North Raccoon Farm to River Partnership Project

ACWA Agriculture's Clean Water Alliance

Spring 2025

The North Raccoon Farm to River Partnership: An Iowa Water Quality Initiative to implement in-field and edge-of-field practices that keep nitrogen and phosphorus out of Iowa waters.

A Renewed Partnership

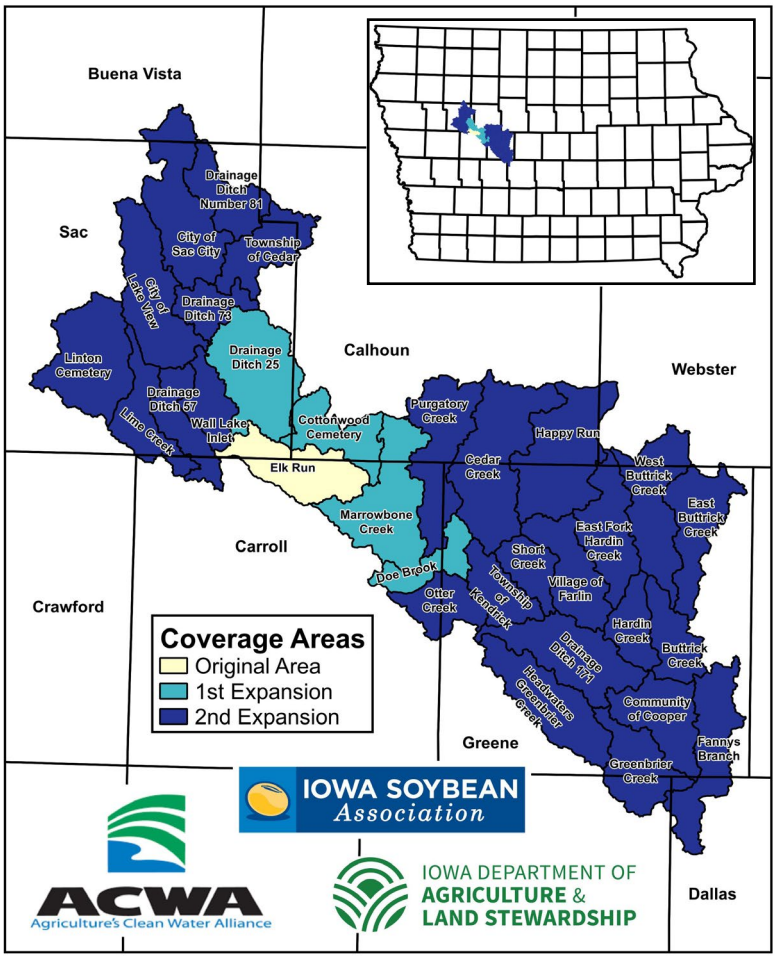
The North Raccoon Farm to River Partnership, an Iowa Water Quality Initiative (WQI) that began in 2018, has been renewed for three years. The project started in 2015 in the Elk Run watershed, which covers portions of Sac, Calhoun, and Carroll counties. It has now grown to include more than half of Sac County and encompasses nearly all of Greene County. The Farm to River Partnership is managed by Agriculture's Clean Water Alliance (ACWA) and funded through the Iowa Department of Agriculture and Land Stewardship (IDALS).

"With the geographic expansion of the project, we are targeting batch-and-build installation in Sac County and cover crop adoption in Greene County," says Joe Wuebker, conservation agronomist and project manager. "But these practices can be adopted in all of the Farm to River Partnership area and cost share is available through this WQI."

With the renewal of the Farm to River Partnership, new goals have been established as well. Leaders at IDALS, ACWA and Wuebker arrived at a goal of 25 edge-of-field practices installed over the next three years and 7,000 new acres of cover crops annually. These practices are ways farmers and landowners can help reduce nutrients and excess runoff entering Iowa

Partnership continued on page 2

Farm To River Expansion



GOALS:

25 EDGE-OF-FIELD PRACTICES including bioreactors & saturated buffers

7,000 COVER CROP ACRES per year

Partnership continued from page 1

water bodies.

One technique to increase practices quicker is batch-and-build. It entails geographically grouping sites for installations of bioreactors and saturated buffers within the same time frame. Anyone in the project can have an edge-of-field practice installed in an appropriate location, but the focus will be in Sac County. And with the Farm to River Partnership, there is no cost to the farmer or landowner for installation.

"We've identified more than 180 potential sites for these practices in Sac County," says Wuebker. "We are focusing on the southeast portion of the county and will work our way north."

The batch-and-build efforts began last fall, in partnership with the Sac County Board of Supervisors serving as the fiscal agent for the project. The board will help with permits and other important documents, hiring contractors, and working between the grant funders and contractors to ensure payments are made after installation.

"We've had a lot of interest and I've met with many people to discuss their benefits," Wuebker says. "We can visit a bioreactor just north of Sac City, so farmers and landowners can see what it looks like and learn how it functions."

The other goal of adding cover crops to the landscape doesn't require big earth-moving equipment, but they come with a learning curve. Farmers who have not used cover crops before can be reluctant to start. Wuebker is working with local NRCS staff as well as Iowa Cover Crop, who are all available to address questions and issues that arise throughout the first years of adoption. Located in Greene County, Iowa Cover Crop is collaborating with the Farm to River Partnership to coordinate cover crop application and cost share for the entire project.

Wuekber is confident in reaching the cover crop goal this year. He says cover crops were planted last fall on more than 6,500 acres — just 500 acres shy of the goal — and technical assistance was requested on another 4,000 acres, most of which were in Greene County.

The flow control box of a bioreactor is installed adjacent to a crop field.

A cereal rye cover crop thrives in a field.

Water Monitoring Update

After nearly four years of drought in some parts of Iowa, spring rains arrived restoring soil moisture to normal levels. Although good news for farmers, Iowa soils can have an excess of residual nitrate-N that is vulnerable to leaching into rivers and streams after an extended dry period.

Stream flow and nitrogen loss varies widely in response to annual precipitation amounts, similar to crop yield. When the analysis of yield (production per area) is broadened to include environmental measurements, it can help assess progress toward Iowa Nutrient Reduction Strategy goals. Even though crop and nutrient yields are impacted by weather, some key differences exist.

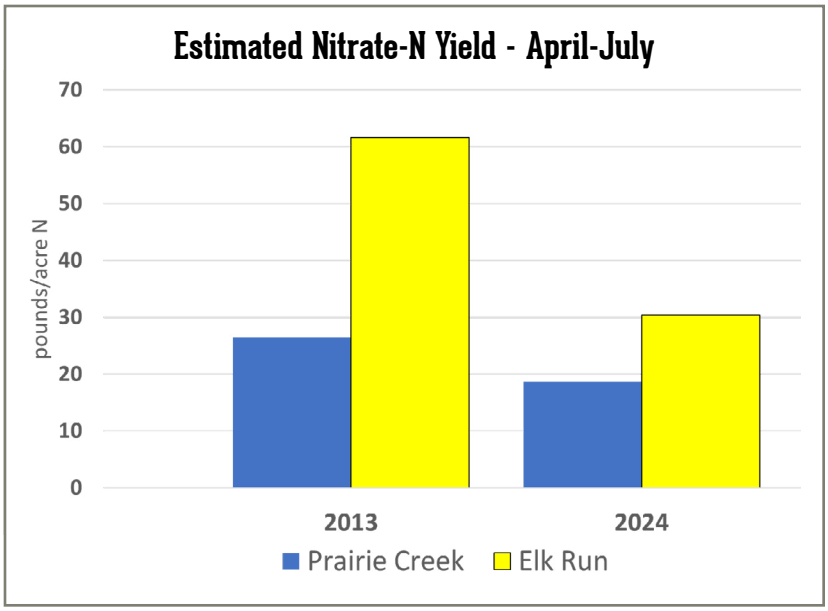


Figure 1. Nitrate-Nitrogen loss from two North Raccoon River watersheds post drought.

Crop yields can suffer poor performance by too little or too much water. But that cycle ends once the crop is harvested. In soil and water, nitrate-N delivery to rivers is generally more problematic as conditions get wetter, and there can be a lag from prior years' conditions continuing to add nitrate-N. Because this cycle is irregular and often longer, assessing how well agronomic and conservation practices address the issues is confounded.

Year to year weather variability generally has a bigger impact than any single practice, so it is important to continue studies over time to reach a conclusion. While weather varies each year, patterns are cyclical and different years can experience similar conditions. Comparing wet years to wet years and dry years to dry years provides a better picture than comparing chronological years.

Another technique to evaluate environmental data over time is to use a paired approach. By comparing two separate but similar areas, differences can be attributed to something besides the overall conditions affecting both.

Elk Run is a 21,000-acre watershed straddling Carroll and Calhoun counties. It was the original Water Quality Initiative before expanding to the Farm to River Partnership. Nearby Prairie Creek watershed (outside the Farm to River boundaries) drains 18,000 acres of similar agricultural land and has more typical stream nitrate-N levels.

Precipitation patterns were similar in the two watersheds. Nitrate-N yields were lower in 2024 than in 2013, but the difference between streams shows a greater nitrate-N reduction in Elk Run (Figure 1). If the discharge had been the same in June 2024 as June 2013, Prairie Creek would have lost the same amount of nitrogen (26 lbs/ac). As it was, Prairie Creek nitrogen loss was 29% lower in 2024.

In Elk Run, nitrate-N loss was 51% lower in 2024 than in 2013. Further evidence of improvement is shown in Elk Run when the same flow is assumed for June 2024; there would still be a 34% reduction between the two years, while Prairie Creek showed none. While the difference in nitrogen loss from Prairie Creek was driven by less flow in June, Elk Run showed a more significant reduction based on factors beyond the water yield difference.

The reductions in Elk Run suggest that increased efforts significantly impacted nitrogen loss from the watershed compared to other Raccoon River tributaries. As farmers implement more conservation and edge-of-field practices, the amount of nitrogen loss should continue to improve.

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Get Involved Today!

If you are wondering how an edge-of-field practice would fit on your farm, now is the time to act. Cost-share funding is available through the Farm to River Partnership and the RCPP for these practices:

- Bioreactors, saturated buffers
- Cover crops
- Targeted wetlands and oxbow wetland restoration

Other opportunities are available at no cost:

- Tile water monitoring
- Whole farm assessments to identify ideal choices for conservation practices
- Replicated strip trials to test practices and products on your farm with your management systems.

Contact **Joe Wuebker** to discuss any of these options.
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ACWA is a non-profit organization of Iowa ag retailers that agree water quality is vital to the future of farming. By helping their farmer clients with management options, adopt conservation practices, ACWA members are making strides toward the alliance's goals of farmer profitability combined with improving water quality.

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