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Social factors constrain efforts to reduce tile nitrate losses

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Aerial image of the study plots showing visible differences in crop N status resulting from impos

Aerial image of the study plots showing visible differences in crop N status resulting from imposed N treatments. Photo by Tyler Nigon.

Watersheds in the upper Midwest Corn Belt are flat and extensively tile-drained, producing high yields of corn and soybeans but also large losses of nitrate. These watersheds are the focus of many government programs to reduce tile nitrate losses, but there has been little success so far.

In an article recently published in the *Journal of Environmental Quality*, researchers report on multi-year studies from two watersheds in east-central Illinois where a range of nitrate reduction practices, such fertilizer timing and drainage water management, were evaluated on tile-drained fields, along with the perspectives of landowners and farmers.

The team found that all practices reduced nitrate losses to some extent (range: 30 to 80%), except for drainage water management. However, interviews and surveys with landowners and farmers indicated that financial and operational constraints limited their willingness to adopt conservation practices that did not maintain or increase yields, despite their holding strong environmental and stewardship convictions.

Given the need for system-wide nitrate management practices to achieve results, cooperative programs that connect and coordinate farmers may be valuable. However, this study suggests that the large-scale nitrate reductions being called for in the Mississippi River Basin will be difficult to meet with the policy and production systems currently in place in these watersheds.

[Correction made on May 13, 2020 after original online publication: The citation to 10.1002/jeq2.20028 was incorrect and removed from this article.]

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