	Transport of antibiotic resistant bacteria from swine amended fields during precipitation events
Chunyu Liao ¹	Ph.D. Microbiology begun 8/10 Completed 12/15 Postdoc in Chase Beisel's lab North Carolina State University	Genetic Factors Driving Attachment of <i>Escherichia coli</i> to Stream Particles
Maurice Washington ³	Ph.D. AE begun 8/12	Monitoring and modeling of agricultural emerging contaminants (AECs) under tile-drained conditions

Elizabeth Luby ³	M.S. AE begun 8/12 Completed 7/14 <u>Current position:</u> PhD student	Fate and transport of antibiotic resistant bacteria and resistance genes in artificially drained agricultural fields receiving swine manure application
Jason Garder ³	M.S. CE begun 5/11 completed 9/12 <u>Current position:</u> Environmental Engineer, CDM Smith, KC, MO	Occurrence and movement of total and tylosin resistant enterococci, erm genes and tylosin in tile-drained agricultural fields receiving swine manure application
Charles Ikenberry	Ph.D. AE begun 1/11 <u>Current position:</u> Iowa DNR	Evaluation and prediction of hydrology and nitrate-nitrogen transport in tile-drained watersheds
Xiao Liang ⁴	Ph.D. AE begun 5/12 Completed 12/15 <u>Current position:</u> Data Scientist at Elevate	Bacterial, particulate, and environmental factors driving <i>E. coli</i> attachment to particles
Xiao Liang	M.S. AE begun 8/10 completed 4/12	Method to partition between freely suspended <i>Escherichia coli</i> and <i>Escherichia coli</i> attached to clay particles
Natasha Hoover ²	M.S. Env. Sci. begun 6/10, completed 4/12 <u>Current position:</u> Research Associate ABE ISU	Denitrification woodchip bioreactor two-phase column study: evaluation of nitrate removal at various hydraulic retention times and effect of temperature on denitrification rates
Rohith Gali	Ph.D. AE begun 6/10, completed 4/14 <u>Current position:</u> Agricultural Engineer, Waterborne Environmental, Inc.	Assessing monitoring and modeling approaches to improve water quality in the Hickory Grove Lake
Amy Cervantes	M.S. CCEE begun 6/10, completed 4/12 <u>Current position:</u> Environmental Engineer, Seneca Companies, Des Moines, IA	Resuspension of <i>E. coli</i> under controlled flows and stream bottom substrates
Claire Hruby	Ph.D. Env. Sci. begun 1/10 Completed 5/15 <u>Current position:</u> Geologist, Iowa DNR	The Effects of Poultry Litter Application on Tile Water Quality, Associated Transport Processes, and Laboratory Methods
Rachel McDaniel	M.S. AE begun 1/10, completed 8/11 <u>Current position:</u> Assistant Professor, SDSU	Understanding bacterial transport from direct fecal deposits under controlled flows
Pramod Kumar Pandey	Ph.D. AE begun 1/09, completed 12/12 <u>Current position:</u> University of California -Davis Extension Specialist	Modeling In- Stream <i>Escherichia coli</i> Concentrations
Trang Thi Thu Hoang	M.S. Env. Sci. and AE begun 8/08, completed 12/10	Occurrence of tylosin-resistant enterococci in swine manure and tile

		drainage systems under no-till management.
Martha Zwonitzer ¹	M.S. Env. Sci. begun 8/08, completed 8/15 <u>Current position:</u> Research Assistant, Texas A&M AgriLife Research, Lubbock/Halfway & Pecos	Exploring the relationship between transport and resistance of <i>Escherichia coli</i> collected from swine manure

¹Co-advised with Dr. Laura Jarboe, ²Co- advised with Dr. Alok Bhandari, ³Co- advised with Dr. Thomas Moorman, ⁴Co- advised with Dr. Michael Thompson, ⁵Co-advised with Dr. Rebecca Cademartiri, ⁶Co-advised with Dr. Amy Kaleita