

Investment Insight

Recent Research Results

Cover cropping on a large scale – will it be impactful?

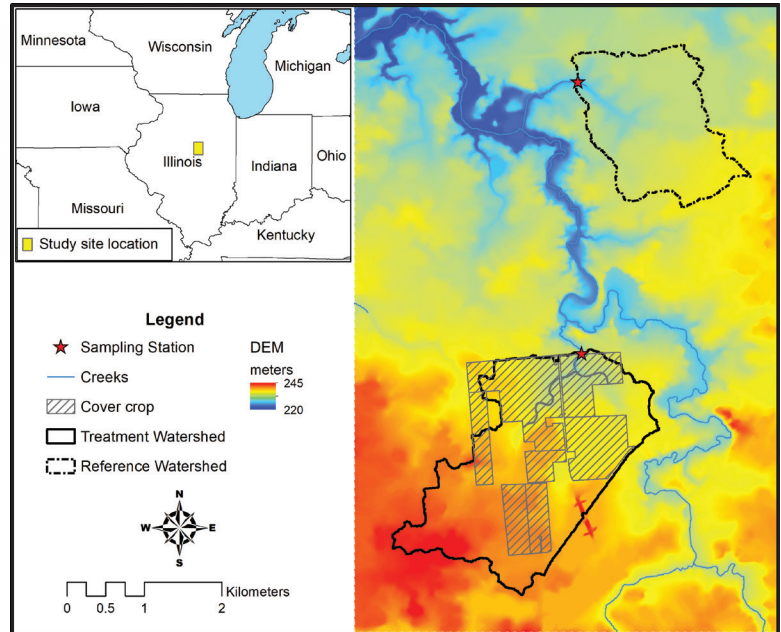
Researchers:

Catherine O'Reilly, William Perry, Wondy Seyoum, Illinois State University;

Shalamar Armstrong, Purdue University

Cover crops over a watershed

Nutrient loss from Midwest fields can lead to pollution of drinking water sources and has been attributed to the development of hypoxic zones in the Gulf of Mexico. Using cover crops shows the potential to reduce nutrient loss, but most of this research has been done at the plot or field scale levels. This project explores whether the use of cover crops can effectively be scaled up to the watershed – not just a field – and whether the addition of cover crops alone, with no other changes in farm management, can improve surface water quality.



Study sites and data collection

- Two watersheds in McLean County, no changes to farm management other than adding cover crops.
- Treatment watershed: 1100 acres. Cover crops (radish and oat or cereal rye) over winter on 700 acres with one 24-inch tile main as outflow.
- Reference watershed: 600 acres with two 12-inch tile drains as outflow.
- Composite flow-based water samples are collected at the tile drain outflow. Samples are filtered and analyzed on a flow-injection analysis machine for nitrate, ammonium, and phosphate at the Laboratory for Environmental Analyses at ISU.

What research is showing

- Large scale cover cropping is possible
- Cover crops improved surface water quality
 - Reduced nitrogen losses are mostly due to decreased discharge
- Storm events were the major driver of nutrient loss
- Winter-hardy cover crops produce the best results
 - Higher water quality
 - Reduced nutrient losses
- Results over several years will really tell the story

