

Farmer-Driven Conservation: Setting Actionable Goals in the Black Slough Watershed

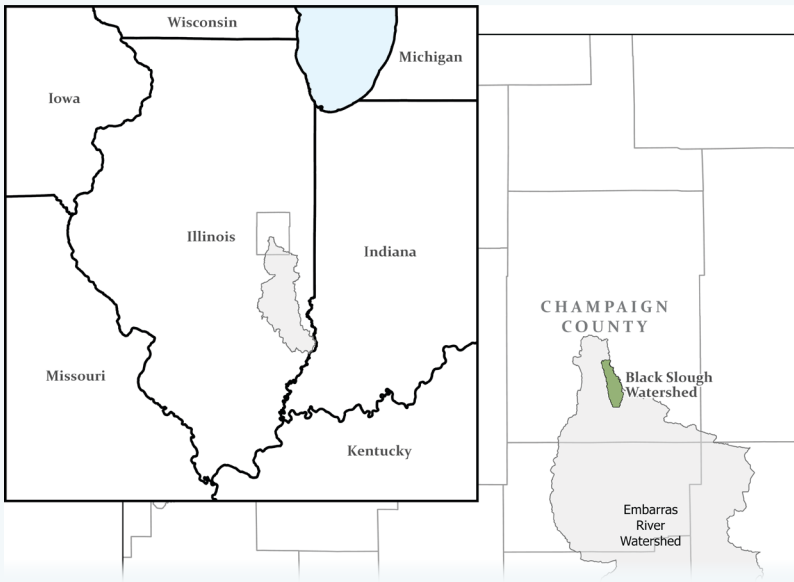
Sand County Foundation partnered with farmers in the Black Slough Watershed, Champaign County, IL, to identify conservation priorities that could help them achieve their water quality target of reducing agricultural nitrogen loss by 30%. The farmers have already experimented with conservation, including cover crops and nitrogen management, with support from Dan Schaefer of the Illinois Fertilizer & Chemical Association (IFCA). Recently, some farmers have shown interest in strip tillage, double-cropping winter wheat and soybeans, and more intensive nitrogen management.

The Black Slough Watershed farmer-led group aims to reduce agricultural nitrogen loss by 30%.

Sand County Foundation set out to evaluate if these practices could achieve the 30% target. By considering farmers' enthusiasm for specific practices, we could customize realistic, practical conservation scenarios grounded in regional context. This collaborative approach encourages farmer adoption because the conservation scenarios align with transparent goals, so potential water quality improvements are better understood and progress can be tracked. While the modeling does not generate farm-specific outcomes, it encourages discussion and motivates watershed-wide change.

Methodology

Sand County Foundation modeled current nutrient and sediment reduction rates based on a baseline corn-and-soybean rotation with conventional tillage and nutrient management. This analysis used a simple, web-interface water quality model called the Pollutant Load Estimation Tool (PLET), created by the U.S. Environmental Protection Agency (EPA), to estimate sediment and nutrient losses in a watershed based on land use and conservation practices. Using data from the IFCA and the University of Illinois, we assessed the reductions in runoff nitrogen (N) and phosphorus (P) loss from the from practices implemented in 2026.



***The Black Slough Watershed** is located in Champaign County, Illinois, and is a tributary of the Embarras River. The watershed covers 7,130 acres, 6,444 of which are dedicated to row crop production. Researchers at the University of Illinois have tracked water quality metrics in the Upper Embarras River since 1993 and are now completing additional research linking conservation practice improvements in the Black Slough watershed to those in the Upper Embarras.*

Evaluating Scenarios

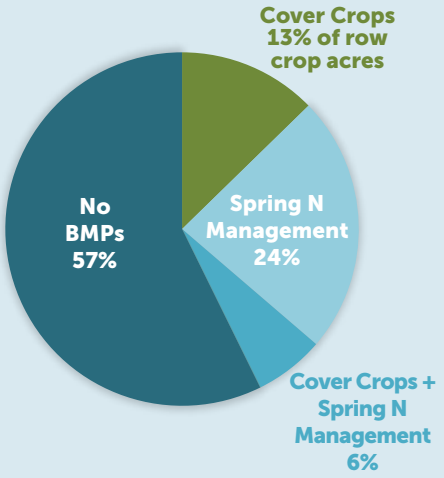
We developed scenarios that included farmer-selected practices to estimate how many acres of these practices are needed to reach the 30% nitrogen loss reduction goal across the watershed.

Reaching the watershed goal of 30% nitrogen reduction is possible with incremental investments in conservation practice adoption across the watershed. With this document as a framework, farmers and partners can focus on which scenarios or adoption rates may be most likely to help them achieve their goal.

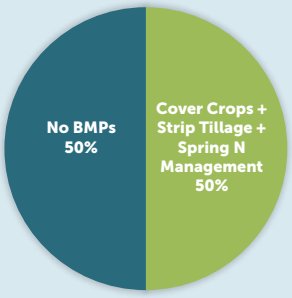
Current Conservation Adoption

7% N loss reduction*
10% P loss reduction*

*N as total nitrogen in runoff and P as total phosphorus in runoff.

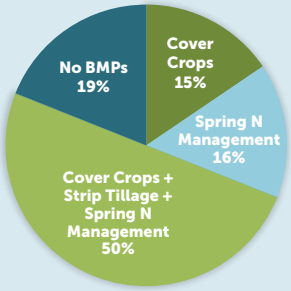


Scenario A



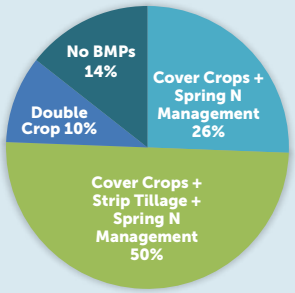
22% N loss reduction
35% P loss reduction

Scenario B



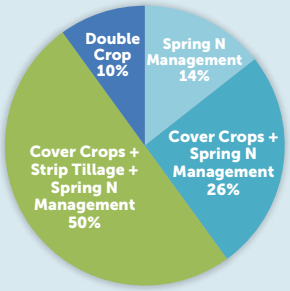
26% N loss reduction
42% P loss reduction

Scenario C

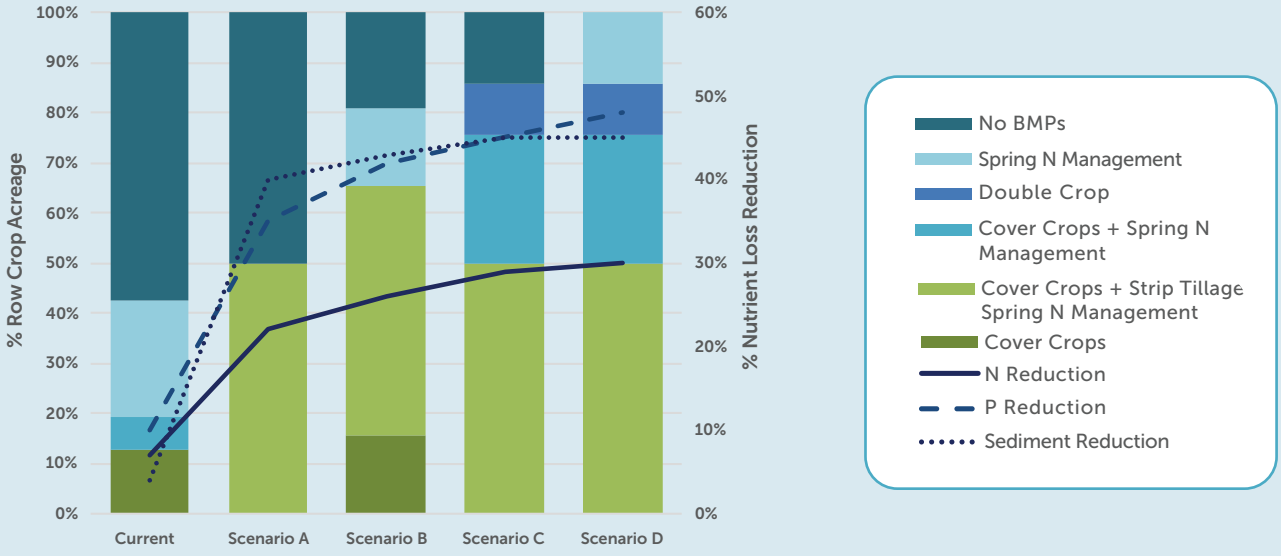


29% N loss reduction
45% P loss reduction

Scenario D



30% N loss reduction
48% P loss reduction



FOR MORE INFORMATION:

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