



ILLINOIS
NREC

From Peer-Reviewed Science to BMP's for On-Farm Adoption

Who is Illinois NREC?



Created in 2012
through state statute



Funded by \$.75/ton
assessment on
fertilizer sold in
Illinois



Collaboration
between ag,
environmental
groups, and state
agencies

- Pursue nutrient research & educational programs
- Ensure adoption and implementation of practices that
 - Optimize nutrient use efficiency
 - Ensure soil fertility
 - Address Environmental concerns regarding fertilizer

Who is Illinois NREC?

- 13 Member Council (9 voting and 4 advisory)
- Voting Members
 - 3 Farmers (ILFB, ICGA, ISA)
 - 3 Members from Fertilizer Industry
 - CCA
 - Specialty Fertilizer
 - Illinois Department of Ag
- Advisory Members
 - 2 Environmental Organizations (Sierra Club & Environmental Law Policy Center)
 - State/Federal Ag Research Station Representative
 - Illinois EPA

Illinois NREC Research Funding



Solicit proposals that focus on

Improved nutrient efficiency
Enhanced crop production
Protect water quality



Council, Research Committee, and Independent Peer Review Team review applications



Projects are ranked on merit and availability of funds

Funding and Progress to Date

- Since 2013
 - Over \$26M invested in research projects
 - Four NREC publications: Turf Guide, Cover Crop Guide 1.0, Guide to MRTN, and Cover Crop 2.0
 - Annual Reports, Investment Insights, Field Notes, and videos, Research Forum
 - More than a dozen papers published in Professional Journals written by NREC-funded researchers
 - Many opportunities for collaboration on research and outreach projects

NREC and Illinois' Strategy

↔ Work in parallel (but independently) with the strategy

✓ Evaluate removal rates for BMP's already in strategy

🔍 Provide peer-reviewed research for BMP's not already in strategy

🤝 Serve on Policy Working Group, and Ag Water Quality Partnership with support to Science Advisory Team

🇺🇸 Fund bi-annual USDA-NASS Survey re: NLRs awareness and adoption



4R NUTRIENT MANAGEMENT

4R Nutrient Management

- Ongoing N-rate trials to support the MRTN
- Impact of timing on tile nitrate levels
- The role of mineralization and nitrate loss from 0 nitrogen trials
- 4R Nutrient research focus is both agronomic, economic and environmental
- Precision Ag for N-Management
- N placement
- Using stable isotopes to understand sources and cycling of nitrates



RIGHT SOURCE
Matches fertilizer type to crop needs.



RIGHT RATE
Matches amount of fertilizer type crop needs.



RIGHT TIME
Makes nutrients available when crops need them.



RIGHT PLACE
Keep nutrients where crops can use them.



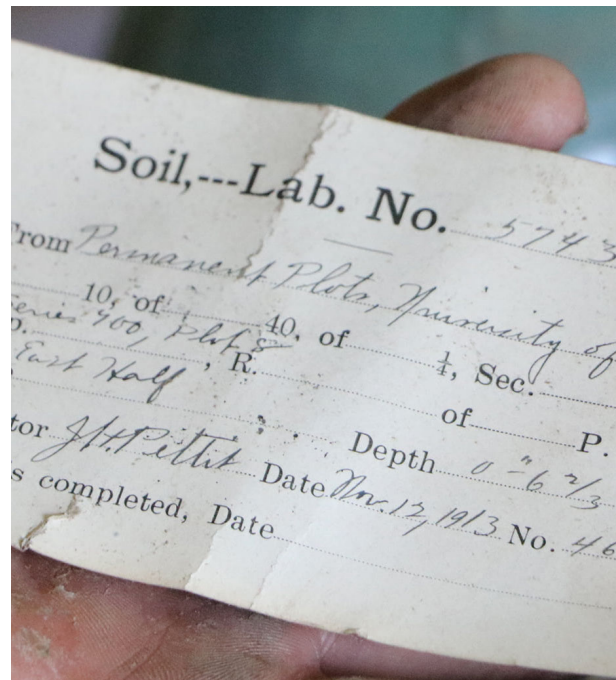
Cover Crop Research

- Long-term paired watershed research
- N application timing and cover crops impact on Fate and Availability of N Fertilizer
- Extended rotation with cover crops
- Insect management in cover crop systems
- Utilizing cover crops in Southern Illinois for P and N loss
- Modeling projects to evaluate the suitability and benefits of cover crops
- Integrating grazing into cover crop systems



Phosphorus Research

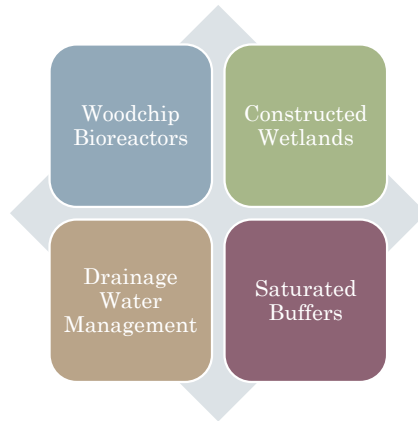
- Struvite made from recycled P from wastewater treatment facilities as an alternative P Source
- Edge of Field P Filters:
- Freeze/Thaw Cycle Impact on P Loss in Cover Crops
- Designer BioChar for P removal
- The role of legacy P and utilizing 150 years of soil samples
- Evaluation of WASCOP's P Removal Potential
- Role of Gypsum in managing P losses

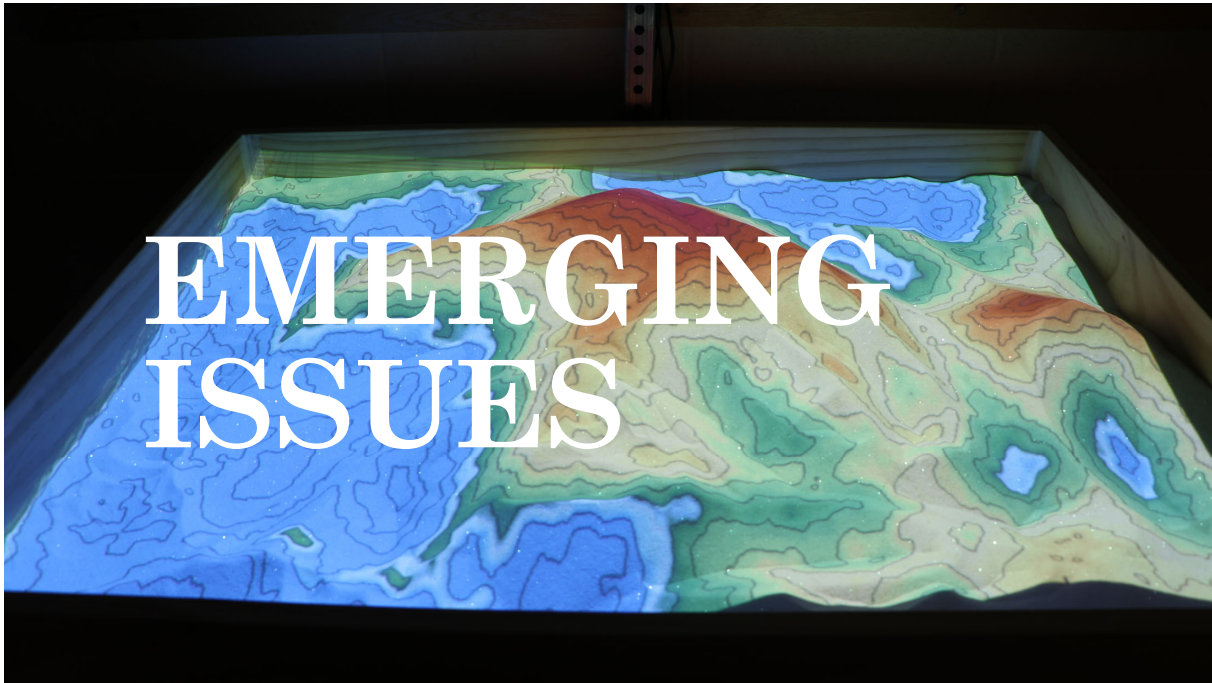




EDGE of FIELD PRACTICES

Edge of Field Practices





Novel Research

- Dissimilatory Nitrate Reduction to Ammonium for Nitrate Retention in Agricultural Soils
- Tile Depth and Spacing
- White paper research related to P loading in Illinois River watershed
- Maize microbiome research
- Fragipan busting with annual ryegrass

Where can I get more info?

- **Website:** illinoisnrec.org
- **Twitter:** @IllinoisNREC
- **Facebook:** @IllinoisNREC
- **Email:**
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