

## **Joshua W. Faulkner, Ph.D.**

University of Vermont Extension  
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### **Education**

PhD, Cornell University (2009), Biological & Environmental Engineering, Soil and Water Concentration  
MS, Cornell University (2005), Agricultural & Biological Engineering, Soil and Water Concentration  
BS, Virginia Tech (2003), Biological Systems Engineering, Land and Water Resources Option

### **Appointments**

2022-Present Interim Director, UVM Extension Center for Sustainable Agriculture  
2021-Present Faculty Fellow, Gund Institute for Environment  
2020-Present Director, UVM Agricultural and Environmental Testing Laboratory  
2023-Present Research Associate Professor, University of Vermont Extension  
2018-2023 Research Assistant Professor, University of Vermont Extension  
Adjunct Assistant Professor, University of Vermont, Department of Civil and Environmental Engineering  
2013-Present Farming and Climate Change Program Coordinator, University of Vermont Extension Center for Sustainable Agriculture  
Adjunct Assistant Professor, University of Vermont, Department of Plant and Soil Science  
2009-2013 Extension Assistant Professor and Agricultural Engineering Specialist, West Virginia University, Agriculture and Natural Resources Extension Unit  
2010-2013 Regular Graduate Faculty Member, West Virginia University, Davis College of Agriculture, Natural Resources & Design

### **Areas of Expertise**

- Climate change impacts and adaptation in Northeastern agricultural systems
- Treatment of agricultural wastewater and best management practices for control of nonpoint source pollution
- Field scale hydrology and water management in agricultural landscapes
- Fate and transport of nutrients in soil and water

### **Classes Taught**

PSS 269: Soil and Water Pollution and Bioremediation (Recurring)  
PSS 212: Advanced Agroecology (Recurring, Co-Instructor)  
PSS 381: Hydrology Principles and Practice (Fall 2019)  
PSS 381: Agricultural Runoff Treatment & Ecological Design (Fall 2014, Co-Instructor)

### **Professional Certifications**

Rosgen Applied River Morphology, Levels I & II

Fundamentals of Engineering (FE) Certification

### **Professional Affiliations**

American Society of Agricultural and Biological Engineers (ASABE); Hydrology Committee member  
Soil and Water Conservation Society (SWCS), member  
Vermont Agricultural Agents Association, Secretary  
Northeast Agricultural and Biological Engineering Conference, Vice Chair

### **Awards and Honors**

2011 Outstanding Recent Alumnus, Biological Systems Engineering Department, Virginia Tech

### **Publications (peer-reviewed)**

Faulkner, J.W., J. Alvez, and P. Shrestha. Effects of biological and mechanical best management practices on soil compaction properties and soil health. **In Preparation**

Gardezi, M., H. Abuayyash, P.R. Adler, J.P. Alvez, R. Anjum, A.R., Badireddy, S. Brugler, P. Carcamo, D. Clay, A. Dadkhah, M. Emery, J.W. Faulkner, B. Joshi, A.H. Khan, C. Koliba, S. Kumari, J. McMaine, S. Merrill, S. Mitra, S. Musayev, P. D. Oikonomou, J. O'Neil-Dunne, G. Pinder, B. Posadas, E. Prutzer, J. Rathore, T. Ricketts, D.M. Rizzo, B.E.K. Ryan, M. Sahraei, A.W. Schroth, S. Turnbull, A. Zia. The Role of Living Labs in Cultivating Responsible Innovation in Precision Agriculture. *Agricultural Systems*. **Submitted 9/2023.**

Schattman, R. E., Jean, H., Faulkner, J. W., Maden, R., McKeag, L., Campbell Nelson, K., Grubinger, V., Burnett, S., Erich, M. S., & Ohno, T. Accepted. Effects of Irrigation Scheduling Approaches on Soil Moisture and Vegetable Production in the Northeastern U.S.A. *Agricultural Water Management*. **In Press.**

Garna, R.K., Fuka, D.R., Faulkner, J.W., Collick, A.S., Easton, Z.M. Accepted. Employing Higher Density Lower Reliability Weather Data from the Global Historical Climatology Network (GHCN) Monitors to Generate Serially Complete Weather Data for Watershed Modelling. *Hydrological Processes*. **In Press**

Welikhe, P., M.R. Williams, K. King, J. Bos, M. Akland, D. Augustine, C. Baffaut, G. Beck, A. Bierer, D. Bosch, E. Boughton, C. Brandani, E. Brooks, A. Buda, M. Cavigelli, J.W. Faulkner, G. Feyereisen, A.M. Fortuna, J. Gamble, B. Hanrahan, M. Hussain, M. Kahmann, J. Kovar, B. Lee, A. Leytem, M. Liebig, D. Line, M. Macrae, T. Moorman, D. Moriasi, N. Nelson, A. Ortega-Pieck, D. Osmond, O. Pisani, M. Reba, A. Saha, J. Sanchez, M. Silveira, D. Smith, S. Spiegel, H. Swain, J. Unrine, P. Webb, K. White, H. Wilson, and L. Yasarer. Uncertainty in phosphorus fluxes and budgets across the U.S. long-term agroecosystem research network. *Journal of Environmental Quality*. **In Press.**

Bondeson, F.A., J.W. Faulkner, and E.D. Roy. 2023. Performance of a compost aeration and heat recovery system at a commercial composting facility. *Journal of Ecological Engineering Design*.  
<https://doi.org/10.21428/f69f093e.769abde7>

Gardezi, M., E. Prutzer, D. Rizzo, M. Emery, S. Merrill, B. Ryan, P. Oikonomou, J. Alvez, D. Adereti, K. Almen, R. Anjum, A.R. Badireddy, D. Bhattarai, S. Brugler, N. Cheney, D. Clay, S. David, A. Dadkhah, J.W. Faulkner, D. Joshi, C. Koliba, J. McMaine, S. Michael, S. Musayev, Sardorbek, J. O'Neil-Dunne, G. Pinder, T. Ricketts, S. Schneebeli, A. Schroth, S. Turnbull, A. Zia. Rethinking 'responsibility' in precision agriculture innovation: Lessons from an interdisciplinary research team. *Big Data & Society*. **Submitted**

Battaglia, M., Ros, M., Easton, Z.M., Faulkner, J.W., Collick, A., Berbero, M., Twombly, C., Fuka, D., Czymmek, K., and Ketterings, Q. Watershed Modeling of Beneficial Management Practices for Regional Phosphorus Index Evaluation. *Journal of Environmental Quality*. **Submitted**

White, A.C., Faulkner, J.W., Niles, M.T., Conner, D.S., Mendez, V.E. Accepted. The role of farmer networks in supporting adaptive capacity: Opening the door for innovation and transformation in the Northeastern US. *Elementa*. **In Press**.

Ruhl, L., Tuna, M., Darby, H. and Faulkner, J.W. Three Cover Crop Establishment Studies to Assess Optimal Cover Crop Species, Planting Date, and Seeding Method. *Journal of Balkan Science and Technology*. **Accepted**.

Garna, R.K., Fuka, D.R., Faulkner, J.W., Collick, A.S., Easton, Z.M. 2023. Watershed Model Parameter Estimation in Low Data Environments. *Journal of Hydrology: Regional Studies*. 45. <https://doi.org/10.1016/j.ejrh.2022.101306>

Sarazen, J., S. Hurley, and J.W. Faulkner. 2023. Nitrogen and Phosphorus Removal in a Bioretention Cell Experiment Receiving Agricultural Runoff from a Dairy Farm Production Area During Third and Fourth Years of Operation. *Journal of Environmental Quality*. 52:149-160.

Williams, M., Welikhe, P., Bos, J., King, K., Akland, M., Augustine, D., Baffaut, C., Beck, E.G., Bierer, A., Bosch, D., Boughton, E., Brandani, C., Brooks, E., Buda, A., Cavigelli, M., Faulkner, J., Feyereisen, G., Fortuna, A., Gamble, J., Hanrahan, B., Hussain, M.Z., Kohmann, M., Kovar, J., Lee, B., Leytem, A., Liebig, M., Line, D., Macrae, M., Moorman, T., Moriasi, D., Nelson, N., Ortega-Pieck, A., Osmond, D., Pisani, O., Ragosta, J., Reba, M., Saha, A., Sanchez, J., Silveira, M., Smith, D., Spiegel, S., Swain, H., Unrine, J., Webb, P., White, K., Wilson, H., Yasarer, L. 2022. P-FLUX: A phosphorus budget dataset spanning diverse agricultural production systems in the U.S. and Canada. *Journal of Environmental Quality*. 51:451-461. <http://dx.doi.org/10.1002/jeq2.20351>

Neher DA, Harris JM, Horner CE, Scarborough MJ, Badireddy AR, Faulkner JW, White AC, Darby HM, Farley JC, and Bishop-von Wettberg EJ. 2022. Resilient Soils for Resilient Farms: An Integrative Approach to Assess, Promote and Value Soil Health for Small- and Medium-Size Farms. *Phytobiomes*. <https://doi.org/10.1094/PBIOMES-10-21-0060-P>

- White, A.C., Faulkner, J.W., Conner, D.S., Mendez, V.E., and M.T. Niles. 2022. "How can you put a price on the environment?" Farmer perspectives on stewardship and payment for ecosystem services. *J. of Soil and Water Conservation*. 77(2). doi: <https://doi.org/10.2489/jswc.2022.00041>
- Ruggiero R, Ross D, Faulkner JW. 2022. Tile Drainage Flow Partitioning and Phosphorus Export in Vermont USA. *Agriculture*. 12(2):167. <https://doi.org/10.3390/agriculture12020167>
- Nordstrom, K.L., C.E. Horner, V.E. Méndez, V. Izzo, N. Carpenter, J.W. Faulkner and M. Caswell. 2022. An Undergraduate Agroecology Research Fellows Program Engages Co-learning Through Participatory Action Research. *Frontiers in Sustainable Food Systems* 5:10.3389/fsufs.2021.760995
- Horner CE, Morse C, Carpenter N, Nordstrom KL, Faulkner JW, Mares T, Kinnebrew E, Caswell M, Izzo V, Méndez VE, Lewins SA and McCune N. 2021. Cultivating Pedagogy for Transformative Learning: A Decade of Undergraduate Agroecology Education. *Front. Sustain. Food Syst.* 5:751115. doi: 10.3389/fsufs.2021.751115
- White, A.; Faulkner, J.W.; Conner, D.; Barbieri, L.; Adair, E.C.; Niles, M.T.; Mendez, V.E.; Twombly, C.R. 2021. Measuring the Supply of Ecosystem Services from Alternative Soil and Nutrient Management Practices: A Transdisciplinary, Field-Scale Approach. *Sustainability*, 13, 10303. <https://www.mdpi.com/2071-1050/13/18/10303>
- Twombly, C.R., J.W. Faulkner, Z.M. Easton, and A.S. Collick. 2021. Identification of Phosphorus Index improvements through model comparisons across topographic regions in a small agricultural watershed in Vermont, U.S. *Soil Science Society of America Journal*. <https://doi.org/10.1002/saj2.20254>
- Ament, M.R., S.E. Hurley, M. Voorhees, E. Perkins, Y. Yuan, J.W. Faulkner, and E.D. Roy. 2021. Balancing Hydraulic Control and Phosphorus Removal in Bioretention Media Amended with Drinking Water Treatment Residuals. *Environmental Science & Technology Water*. <https://dx.doi.org/10.1021/acsestwater.0c00178>
- Schattman, R.E., M.J. Caswell, & J.W. Faulkner. 2021. Eyes on the horizon: Temporal perspectives of climate risk and agricultural decision making. *Society & Natural Resources*. 34(6):763-782. <https://doi.org/10.1080/08941920.2021.1894283>
- Twombly, C.R., J.W. Faulkner, and S. Hurley. 2021. The effects of soil aeration prior to dairy manure application on edge-of-field hydrology and nutrient fluxes in cold climate hayland agroecosystems. *Journal of Soil and Water Conservation*. 76(1):1-13; DOI: <https://doi.org/10.2489/jswc.2021.00158>
- Mason, R., S.C. Merrill, J. Gorres, J.W. Faulkner, and M.T. Niles. 2021. Agronomic and environmental performance of dairy farms in a warmer, wetter climate. *Journal of Soil and Water Conservation*. 76(1):76-88. <https://doi.org/10.2489/jswc.2021.00169>

- Mason, R., M.T. Niles, S.C. Merrill, J. Gorres, and J.W. Faulkner. 2021. Using Agricultural Models to Inform Policy: Discussion Points for Researchers and Policymakers. *Journal of Soil and Water Conservation*. 76(1):10A-14A; DOI: <https://doi.org/10.2489/jswc.2021.0917A>
- Sarazen, J.C., J.W. Faulkner, and S.E. Hurley. 2020. Evaluating nutrient removal performance of a denitrifying woodchip bioreactor treatment system receiving silage bunker runoff. *Applied Sciences*. 10:4789.
- Mason, R., J. Gorres, S.C. Merrill, J.W. Faulkner, L. Doro, and M. T. Niles. 2020. Calibrating the APEX model for simulations of environmental and agronomic outcomes on dairy farms in the Northeast US: A step-by-step example. *Applied Engineering in Agriculture*. 36(3):281-301.
- Shrestha, P, J.W. Faulkner, J. Kokkinos, and S. Hurley. 2020. Bioretention systems for stormwater treatment in dairy farm production area: influences of low-phosphorus compost and *P. virgatum* on nutrient and sediment retention. *Ecological Engineering*. <https://doi.org/10.1016/j.ecoleng.2020.105821>
- Porterfield, K.K., J.W. Faulkner, E.D. Roy. 2020. Nutrient Recovery from Anaerobically Digested Dairy Manure Using Dissolved Air Flotation (DAF). *ACS Sustainable Chemistry + Engineering*. <https://pubs.acs.org/doi/10.1021/acssuschemeng.9b06419>
- Porterfield, K.K., R. Joblin, D.A. Neher, M. Curtis, S. Dvorak, D.M. Rizzo, J.W. Faulkner, E.D. Roy. 2020. Upcycling Phosphorus Recovered from Anaerobically Digested Dairy Manure to Support Production of Vegetables and Flowers. *Sustainability*. <https://doi.org/10.3390/su12031139>
- Christianson, L., D. DeVallance, J.W. Faulkner, T. Basden. 2017. Scientifically advanced woody media for improved water quality from livestock woodchip heavy-use areas. *Frontiers of Environmental Science and Engineering*. 11(3):1-9.
- Faulkner, J.W., J.L. Miller, T.J. Basden, D.B. DeVallance. 2015. Woodchip heavy-use area effluent quality, quantity, and hydrologic design considerations. *Applied Engineering in Agriculture*. 31(5):783-790.
- Faulkner, J.W., W. Zhang, L.D. Geohring, T.S. Steenhuis. 2011. Tracer movement through paired vegetative treatment areas receiving silage bunker runoff. *Journal of Soil and Water Conservation*. 66(1):18-28.
- Faulkner, J.W., W. Zhang, L.D. Geohring, T.S. Steenhuis. 2011. Nutrient transport within three vegetative treatment areas receiving silage bunker runoff. *J Env Mngmt*. 92(3):587-595.

Faulkner, J.W., Z.M. Easton, W. Zhang, L.D. Geohring, T.S. Steenhuis. 2010. Design and risk assessment tool for vegetative treatment areas receiving agricultural wastewater: Preliminary results. *Journal of Environmental Management*. 91(8):1794-1801.

Zhang, W, J.W. Faulkner, S.K. Giri, L.D. Geohring, T.S. Steenhuis. 2010. Effect of soil reduction on phosphorus sorption of an organic-rich silt loam. *Soil Sci Soc Am J*. 74(1):240-249.

Zhang, W, J.W. Faulkner, S.K. Giri, L.D. Geohring, T.S. Steenhuis. 2009. Evaluation of two Langmuir models for phosphorus sorption of P-enriched soils in New York for environmental applications. *Soil Science*. 174(10):523-530.

Faulkner, J.W., T.S. Steenhuis, N. van de Giessen, M. Andreini, and J.R. Liebe. 2008. Water use and productivity of two small reservoir irrigation schemes in Ghana's Upper East Region. *Irrigation and Drainage*. 57(2):151-163.

### **Funding Awarded**

UVM Center for Soil Health Research, (PD), 2023 Congressional Appropriations, 2023-2027 (\$2,000,000)

Vermont Dairy Grazing Apprenticeship Program, (PI), Wolfe's Neck Center for Agriculture and the Environment, 2022-2023 (\$25,000)

Discovery Acres: A Water Quality Research and Education Site in the St. Albans Bay Watershed, (Co-I), Lake Champlain Basin Program, 2023-2026 (\$300,000)

Dynamic Soil Properties and Soil Health: Influence on Sediment and Legacy Phosphorus Transport in the Lake Champlain Basin, (PI), USDA-NRCS, 2022-2024 (\$181,564)

Agricultural Clean Water Initiative Grants, (Co-PI), Vermont Agency of Agriculture Food and Markets, 2022-2024 (\$1,339,024)

Macro Sample CN Analyzer for the UVM Agricultural and Environmental Testing Lab, (PI), UVM Food Systems Research Center Shared Equipment Grant, 2022 (\$86,750)

Near-Surface Hydrology Investigation at Discovery Acres Research Farm, (PI), Foundation for Food and Agriculture Research, 2022-2026 (\$40,000)

Towards a regional vision for agroecological soil management in the coffee landscapes of Mesoamerica: Weaving scales, (Co-PI), Gund Catalyst Award, 2022-2023 (\$50,000)

Increasing Understanding of Legacy Phosphorus in the Lake Champlain Basin, (PI), USDA-ARS, 2021-2025 (\$180,000)

Development of a Comprehensive Binational Phosphorus Mass Balance Analysis Toolkit for the Missisquoi Bay, (Co-I), Lake Champlain Basin Program, 2022-2024 (\$299,966)

U.S. Dairy Net Zero Initiative: Improving Dairy On-Farm Sustainability through Improved Soil Health and Manure Management, (PI), Foundation for Food and Agriculture Research, 2021-2027 (\$846,915)

Design, Demonstration, and Evaluation of an Innovative Mobile Phosphorus Removal System for Vermont CEAP and Priority HABs-Affected Watersheds, (PI), USDA-ARS, 2021-2023 (\$38,289)

Evaluating Performance of Alternative Manure Processing Technologies in the Lake Champlain Basin, (PI), USDA-NRCS Conservation Innovation Grant, 2021-2022 (\$44,495)

Assessing Innovative Manure Management Techniques for Reduced Nutrient Losses, (PI), USDA-NRCS Vermont Conservation Innovation Grant, 2020-2022 (\$168,760)

Modeling the Lake Champlain Basin CEAP Watersheds to Understand and Predict Conservation Effects, (PI), USDA-NRCS, 2021-2024 (\$150,000)

Identifying Appropriate Technology for Improving the Financial Sustainability and Resilience of Small Farms: Phase One, (PI), Argosy Foundation, 2021, (\$40,000)

Degree of Phosphorus Saturation Addition to the West Virginia Phosphorus Index, (PI), US Environmental Protection Agency, Chesapeake Bay Program, 2020-2021 (\$10,279)

Testing a responsible innovation approach for integrating precision agriculture technologies with future farm workers and work, (Co-I), National Science Foundation (Award #2026431), 2022-2024 (\$2,990,000)

Discovery Acres: Establishing a Water Quality Demonstration and Research Site, (Co-PI), Vermont Agency of Agriculture, Food and Markets, 2020 – 2024 (\$1,020,000)

Vermont Climate Assessment 2020, (Co-PI), Gund Institute Catalyst Award, 2020-2021 (\$50,000)

Paired Watershed Conservation Effects Assessment Project (CEAP) for Lake Champlain Basin, (PI), USDA-NRCS, 2019-2023 (\$500,000)

Lake Champlain Basin Conservation Effects Assessment Project (CEAP): Evaluation of innovative and stacked conservation practices at the field-scale, (PI), USDA-NRCS, 2019-2023 (\$815,000)

Performance Evaluation of a Phosphorus Removal Technology, (Co-PI), Newtrient LLC., 2019 (\$35,343)

Whole Farm Water: Improving water use efficiency in Northeast specialty crop operations, (Co-PD), USDA NIFA AFRI Foundational Program Conference Grant, 2019-2020 (\$49,779)

Turn the tap: Integrated research to support sustainable irrigation practices on northeast vegetable farms, (PI), USDA SARE Research for Novel Approaches in Sustainable Agriculture, 2019-2022 (\$124,982)

Improving our understanding of interactions among BMPs, tile drainage, and P losses in subsurface and surface runoff, (PD), Lake Champlain Sea Grant, 2019-2021 (\$149,997)

Evaluating Alternative Runoff Management Practices for VT Dairy Farm Production Areas, (Co-PI), Vermont Agricultural Experiment Station Competitive Hatch Award, 2018-2021 (\$29,775)

Development of an Approach and Tool to Optimize Farm-Scale Phosphorus Management and Achieve Watershed Scale Loading Targets, (Co-PI), Lake Champlain Basin Program, 2017-2018, (\$189,945)

The Next Generation of Controlled Drainage for Preventing Tile Phosphorus Loss, (PI), Vermont Agency of Agriculture Clean Water Initiative Grant, 2017-2019 (\$46,106)

The Climate Adaptation Fellowship: A Collaborative Design Project, (PD), USDA-NIFA Agriculture and Food Research Initiative, 2017-2018 (\$248,959).

Revising and Implementing Phosphorus Indices to Protect Water Quality in the Northeastern US, (Co-PI), USDA-NRCS Conservation Innovation Grant, 2016-2019 (\$45,000)

Revision of the Vermont Phosphorus Index for Improved Nutrient Management and Water Quality, (PI), USDA-NRCS Vermont Conservation Innovation Grant, 2016 (\$74,996)

Increasing Ecosystem Services and Climate Change Resilience in Dominant Agroecosystems of the Northeast, (PI), USDA-NIFA Agriculture and Food Research Initiative Foundational Program, 2015-2019 (\$499,810)

Climate Change Adaptation Outreach for Northeastern Farmers, (Co-I), USDA Northeast Climate Hub, 2015-2019 (\$85,000)

Demonstrating effects of biological and mechanical compaction best management practices on soil properties and water movement, (PI), USDA-NRCS Conservation Innovation Grant, 2014-2017 (\$174,691)

What Lurks Below: How Important are Subsurface Flows of Nitrogen and Phosphorus?, (Co-PI), Vermont EPSCoR Pilot Award, 2014-2015 (\$9,999)

Multi-use farm ponds as a climate change resiliency and food security solution, (PI), Fieldstone Foundation, 2014 (\$3,000)



Linking bench-scale evaluation and field-scale application of thermally-treated biomass media in livestock heavy-use areas for reducing environmental impacts of agriculture, (PI), WVU Faculty Senate Research Grants, 2013-2014 (\$31,495)

Refining and Harmonizing Phosphorus Indices in the Chesapeake Bay Region to Improve Critical Source Area Identification and to Address Nutrient Management Priorities, (Co-PI), USDA-NRCS Conservation Innovation Grant, 2012-2015 (\$801,535)

Development of 21<sup>st</sup> Century Agriculture for Water Quality Protection, (Co-PI), USDA-NIFA Agriculture and Food Research Initiative (AFRI) Program, 2012-2015 (\$466,000)

Professional Development for Agriculture Service Providers in Pollution Discharge Elimination Systems, (Co-I), Northeast Sustainable Agriculture Research and Education (SARE) Professional Development Grant Program, 2012-2014 (\$26,699)

Revision and Update of West Virginia's Phosphorus Site Index, (Co-PI), US-EPA Chesapeake Bay Program Chesapeake Bay Implementation Grant, 2011-2012 (\$83,000)

Chesapeake Bay Total Maximum Daily Load and Watershed Implementation Plan Science and Policy Workshops for West Virginia's Agricultural Sector, (PI), US-EPA Chesapeake Bay Program Chesapeake Bay Implementation Grant, 2011-2012 (\$10,400)

Guidelines for Siting Effective Riparian Forest Buffers, (Co-I), Mid-Atlantic Water Program, 2010-2012 (\$40,000)

Investigation of Vegetative Treatment Systems for Wood Chip Feeding Area Effluent, (PI), WVU Extension Service Seed Grant for Research, 2009-2010 (\$2,796)

#### **Publications (white papers, reports, book chapters)**

White, A., H. Darby, J.W. Faulkner, L. Ruhl, J. Sanders, R. Maden, H. Emick, K. Workman, I. Krezinski, R. Malone, J. Bruce, C. Davidson, S. Ziegler, J. Bryne, J. Michaud, M. Smith, J. Peck, H. Soloman, E. Lane, C. Hicks Pries, J. Arace, L. Hancock, B. Kretzler, B. Bergman, K. Williams, and M. Kelting. 2022. The State of Soil Health in Vermont: Summary statistics from Vermont agriculture in 2021. University of Vermont Extension. Burlington, VT.

Galford, G.L., Faulkner, J.W. et al. (Eds). 2021. The Vermont Climate Assessment 2021. Burlington, Vermont: Gund Institute for Environment at the University of Vermont. 519 pp.

Caswell, M., R. Maden, N. McCune, V.E. Méndez, G. Bucini, J. Anderzén, V. Izzo, S.E. Hurley, R.K. Gould, J. Faulkner & M.A. Juncos-Gautier. 2021. Amplifying Agroecology in Vermont: Principles and Processes to Foster Food Systems Sustainability. White Paper. Agroecology and Livelihoods Collaborative. University of Vermont: Burlington, Vermont, U.S.A.

Neher, Deborah; Horner, Katie; von Wettberg, Eric Bishop; Scarborough, Matt; Harris, Jeanne; Darby, Heather M.; Badireddy, Appala Raju; Roy, Eric D.; Farley, Joshua C.; Faulkner, Joshua W.; and White, Alissa, "Resilient Soils for Resilient Farms: An Integrative Approach to Assess, Promote and Value Soil Health for Small- and Medium-Size Farms" (2021). USDA Agricultural Research Service (ARS) Center. 7. <https://scholarworks.uvm.edu/arsfoodsystems/7>

White, A. and J.W. Faulkner. 2019. Enhancing participation in payment for ecosystem services programs: understanding farmer perspectives. Research update for Vermont Policymakers. University of Vermont Extension. Burlington, VT.

White, A., Faulkner, J., Sims, S., Tucker, P., & Weatherhogg, K. 2018. Report of the 2017-2018 New England Adaptation Survey for Vegetable and Fruit Growers. Department of Plant and Soil Science, University of Vermont. Burlington, VT.

### **Conference Presentations and Posters**

Mott, J., Simpson, Z. P., Elkin, K., Buda, A. R., Faulkner, J., Hapeman, C. J., McCarty, G. W., Foroughi, M. R., Hively, W. D., King, K., Osterholz, W., Penn, C. J., Williams, M., Witthaus, L., pawlowski, E., Locke, M. A., Dalzell, B. J., Dolph, C., Feyereisen, G. W., Bjorneberg, D., Nouwakpo, K., Scott, I., Duriancik, L., Kleinman, P. J. A., & Bolster, C. H. 2023. Characterizing and Quantifying Legacy Phosphorus Impacts within CEAP Watersheds. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. <https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/152234>

Faulkner, J.W. and G.H. Myers. 2023. Evaluating Conservation Practice Effects at the Watershed- and Field-Scales in the Lake Champlain Basin of Vermont. 78th Soil and Water Conservation Society International Annual Conference. August 6-9, 2023. Des Moines, Iowa.

Hapeman, C.J., D. Owen, G.W. McCarty, T. Tsegaye, L. Duriancik, M. White, R. Bailey, J. Arnold, C. Rice, W.D. Hively, P. Rice, J.M. Baker, O. Pisani, C. Baffaut, T. Gilmore, R. Malone, S. Hamilton, L. Johnson, K. King, A. Buda, J.W. Faulkner, D. Busch. 2023. Discerning and Mitigating Legacy N Sources in CEAP Watersheds through Measurement and Modeling. 78th Soil and Water Conservation Society International Annual Conference. August 6-9, 2023. Des Moines, Iowa.

Schattman, R., T. Ohno, J.W. Faulkner, R. Maden, and H. Jean. 2023. When to Turn on the Water? The Effects of Irrigation Strategies in Mixed Vegetables in the Northeast. 78<sup>th</sup> Soil and Water Conservation Society International Annual Conference. August 6-9, 2023. Des Moines, Iowa.

Kleinman, P., Z. Simpson, D. Bjorneberg, K. Nouwakpo, C. Richards, G. Feyereisen, B. Dalzell, L. Witthaus, M. Williams, C. Penn, G. McCarty, C. Hapeman, K. Elkin, T. Buda, J.W. Faulkner, T. Tsegaye, and L. Duriancik. 2023. The USDA Legacy P Project: Characterizing Sources and Forecasting Watershed Outcomes. 78<sup>th</sup> Soil and Water Conservation Society International Annual Conference. August 6-9, 2023. Des Moines, Iowa.

Owen, D.C., G.W. McCarty, C.J. Hapeman, C.P. Rice, W.D. Hively, R.E. Plummer, P.W. Downey, P.J. Rice, J.M. Baker, C. Simmerman, C. Baffaut, W.M. Olson, O. Pisani, T.C. Strickland, D.D. Bosch, K.J. Cole, K.

Barnett, A. Stanfield, R.W. Malone, T.E. Gilmore, A. Mittelstet, S.K. Hamilton, D. Weed, K.R. Elkin, A.R. Buda, T. Troutman, J.W. Faulkner, M. Kelting, L.T. Johnson, J. Boehler, K.W. King, D.L. Busch, M.W. Sandstrom, M. Riskin, and C.J. Lee. 2023. USDA Watershed Lag Time Project: Use of a Cropland Specific Transient Tracer for Characterizing the Hydrology of Agricultural Watersheds. 78<sup>th</sup> Soil and Water Conservation Society International Annual Conference. August 6-9, 2023. Des Moines, Iowa.

Faulkner, J.W. 2023. Soil Health and Water Quality Research Update. 2023 UVM No-till and Cover Crop Conference. March 2, 2023. Burlington, VT.

Faulkner, J.W., and R. Maden. 2023. Vermont Water Usage and Irrigation Research. Vermont Vegetable and Berry Growers Association Annual Conference. January 24, 2023. Montpelier, VT.

Bondeson, F., J.W. Faulkner, and E. Roy. 2022. Performance of a Compost Aeration and Heat Recovery System at a Commercial Composting Facility. Northeast Agricultural and Biological Engineering Conference, July 31 – August 3. Edgewood, MD.

Bondeson, M., J.W. Faulkner, E. Roy, and M. Stoermann. 2022. Evaluation of Agricultural Nutrient Management Technologies at Vermont Natural Ag Products, Middlebury, Vermont. 77<sup>th</sup> Soil and Water Conservation Society International Annual Conference, July 31 – August 3. Denver, CO.

Bondeson, F., J.W. Faulkner, and E. Roy. 2022. Performance of a Compost Aeration and Heat Recovery System at a Commercial Composting Facility. American Ecological Engineering Society Annual Meeting, June 21-23. Baltimore, MD.

Faulkner, J.W. 2022. Lake Champlain Basin Conservation Effects Assessment Project (CEAP) in Vermont. NEIWPC Nonpoint Source Conference, April 27, 2022. Woodstock, VT.

Bondeson, F., J.W. Faulkner, E. Roy, and M. Stoermann. 2022. Evaluation of Agricultural Nutrient Management Technologies at Vermont Natural Ag Products, Middlebury, Vermont. Waste to Worth, April 18-22. Oregon, OH.

Garna R., D. Fuka, R. White, J.W. Faulkner, E. Buell, B. Roqueto dos Reis, A. Collick, B. Asfaw, S. Mehzabin, and Z. Easton. 2021. Watershed Model Parameter Estimation in Low Data Environments. AGU Fall Meeting, December 13-17, 2021. New Orleans, LA and Virtual.

Ketterings, Q., K. Czymmek, M. Ros, M. Battaglia, D. Beegle, P. Kleinman, J.W. Faulkner, A. Collick, J. Carter, Z. Easton, M. Hashemi, T. Morris. 2021. Revising and Implementing Phosphorus Indices to Protect Water Quality in the Northeastern US. 76<sup>th</sup> SWCS Annual International Conference, July 26-28, 2021. Virtual.

Ruggiero, R. and J.W. Faulkner. 2021. Characterizing P Export Pathway To Agricultural Tile Drains In Vermont. Northeast Agricultural and Biological Engineering Conference, July 26-27, 2021. Virtual Meeting.

- Sarazen, J., J.W. Faulkner, and S. Hurley. 2021. Monitoring bioretention cell nutrient removal performance in an agricultural runoff setting. NEIWPC 2021 Nonpoint Source Pollution Conference, May 27, 2021. Virtual.
- Battaglia, M., M. Ros, Z. Easton, A.S. Collick, J.W. Faulkner, K.J. Czymmek, Q.M. Ketterings. 2020. Watershed Modeling of Best Management Practices for Regional P Index Evaluation. ASA, CSSA and SSSA International Annual Meetings, Nov. 9-13, 2020. Virtual.
- Sarazen, J., J.W. Faulkner, and S. Hurley. 2020. Evaluating nutrient removal of a woodchip bioreactor treatment system receiving silage bunker runoff. Northeast Agricultural and Biological Engineering Conference, July 28-29, 2020. Virtual Meeting.
- Faulkner, J.W. 2020. Conservation Effects Assessment Project: Lake Champlain Basin of Vermont. Soil and Water Conservation Society CEAP Annual Meeting, July 27, 2020, Virtual Meeting.
- Porterfield, K., J.W. Faulkner, R. Joblin, D. Neher, M. Curtis, S. Dvorak, D. Rizzo, and E. Roy. 2020. Phosphorus recovery and reuse from anaerobically digested dairy manure. American Ecological Engineering Society Annual Meeting – Virtual Poster Symposium, June 1-11, Virtual.
- Faulkner, J.W. and R.E. Schattman. 2019. Water Use Efficiency and Technology on Northeastern Vegetable and Small Fruit Farms. The Northeast Specialty Crop Water Symposium, December 18-19, Burlington, VT.
- Schattman, R. E. & J.W. Faulkner. 2019. On-farm irrigation monitoring and initial results from a controlled irrigation trial in Burlington, Vermont. The Northeast Specialty Crop Water Symposium, December 18-19, Burlington, VT.
- White, A., J.W. Faulkner, and V.E. Mendez. 2019. Adaptation and Resilience on Vegetable and Fruit Farms in the Northeastern US. 2019 New England Vegetable and Fruit Conference, December 10-12, 2019, Manchester, NH.
- Porterfield, K.K., J.W. Faulkner, R. Joblin, D. Neher, M. Curtis, S. Dvorak, and E.D. Roy. 2019. Upcycling Phosphorus Recovered from Anaerobically Digested Dairy Manure to Support Production of Vegetables and Flowers. 2019 American Geophysical Union Fall Meeting, December 9-13, 2019, San Francisco, CA.
- Sarazen, J.C., J.W. Faulkner, and S. Hurley. 2019. Nutrient removal in a woodchip bioreactor bed receiving silage bunker runoff. North American Lake Management Society Symposium, November 11-15, 2019, Burlington, VT.
- Faulkner, J.W. 2019. Conservation Effects Assessment Project: Lake Champlain Basin of Vermont. Soil and Water Conservation Society CEAP Annual Meeting, July 31, 2019, Pittsburgh, PA.

- Twombly, C., J.W. Faulkner, S. Hurley. 2019. Evaluation of alternative management practices in Northeastern dairy agroecosystems: Edge-of-field hydrologic and nutrient fluxes. 2019 ASABE Annual International Meeting, July 7-10, 2019, Boston, MA.
- Twombly, C., J.W. Faulkner, S. Hurley, and L. Barbieri. 2019. Hydrologic and nutrient fluxes from cold climate dairy agroecosystems in two paired watershed studies. Northeastern Agricultural and Biological Engineering Conference. June 16-19, 2019. Lac Beauport, Quebec, Canada.
- Sarazen, J.C., S. Hurley, and J.W. Faulkner. 2019. Nitrogen and Phosphorus Removal in Bioretention Cells Receiving Agricultural Runoff from a Dairy Farm in South Burlington, VT. The 19<sup>th</sup> Annual Meeting of the American Ecological Engineering Society, June 3-6, 2019, Asheville, NC.
- Schattman, R.E. and J.W. Faulkner. 2018. Whole Farm Water: Collaborative science for farm irrigation decisions in vegetable production systems (abstract 352915). 2018 American Geophysical Union Fall Meeting. December 10-14, 2018, Washington, D.C.
- Twombly, C., J.W. Faulkner, S. Hurley, L. Barbieri, and Z.M. Easton. 2018. Evaluation of alternative management practices in Northeastern dairy agroecosystems: Hydrologic and nutrient fluxes at the field and watershed scale. USDA NIFA AFRI Agroecosystems Project Directors Meeting, December 5-7, Washington, D.C., USA.
- Faulkner, J.W. and J. Alvez. 2018. Evaluation of compaction BMP effects on soil properties and demonstration of soil moisture monitoring for compaction prevention in heavy clay soils of the Northeast. 73<sup>rd</sup> Soil and Water Conservation Society International Annual Conference, July 29-Aug. 1, Albuquerque, NM, USA.
- Faulkner, J.W. and J. Alvez. 2018. Analysis of soil health and compaction remediation as a result of biological and mechanical methods used for compaction alleviation in the Northeast. 73<sup>rd</sup> Soil and Water Conservation Society International Annual Conference, July 29-Aug. 1, Albuquerque, NM, USA.
- Twombly, C., J.W. Faulkner, and S. Hurley. 2018. Alternative agricultural management practices on dairy cropping systems in the Northeastern United States: Nutrient and sediment losses from the field to the watershed. CUAHSI 2018 Biennial Colloquium, July 29-Aug.1, Shepherdstown, WV, USA.
- Kraft, D., J.W. Faulkner, and S. Hurley. 2018. Water Quality Impacts of a Woodchip Bioreactor Treatment System Receiving Silage Bunker Runoff. Northeast Agricultural and Biological Engineering Conference, July 15-18, Morgantown, WV, USA.
- Faulkner, J.W., E.D. Lane, R.S. Schattman, H. Aitken, I. Fernandez, V.E. Mendez, G. Koehler, M. Kaplan, D. Tobin. 2018. The Climate Adaptation Fellows Program: A Collaborative Design Project. USDA Northeast Climate Hub Partners Meeting: Building Resiliency through Adaptation, March 14-15, New Brunswick, NJ, USA.

- Kraft, D., J.W. Faulkner, and S. Hurley. 2018. Water Quality Impacts of a Woodchip Bioreactor Treatment System Receiving Silage Bunker Runoff. Lake Champlain Research Conference, January 8-9, Burlington, VT, USA.
- Faulkner, J.W., C. Adair, L. Barbieri, S. Hurley, D. Conner, V. Izzo, and V.E. Mendez. 2017. Increasing Ecosystem Services and Climate Change Resilience in Dominant Agroecosystems of the Northeast. USDA NIFA AFRI Agroecosystems Project Directors Meeting, October 20-23, Tampa, FL, USA.
- Faulkner, J.W., E.D. Lane, R.S. Schattman, H. Aitken, I. Fernandez, V.E. Mendez, G. Koehler, M. Kaplan, D. Tobin. 2017. The Climate Adaptation Fellows Program: A Collaborative Design Project. USDA NIFA AFRI Climate Project Directors Meeting, October 20-23, Tampa, FL, USA.
- Faulkner, J.W. and K. Williams. 2017. Soil Moisture Sensor Networks to Assist with Grazing Management and Soil Compaction Prevention. American Society of Agricultural and Biological Engineers Annual International Meeting, July 16-19, Spokane, WA, USA.
- Schattman, R. and J.W. Faulkner. 2016. Communication Navigation: Talking about climate change with farmers and landowners in the Northeast. Association of Natural Resources Extension Professionals Conference, June 26-29, Burlington, VT, USA.
- Faulkner, J.W., T. Basden, and D.B. DeVallance. 2015. Woodchip Heavy-Use Area Effluent Quality, Quantity, and Hydrologic Design Considerations. ASABE Paper #152187144. American Society of Agricultural and Biological Engineers Annual International Meeting, July 26-29, New Orleans, LA, USA.
- Basden, T., Faulkner, J.W., and D.B. DeVallance. 2015. Woodchip Pad Winter Feeding Areas as a New Livestock Manure Management System. 2015 Waste To Worth Conference, March 30 - April 3, Seattle, WA, USA.
- DeVallance, D.B., J.W. Faulkner, and T. Basden. 2015. Laboratory Evaluation of Biomass Media for use in Livestock Heavy-Use Areas. ASABE Paper #152189792. American Society of Agricultural and Biological Engineers Annual International Meeting, July 26-29, New Orleans, LA, USA.
- Basden, T., J.W. Faulkner, and D.B. DeVallance. 2014. Evaluation of Effluent Characteristics and Sorption of Nutrients onto Thermally-Treated Biomass in a Woodchip Heavy Use Area for Wintering Dairy Cattle. Soil and Water Conservation Society International Annual Conference, July 27-30, Lombard, Illinois.
- Faulkner, J.W., J. Miller, T. Basden. 2013. Design, hydrologic performance, and effluent characteristics of a woodchip heavy use area with subsurface drainage for wintering beef cattle. From Waste to Worth: "Spreading" Science and Solutions Conference, April 1-5, Denver, Colorado.
- Faulkner, J.W., J. Miller, T. Basden. 2012. Wintering beef cattle on woodchip pads with subsurface drainage: Hydrologic design and effluent characteristics. Northeast Agricultural and Biological Engineering Conference 2012, July 15-18, Orillia, Ontario.

- Faulkner, J.W., T. Basden, J. Steele, D. Seymour, and M. Bennett. 2012. Innovative strategy for gaining agricultural stakeholder input to inform watershed planning in the Chesapeake Bay. 2012 Land Grant and Sea Grant National Water Conference, May 20-24, 2012, Portland, OR.
- Faulkner, J.W., J. Miller, and T. Basden. 2011. Wintering beef cattle on woodchip pads with subsurface drainage: System concept, design, and construction. Northeast Agricultural and Biological Engineering Conference 2011, July 24-27, Burlington, VT.
- Faulkner, J.W., Z.M. Easton, W. Zhang, L.D. Geohring, T.S. Steenhuis. 2010. Hydrological Evaluation and Design of Vegetative Treatment Areas. American Water Resources Association 2010 Annual Water Resources Conference, November 1-4, Philadelphia, PA.
- Zhang, W., J.W. Faulkner, L.D. Geohring, and T.S. Steenhuis. 2009. Phosphorus sorption and desorption properties of surface and subsurface horizons at three vegetative treatment areas in New York. ASABE Paper # 097002. St. Joseph, MI: ASABE.
- Faulkner, J.W., W. Zhang, L.D. Geohring, and T.S. Steenhuis. 2008. Investigating Event Nitrate Dynamics in Paired Vegetative Treatment Areas Receiving Silage Bunker Runoff. ASABE Paper # 083915. American Society of Agricultural and Biological Engineers Annual Meeting, June 17-20, Minneapolis, MN, USA.
- Geohring, L.D., Faulkner, J.W., W. Zhang, and T.S. Steenhuis. 2008. Treating Agricultural Process Wastewaters with Vegetated Filter Areas. Conservation Innovation Grant Showcase, Soil and Water Conservation Society Annual Conference, July 26-30, Tucson, AZ.
- Zhang, W., J.W. Faulkner, L.D. Geohring, and T.S. Steenhuis. 2008. Evaluation of Two Langmuir Models for Phosphorus Sorption on Various Soils under Varied Conditions. ASABE Paper # 084181. St. Joseph, MI: ASABE.
- Zhang, W., J.W. Faulkner, L.D. Geohring, and T.S. Steenhuis. 2008. Phosphorus Dynamics in Subsurface Flow as Influenced by Biogeochemical and Hydrological Factors. H31B-01. American Geophysical Union Joint Assembly, May 27-30, 2008, Ft. Lauderdale, FL.
- Faulkner, J.W., W. Zhang, L.D. Geohring, and T.S. Steenhuis. 2007. Evaluating Vegetated Filter Areas for Treating Agricultural Wastewaters. American Society of Agricultural and Biological Engineers Annual Meeting, June 17-20, Minneapolis, MN, USA.
- Molodovskaya, M.M., O. Singurindy, J.W. Faulkner, J W, W. Zhang, B.K. Richards, T.R. Anderson, L.D. Geohring, T.S. Steenhuis, M.T Walter. 2007. Denitrification Hotspots: Hydrology and Biogeochemistry (H31F-0727). American Geophysical Union Fall Meeting, December 10-14, 2007, San Francisco, CA, USA.

### **Extension Publications and Popular Press**

Schattman, R., H. Jean, J.W. Faulkner, R. Maden, and B.K. Chim. 2023. Soil water availability monitoring for diversified vegetable farms. University of Maine Extension Factsheet.

Schattman, R., H. Jean, J.W. Faulkner, R. Maden, and B.K. Chim. 2023. Soil water monitoring systems: Components and costs. University of Maine Extension Factsheet.

Faulkner, J.W., M. Rupe, J. Arace, L. DiPietro, H. Darby, and J. Carter. 2020. Vermont Food System Plan Issue Brief: Water Quality. Farm to Plate and Vermont Agency of Agriculture, Food and Markets.

Faulkner, J.W., A. White, and A. DePillis. 2020. Vermont Food System Plan Issue Brief: Climate Change. Farm to Plate and Vermont Agency of Agriculture, Food and Markets.

Johnson, D., M.T. Niles, T. Wentworth, J.W. Faulkner, S. Birthisel, and R. Clements. 2019. What do Northern New England Farmers Need to Adapt to Climate Change? A comparison of farmer and agricultural advisor perspectives and needs. College of Agriculture and Life Sciences, University of Vermont. Burlington, VT.

Schattman, R.E. and J.W. Faulkner. 2019. How Much is Enough? Dialing in Irrigation on Northeast Diversified Vegetable Farms. USDA Northeast Climate Hub Research Brief.  
[https://www.climatehubs.oce.usda.gov/sites/default/files/ResearchBrief\\_Irrigation\\_Schattman\\_Feb2019\\_final\\_web\\_508.pdf](https://www.climatehubs.oce.usda.gov/sites/default/files/ResearchBrief_Irrigation_Schattman_Feb2019_final_web_508.pdf)

Faulkner, J.W. and K. Williams. 2017. Field Testing Soil Moisture Sensors for Improved Pasture Management. University of Vermont Extension Factsheet SAFS-4.

Faulkner, J.W. 2017. Woodchip Pads for Livestock. University of Vermont Extension Factsheet SAFS-5.

Bjorkman, T., M. Cavigelli, D. Dostie, J.W. Faulkner, L. Knight, S. Mirsky, B. Smith. 2017. Cover Cropping to Improve Climate Resilience. USDA Northeast Climate Hub.  
<https://www.climatehubs.oce.usda.gov/northeast/educational-materials/factsheets>

Grubinger, V., C. Callahan, J.W. Faulkner, J. Buckley, and R. Achilles. 2016. Guidance on Wash Water Discharge from Vegetable Pack Sheds – Advice on System Design. University of Vermont Extension.

Graziosi, M. and J.W. Faulkner. 2016. Designing Variable-Width Filter Strips on Vermont Fields Using the AgBufferBuilder ArcGIS Tool. University of Vermont Extension Factsheet SAFS-3.

Easton, Z.M. and J.W. Faulkner. 2016. Communicating Climate Change to Agricultural Audiences. Virginia Cooperative Extension Publication BSE-203P. College of Agriculture and Life Sciences, Virginia Tech.

Faulkner, J.W. 2014. Climate Change and Agriculture in Vermont. University of Vermont Extension Factsheet SAFS-2.



Faulkner, J.W. and Z.M. Easton. 2014. Agricultural Adaptation to Climate Change: Improving Resilience in Row Crop Production. University of Vermont Extension Factsheet SAFS-1.

Faulkner, J.W. 2014. Low-cost Irrigation Sand Filter. University of Vermont Extension Factsheet.

Easton, Z.M., and J.W. Faulkner. 2014. Climate Change Adaptation for Agriculture: Mitigating Short- and Long-term Impacts of Climate on Crop Production. Virginia Cooperative Extension Factsheet BSE-109P. <http://pubs.ext.vt.edu/BSE/BSE-109/BSE-109.html>

Faulkner, J.W. 2013. Managing Silage Leachate. West Virginia University Extension Service Fact Sheet No. AG13-17.

Faulkner, J.W., T. Basden, and B. Broxterman. 2013. Setback Recommendations to Reduce Runoff Risk from Manure Applications. West Virginia University Extension Service Fact Sheet No. AG13-77.

Faulkner, J.W. 2013. The World's Water. West Virginia University Extension Service 4-H Skill-a-thon. Publication No. 4H13-204.

Faulkner, J.W. 2011. How phosphorus is lost from farmland. *Mid-Atlantic Regional Agronomist Quarterly Newsletter*. December 2011.

Faulkner, J.W. 2011. Composting: good way to manage livestock carcasses. *West Virginia Farm Bureau News*. 19(9).

Faulkner, J.W. 2011. How Phosphorus Is Lost from Farmland. West Virginia University Extension Service Fact Sheet No. AG11-166. <http://anr.ext.wvu.edu/r/download/101822>

Faulkner, J.W. 2011. Producers should be proactive in a changing regulatory climate. *West Virginia Farm Bureau News*. 19(2).

Faulkner, J.W., T. Basden, and C. Richmond. 2011. New CAFO Rule: What do producers need to do?. West Virginia University Extension Service website. <http://anr.ext.wvu.edu/livestock/cafo>

Faulkner, J.W. and B. Broxterman. 2010. Litter Loading Bench Standard Design. West Virginia Natural Resources Conservation Service Conservation Practice Standard #634.

Faulkner, J.W. 2010. Snowstorms and Overloaded Roofs. Feature publication on West Virginia University Extension website.

Faulkner, J.W. 2009. Woodchip Wintering Area. West Virginia Conservation Agency Agricultural Enhancement Program Conservation Practice Standard.

Faulkner, J.W. 2009. Small Farms and Conservation: Why?. *West Virginia Small Farm Advocate*. Summer Edition.

### **Invited Presentations**

Agriculture, Climate Change, and Water Quality in Vermont. Jan. 12, 2023. Vermont Department of Environmental Conservation Clean Water Conversation Series. Virtual.

What to Do About Too Much Water?!. Jan. 5, 2023. University of Maine Extension Winter Webinar Series. Virtual.

Impacts of Climate Change on Agriculture and Ecology. Dec. 12, 2022. Vermont League of Women Voters Panel Series. Virtual.

Climate Change and Water Quality Research on Vermont Dairy and Livestock Farms at Multiple Scales. Oct. 21, 2022. UVM Animal Biosciences Fall Seminar Series. Burlington, VT.

Agriculture and Climate Change in Vermont. Oct. 10, 2022. Vermont Citizen's Action Committee on Lake Champlain's Future. Virtual.

Building Resilient Farms for Water Quality and Changing Climate. Sept. 1, 2022. Orleans County Agricultural Stakeholder Meeting. Newport, VT.

The Lake Champlain Basin Conservation Effects Assessment Project. May 2, 2022. Vermont Agricultural Water Quality Partnership Science Advisory Meeting. Virtual.

Increasing Our Understanding of Tile Drainage Hydrology and Phosphorus Losses in Subsurface and Surface Runoff from Farm Fields in the Lake Champlain Basin. February 23, 2022. Lake Champlain Sea Grant Research Seminar Series. Virtual.

On-Farm Water Quality Research and Networking for Climate Resiliency. February 10, 2022. On-Farm Applied Research and Monitoring (ONFARM) Forum 2022. Virtual.

UVM Extension Climate Change and Grazing Research. Vermont Grazing and Livestock Conference. January 21, 2022. Virtual.

Climate Change and Agriculture in Vermont: Building Resilience. October 13, 2021. UVM OLLI Distinguished Lecture Series. Virtual.

Basics of N and P for Water Quality. Vermont Vegetable and Berry Growers Winter Webinar Series. February 17, 2021. Virtual.

Tile Drainage Research in Vermont. University of Maine Certified Crop Advisors In-Service Training. January 28, 2021. Virtual.

Climate Change: Observations and Localized Impacts in the Northeast. Climate Adaptation Fellowship Kick-off Workshop. January 12, 2021. Virtual.

Creating a Climate and Environmentally Resilient Food System. Vermont Farm-2-Plate Network Annual Gathering. October 12, 2020. Virtual.

Applied research and outreach at the intersection of agriculture, climate change, and water quality in Vermont. Gund Institute for Environment GundxChange Seminar Series. October 2, 2020. Virtual.

Irrigation Efficiency and Soil Moisture Monitoring Technology. UMass Agricultural Water Virtual Twilight Series. September 16, 2020. Virtual.

Tile Drainage and Nutrient Loss: Basics and Current Research. Vermont Agricultural Water Quality Partnership Science Advisory Committee. September 11, 2020. Virtual.

Models, Measurements, and Agriculture. Farmers Watershed Alliance Precision Agriculture Forum. March 12, 2020. St. Albans, Vermont.

Climate Change and Agricultural Resilience in New England. New Brunswick Soil and Crop Improvement Association 41<sup>st</sup> Annual Meeting. February 21, 2020. Woodstock, New Brunswick, Canada.

When it Rains it Pours: Drainage Principles and Practice. New England Vegetable and Berry Grower's Association Winter Meeting. January 3, 2020. Hadley, MA.

Tile Drainage Research: Current and Future Paired-Watershed Studies. Vermont Tile Drainage Advisory Group 2019 Meeting. December 20, 2019.

Improving Our Understanding of Interactions among BMPs, Tile Drainage, and P Losses in Subsurface and Surface Runoff. Lake Champlain Sea Grant Seminar Series. October 30, 2019. Burlington, VT.

Dairy Farming, Resilience, and a Changing Climate. Dairy Sheep Association of North American 2019 Symposium. November 7, 2019. Idaho Falls, ID.

Climate Resilient Agriculture in Vermont. 2019 Vermont Housing and Conservation Board Conference. October 10, 2019. Barre, VT.

Climate Change and Agricultural Resilience in Vermont. Bennington College Public Policy Forum Series. September 26, 2019. Bennington, VT.

Climate Change and Agricultural Resilience in New England. 2019 Island Agrology Workshop. August 19, 2019. Stanley Bridge, Prince Edward Island, Canada.

Dairy Farming, Climate Change, and the Marketplace. American Cheese Society Annual Conference. August 2, 2019. Richmond, VA.

The Vermont Phosphorus Index, Tile Drainage Research, and Edge-of-Field Monitoring Results. Vermont Water Quality Science Week. April 29-30, 2019. Burlington, VT.

Soil and Water Resources and New England Agriculture in the Age of Climate Change. Association of Conservation Districts New England Leadership Meeting. March 25, 2019. Portsmouth, NH.

Vermont Tile Drainage: The Year in Review. 2019 Vermont No-Till and Cover Crop Symposium. February 28, 2019. Burlington, VT.

A Resilient New England Agriculture in the Face of Climate Change. Upper Valley Adaptation Workgroup. May 15, 2018. Hanover, NH.

Resilient Farms for Changing Times. Vermont No-Till and Cover Crop Symposium. March 1, 2018. Burlington, VT.

Building Resilient Farms in a Changing Climate. NOFA-VT Board Meeting. April 5, 2018. Middlebury, VT.

Grazing Research Roundup and Steps Forward. Vermont Grazing and Livestock Conference (w/ J. Alvez). January 20, 2018. Fairlee, VT.

Farming in the Age of Climate Change and Environmental Concerns. Vermont Grazing and Livestock Conference (w/ K. Hagen). January 20, 2018. Fairlee, VT.

Soil Drainage Basics and Application. New Hampshire – Vermont Christmas Tree Association Summer Meeting. June 24, 2017. Middlesex, VT.

Building Resilient Farms in a Changing Climate. Transition Town Montpelier Lecture Series. April 20, 2017. Montpelier, VT.

Tile Drainage: What we know and don't know. Franklin County Wetlands and Tile Drainage Workshop. March 20, 2017. Saint Albans, VT.

Vermont Agriculture Resilience in a Changing Climate Panel Discussion. Rubenstein School Spring Seminar Series. March 8, 2017. Burlington, VT.

Climate Smart Farming. Northeast Organic Farming Association-VT Winter Conference. Feb.18, 2017. Burlington, VT.

Alternative Barnyards: Woodchip Pad Wintering Systems. Vermont Grazing and Livestock Conference. January 21, 2017. Fairlee, VT.

Phosphorus, Farmland, and Best Management Practices. Franklin Watershed Committee Annual Meeting. August 18, 2016. Franklin, VT.

Climate Change and Agriculture: A Soil and Water Perspective. Watershed Navigators of Northwestern Vermont. August 17, 2016. St. Albans, VT.

Resilient Vermont: A Soil and Water Perspective. Resilient Vermont 2016 Conference. May 19, 2016. Norwich, VT.

Drainage and Water Management for Small Scale Vineyards. 2016 Northeastern NY and VT Grape School. March 17, 2016. Lake George, NY.

Working Lands Leaders Panel. Vermont Climate Economy Summit: Ideas to Action. Feb. 22, 2016. Randolph, VT.

Drainage and Water Management on Vermont Farms. Vermont Tree Fruit Growers Association Annual Meeting. Feb. 18, 2016. Middlebury, VT.

Land Improvement Practices for Enterprise Establishment. Northeast Organic Farming Association-VT Winter Conference. Feb.13, 2016. Burlington, VT.

Soil Compaction: Causes, Effects, and Ways to Address It. VSJF Farm2Plate Annual Gathering. Oct. 29, 2015. Killington, VT.

Landscape Resilience in an Era of Climate Change Presentation and Panel. 2015 Vermont Housing and Conservation Board Conference. October 6, 2015. Burlington, VT.

Vermont Agriculture and Climate Change: Building Resiliency. Intervale Center. September 16, 2015.

Agriculture, the Environment, and Climate Change. Agricultural Medicine and Occupational Safety Training. September 11, 2015. Middlebury, VT.

Climate Change Considerations for Christmas Tree Production in New England. New Hampshire – Vermont Christmas Tree Association Summer Meeting. June 27, 2015. Huntington, VT.

Climate Change and Agriculture Extension in Vermont. Extension Advisory Committee Meeting. March 31, 2015. Burlington, VT.

Tile Drainage to Improve Soil Productivity. Vermont Vegetable and Berry Growers Association Annual Meeting. January 21, 2015. Fairlee, VT.

Climate Change, Farming, and Energy Considerations in Vermont. Vermont Community Energy and Climate Action Conference. December 12, 2014. Fairlee, VT.

Ensuring a Climate-Resilient Agriculture through Improved Soil and Water Management. Mid-Atlantic Crop Management School. November 18, 2014. Ocean City, MD.

Wood Chip Pad Winter Feeding Area as a New Livestock Manure Management System. Mid-Atlantic Crop Management School. November 18, 2014. Ocean City, MD.

Climate Change and the Northeast's Soil and Water Resources. USDA NRCS Soil and Water Resources Conservation Act Regional Roundtable. October 23, 2014. Albany, NY.

Soil and Water Management in the Northeast for a Climate-Resilient Agriculture. UCOWR/NIWR/CUAHSI Annual Conference. June 19, 2014. Medford, MA.

Soil and Water Management in the Northeast for a Climate-Resilient Agriculture. Virginia Tech Biological Systems Engineering Seminar Series, April 29, 2014. Blacksburg, VA.

The Dirt on Climate Change: Adaptation through Resilient Soils. 2014 Empire State Producers Expo. January 21-23. Syracuse, NY.

Soil and Water Movement on Vermont Farms: Observations and Meaning. 18<sup>th</sup> Annual Vermont Grazing and Livestock Conference. January 17-18, 2014. Fairlee, VT.

Farming and Climate Change: Adapting for a Resilient Vermont Agriculture. Vermont Farm Health Task Force In-Service. January 9, 2014.

Wintering Beef Cattle on Woodchip Pads: Concept, Design, and Results. Northeast Extension Dairy and Livestock In-Service. October 29-30, 2013. Northwood, NH.

Previous experiences in soil and water resource engineering and future application to agricultural adaptation in Vermont's changing climate. University of Vermont Plant and Soil Science Seminar Series. October 11, 2013. Burlington, VT.

Environmental management for the beef producer. Maryland Cattle Industry Convention & Hay and Pasture Conference. March 2-3, 2012. Hagerstown, MD.

### **Selected Service Activities**

Manuscript reviewer for *Journal of Environmental Quality*; *Biosystems Engineering*; *Hydrological Processes*; *Journal of the American Water Resources Association*; *Journal of the American Society of Mining and Reclamation*; *Journal of Environmental Management*; *Water*; *Applied Engineering in Agriculture*; *Transactions of the ASABE*; *Soil Science*; *Journal of Environmental Hydrology*; *Frontiers in Environmental Science*; *Agricultural & Environmental Letters*; *Ecological Applications*

NRCS-VT, State Technical Committee: Irrigation Subcommittee

UVM Extension Director's Cabinet, 2022 – Present

UVM Horticulture Research and Education Center Advisory Committee, 2020 – Present

VHCB Viability Grants Review Committee, 2021 – Present

State of Vermont Payment for Ecosystem Services and Soil Health Working Group, 2020 – Present

Chair, Lake Champlain Basin CEAP Stakeholder Advisory Committee, 2020 – Present

Membership on eight UVM Hiring Search Committees

USDA-NIFA AFRI Agroecosystem Program grant proposal review panel

Vermont Agricultural Best Management Practice Tracking and Accounting Expert Panel, 2017 – Present

Vermont Tile Drainage Advisory Group, 2016 – Present

Fact sheet (multiple) peer-reviewer for Virginia Cooperative Extension

Friends of Northern Lake Champlain Advisory Committee, November 2013 – Present

West Virginia Natural Resources Conservation Service State Technical Committee, January 2009-May 2013

West Virginia Chesapeake Bay Watershed Implementation Plan Workgroup, December 2009-May 2013

West Virginia Conservation Agency Agricultural Enhancement Program State Committee, August 2009-2011