ILLINOIS NREC
Quarterly BULLETIN
ILLINOIS NUTRIENT RESEARCH EDUCATION COUNCIL

Winter 2018

Eight new NREC projects are being funded in 2018.

The research committee met in November to evaluate, rate and recommend research projects that most closely followed NREC's priority areas. A total of $955,868 was committed to new projects. A total of 26 projects are now being funded by NREC for a total of $3.6 million. Several multi-year projects are ending in 2018. Those results will be published when available.

How does it all fit together?

NREC's funding addresses nine research priorities:

1. The impact of N management systems on efficiency of N use.
2. Determine factors impacting release and/or tie-up of organic and fertilizer nitrogen (mineralization immobilization, nitrification, denitrification, leaching, and plant uptake).
3. Cover crops: Evaluate the feasibility, economics and best management practices of growing cover crops to address nitrogen and phosphorus loss as well as crop productivity.
4. Evaluate the agronomic and environmental benefits of tillage and the placement and timing of phosphorus applications.
5. Conduct an exhaustive literature review of published research focused on management of phosphorous loss.
6. Investigate practices to reduce phosphorous in unglaciated areas of Illinois.
7. Tile drainage: Evaluate drainage water management and erosion control practices from both a nutrient management and agronomic standpoint. Plus study the impact of tile spacing and depth on nutrient loss from a field.
8. Bioreactors, buffers and saturated buffers: Practical approaches to installing these systems in areas where drainage ditches are the conduit for tile drainage. Focus should be on ways to utilize these systems to provide the most practical benefit while limiting the amount of land taken out of production.
9. Outreach and education: Conduct a literature review of peer reviewed research that studies farmer decision making in relation to the adoption of conservation practices.

Here is how they fit within NREC's research priorities.

Priorities 1 and 2: Dr. Angela Kent's (UI) research is designed to improve the understanding of the controls on Dissimilatory Nitrate Reduction to Ammonium (DNRA) across various Illinois soil types. This two-year project identifies DNRA gene expression in soil microbial communities to evaluate nitrate leaching.

Priority 3: Dr. Kaiyu Guan (UI) will conduct an empirical analysis to determine the suitability and potential economic benefit of cover crops.

Priorities 1, 4 and 7: Dr. Rabin Bhattari (UI) will attempt to answer the question: "how do current recommendations on drainage depth and spacing influence not only nutrient losses, but also crop productivity and nutrient utilization?"

Priorities 4 and 6: Dr. Andrew Margenot (UI) will evaluate the slow release of phosphorous fertilizers to increase crop

In the Know: Research project status

A 50/50 split between spring and side-dress application of nitrogen reduced N loss by 30% compared to fall N with an inhibitor (10 lbs/A less tile N load) following the warm winter of 2016.

In the Know: Research project status

Cereal rye after corn and ahead of no-till soybeans can reduce tile nitrate loads by 40% without decreasing soybean yield.

production and environmental quality – with an emphasis on context-specific management recommendations.

Priorities 3, 6 and 8: Dr. Reid Christianson (UI) will concentrate his work in Southern Illinois to evaluate, refine, and promote both recommended and novel practices to reduce phosphorous losses in unglaciated areas of Illinois. Under evaluation will be no-till conservation tillage, cover crops, and edge-of-field P filters.

Priority 5: Dr. Karl Williard (SIU) reviews and evaluates practices in Phosphorous management with the intent to identify research gaps and strengths. His final report will provide insight in what research is being done so that there is less duplication of research – even among adjoining states – so that research investments can be maximized.

Priority 6: Dr. Karl Williard received approval for a second research project to look specifically at water quality and agronomic impacts of gypsum applications in Southern Illinois. His objective is to assess whether gypsum can be a tool for southern Illinois farmers to limit phosphate loss from their fields, while still maintaining or improving yields.

Priorities 2, 6 and 7: Dr. Richard Cooke (UI) will evaluate recycled drainage water as an effective management practice that could increase crop yields at reduced fertilizer application. He will study changes in the physical, biological, and chemical properties of soil under intermittent drainage and sub irrigation.

On the Go
Outreach:

NREC-funded researchers are busy sharing their research results at a number of upcoming conferences and meetings.

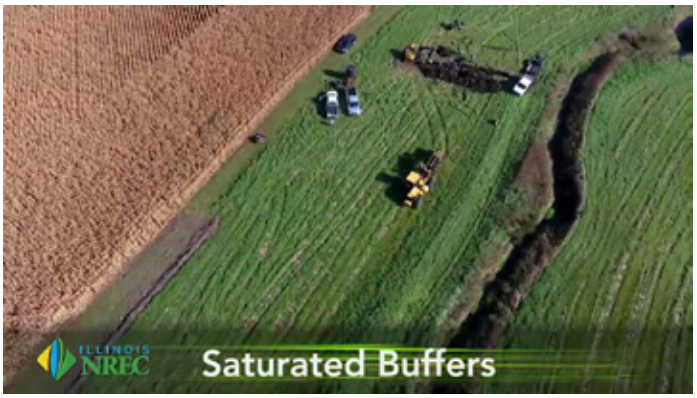
In January, several made presentations at the Illinois Fertilizer and Chemical Association (IFCA) annual conference. NREC also shared information about the organization at a trade show booth.

Farmers, Agriculture Suppliers, and Clean Water Advocates Mark Five Years of Partnership in Nutrient Research and Loss Reduction

Farmers and environmentalists celebrated the first five years of the Illinois Nutrient Research and Education Council (NREC) during the Illinois Fertilizer and Chemical Association's annual convention at the Peoria Civic Center. The convention featured remarks from Illinois State Treasurer Michael Frerichs, who sponsored the original legislation as a State Senator in 2012. The legislation enacted a $1 per ton fee on agricultural fertilizer sales to fund Illinois NREC and related programs of the Illinois Department of Agriculture.

Two new videos have been produced and are on YouTube. One features Mercer County farmer Chad Bell talking about terminating cover crops and the other provides an overview of edge-of-field practices. At least two more videos are being planned for 2018 to help farmers understand how they can help Illinois meet the Illinois Nutrient Loss Reduction Strategy.

Be sure and follow IllinoisNREC on YouTube



Saturated buffers

Chad Bell looking at rye grass

Aerial of wetland

Bioreactors

On the Go:

February 7 Illinois Crop Management Conference – Champaign
February 16 Crop Production Conference – Quincy
February 21 Illinois Crop Management Conference –- Malta
March 6 Wabash Valley FS Conference – Mt. Carmel

Visit the NREC web site for the most up-to-date list of upcoming presentations by NREC-funded researchers and other events relevant to helping Illinois meet the Illinois Nutrient Loss Reduction Strategy.

Illinois agriculture's investment in the safe, efficient use of crop nutrients.

ILLINOIS NREC

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