



Shelby County Farm Bureau

Summer 2020 Virtual Field Day

Brought to you by your local community partners:



Speakers for the Virtual Field Day included:

Lauren Lurkins

Director of Environmental Policy, Illinois Farm Bureau

Madison McFadden

Manager, Shelby County Farm Bureau

Julie Hewitt

Executive Director, Illinois Nutrient Research and Education Council

Stephen Anderson

Host Farmer

Dr. Rabin Bhattarai

Associate Professor, Soil and Water Resources Engineering, Department of Agricultural and Biological Engineering, University of Illinois

Jacob Wood

PhD Candidate, Department of Agricultural and Biological Engineering, University of Illinois

Justin Kandume

Visiting Research Specialist in Agriculture, Department of Agricultural and Biological Engineering, University of Illinois

Shelby County Farm Bureau

The Shelby County Farm Bureau (CFB) is a non-profit membership organization that serves just over 2,000 members. Their mission is to “work on behalf of our members and be a resource for farmers and consumers by providing legislative representation, environmental stewardship, and factual information

to ensure a viable future for the next generation of agriculture.”

Shelby County farmers are committed to doing their part to improve soil health and protect water quality within the county and beyond. In 2019, they partnered with Illinois Farm Bureau (IFB) to host a Nutrient Stewardship

workshop. In 2020, Shelby CFB was awarded a nutrient stewardship grant from IFB to collaborate with several partners to host a Virtual Field Day to present findings from a Drainage Water Management research project located on a Shelby county farm.

Illinois Farm Bureau Nutrient Stewardship Efforts

Since 2015, IFB has contributed to an impressive statewide effort called the Illinois Nutrient Loss Reduction Strategy (NLRs). Through leadership and participation from our farmer members across the state, IFB has been able to make meaningful contributions toward water quality improvements in Illinois. From 2016 to present, IFB has committed approximately \$1.5 million of its own funding to build and maintain its sustainability programs.

The NLRs is a science-based framework for using research, technology and industry experience to assess and reduce nutrient loss to Illinois waters and to the Gulf of Mexico. The NLRs sets forth a plan to leverage existing programs to optimize nutrient loss reduction while promoting collaboration, research, and innovation among the private sector, academia, non-profits, wastewater treatment agencies, the agricultural sector, and state and local government. The primary goals include reducing nitrate-nitrogen losses by 15% and reducing total phosphorus losses by 25% by the year 2025 from established baseline conditions. The NLRs was released in July of 2015 after multiple years of stakeholder discussions in which IFB actively participated. Since 2015, IFB has continued its participation in NLRs meetings and work groups in order to strategically guide the effort. In addition, IFB created new programs in 2015 to support farmer implementation of best management practices (BMPs) to help Illinois meet the goals of the NLRs.

For the past several years, IFB has made it an organizational priority to lead on environmental issues, most notably, the NLRs. IFB's NLRs efforts focus in four priority areas: 1) education and outreach to farmers, landowners and the general public; 2) supporting research of best management practices to reduce nutrient loss from agricultural fields; 3) supporting farmer implementation efforts across the state; and 4) demonstrating progress toward the long-term goals of the NLRs. The IFB Board of Directors committed significant financial resources and support from staff to accomplish some ambitious goals, allowing IFB to tackle environmental challenges head-on. IFB will continue to prove that voluntary, incentive-based conservation, based on science, will move the needle on water quality improvements in our state.

The IFB Nutrient Stewardship Grant Program is one example of the many ways IFB is creating lasting impacts in implementing the NLRs across Illinois. This program funds county Farm Bureau (CFB) projects throughout the state focused on improving soil health and water quality. Since 2015, IFB has dedicated over \$550,000 to CFBs to complete a wide range of unique projects, including planting test plots of cover crops, watershed planning, water testing, hosting education and outreach activities. For more information on IFB's environmental efforts, see www.ilfb.org/take-action/current-priorities/protecting-our-environment.



Nutrient Research and Education Council (NREC) Support

The Illinois Nutrient Research & Education Council (NREC) is a collaborative effort by Illinois farmers, the fertilizer industry and the Illinois Department of Agriculture to address issues related to fertilizer use in Illinois.

Created by state statute in 2012, NREC is funded by a 75-cent assessment on each ton of bulk fertilizer sold in Illinois. These funds are invested in research projects and educational programs designed to optimize nutrient use and protect the environment.

A 13-member NREC Council annually solicits, reviews and funds projects that fulfill the organization's mission. Environmental organizations provide input to the council.

The NREC Mission

NREC is committed to helping farmers and other users of fertilizer products get the best performance possible from their nutrient applications. To accomplish this, NREC sponsors research and educational programs that have three purposes:

- Ensure adoption and implementation of best practices that optimize nutrient efficiency.
- Ensure soil fertility.
- Address environmental concerns related to fertilizer use.

Since its inception in 2012, Illinois NREC has invested over \$23 million into nutrient related research efforts. Through the research that is being funded through NREC, Illinois agriculture is working together to meet the requirements of the NLRS. Without this funding, the industry would be without critical research into maximizing the efficiency of agricultural nutrients while minimizing any possible negative impacts to the environment.

Research Priorities

NREC focuses on three main goals when considering research projects:

- Maximize Efficiency
- Minimize Losses
- Mitigate Negative Environmental Impacts

These goals are pursued by sponsoring projects that examine the effectiveness and economic viability of farming practices that will reduce losses of nitrogen and phosphorus to water without being detrimental to yield.

Learn more by visiting www.illinoisnrec.org where you can see a full listing of current projects, review the annual report, and see other priority areas being studied.

Watershed-scale Response of Agricultural Systems to Drainage Water Management in central Illinois

Through an exciting partnership with Dr. Rabin Bhattarai (PI) and Dr. Richard Cooke (Co-PI) from University of Illinois (U of I) College of Agricultural, Consumer & Environmental Sciences, Shelby CFB, IFB, and NREC, research in Drainage Water Management (DWM) is taking place in Shelby County. The following overview from Dr. Bhattarai outlines the initial goals, research progress, as well as a timeline for future research.

Project Objectives

The overall goal of this project is to observe and communicate new information about the watershed-scale effects of DWM (Figure 1) on water and nitrogen (N) losses, and crop production in Illinois. This experiment is the first of its kind to answer the question: how does DWM affect water and N balances and crop production on a watershed scale? What are the long-term environmental and economic benefits of DWM? This project has the following specific objectives:

1. Monitor the watershed-scale effects of DWM on nutrient reductions, water and N balances, and crop production through a paired watershed experiment. (Expected completion date: December 2022)
2. Estimate the long-term environmental and agricultural benefits of DWM through watershed-scale modeling. (Expected completion date: December 2022)
3. Communicate results to agricultural community stakeholders through field days and extension events. (Expected completion date: December 2022)

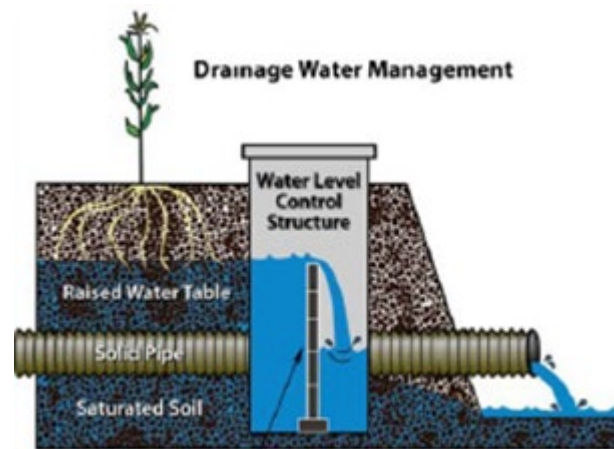
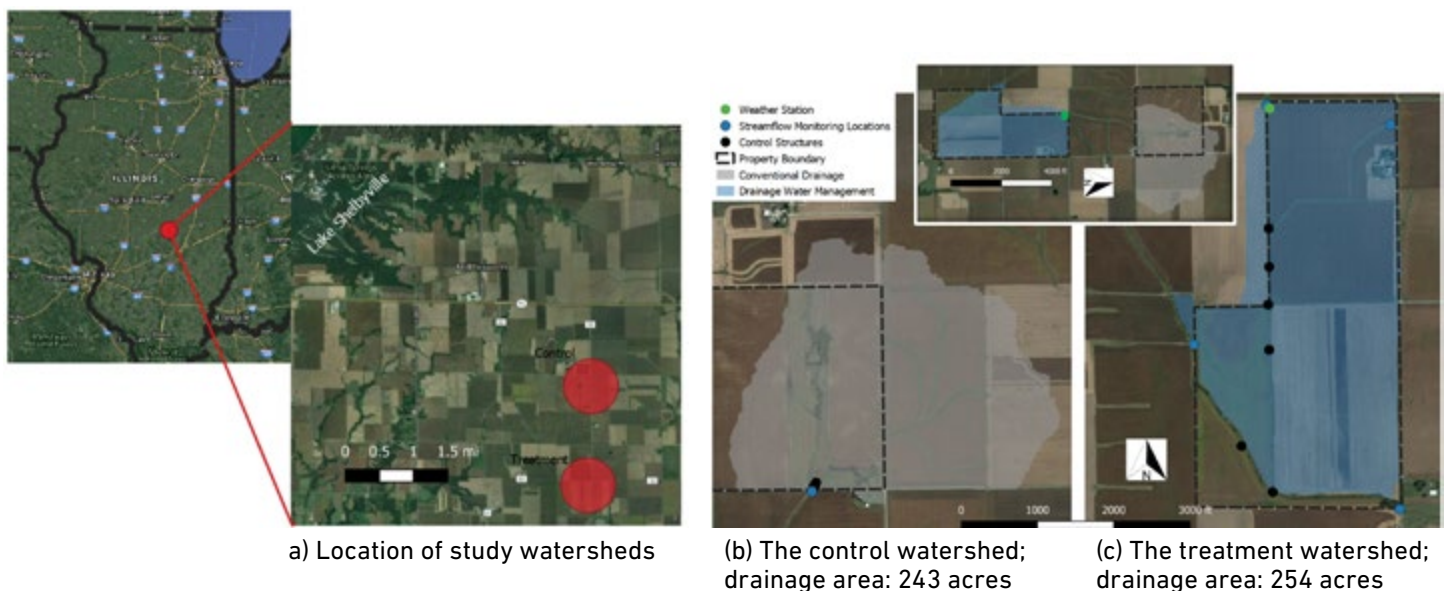


Figure 1. Cross section of a DWM system.
Source: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=nrcs144p2_027166

Current Progress

In this project, we are quantifying the effects of DWM on water and nutrient balances and crop production at the watershed scale, explore the long-term environmental and agricultural benefits of DWM through watershed-scale modeling, and initiate extension and outreach efforts to encourage participation in activities to share our findings on DWM. This is the second year of the project. Work plan for this 4-year project (2019-22), including the work that has already been done and plans for the next few years are as follows:

Figure 2. Study watersheds in Shelby County in central Illinois



1. Monitoring system installation

The study watersheds (control and treatment) are located in Shelby County in the central part of the state (*Figure 2*). The watersheds can be classified as agricultural with row-crop agriculture. The subsurface drainage system was already installed in the treatment watershed. A subsurface drainage system was installed in the control watershed in spring 2020.

An Onset automatic weather station was deployed in the fall of 2019. The weather station has been operational and recoding data since its deployment (*see Figure 3*). A total of six Agri Drain Corporation control structures and two watergate valves were ordered as per the proposed DWM plan. Installation of the structures began spring 2020 (*see Figure 4*), and is scheduled to be completed prior to the planned field day this summer. The subsurface drainage management plan has been finalized for the control watershed, and an additional three structures have been ordered for tile flow monitoring.

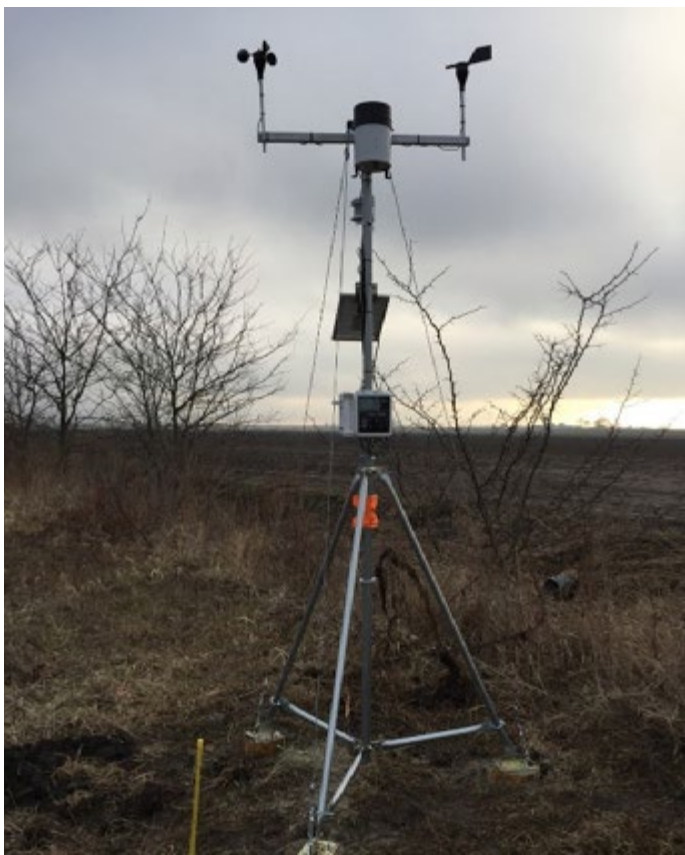


Figure 3. Weather monitoring station deployed at project site.



Figure 4. A control structure being installed in the treatment watershed by landowner and research assistant, Jacob Wood (pictured).



Figure 5. Pair of Onset pressure transducers used to monitor surface water level and flow.



Contact Information

You can contact the
Shelby CFB at:

www.shelbycofb.com

217-774-2151

To learn more about all other IFB Nutrient Stewardship
Virtual Field Days, visit:
www.ilfb.org/FieldDays

Brought to you by your local community partners:

