**Cover Crop Mixtures Did Not Affect Crop Yields**

Cover crop mixtures are often promoted as a way to build soil health. However, only a few studies have reported on how these mixtures (with more than two species) affect cash crop yields in rotation.

In an article recently published in *Agricultural & Environmental Letters*, researchers report on results of a three-year study in central Pennsylvania in which six different cover crop species were grown in monoculture and in mixture within an organic corn–soybean–winter wheat rotation. The cover crops were planted in two windows: following corn before soybean and following wheat before corn.

The team found that the cover crop mixtures did not affect yields of any of the cash crops compared with a no-cover control. In contrast, the monoculture of winter pea increased corn yield and the monoculture of cereal rye decreased it. This shows that mixing cereal rye with legumes and brassicas can reduce the risk that it will drag down the yield of the following corn.

High-biomass cover crop species such as cereal rye provide many important benefits, including erosion control, weed suppression, nitrogen retention, and soil C accumulation. This study indicates that both diverse cover crop mixtures and diverse crop rotations can help farmers benefit from these high-biomass species without compromising crop yield.


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**Saturated Buffers a New Option on Conservation Menu**

Tile drainage is a necessary part of crop production across the U.S. Midwest that has been linked to chronic nitrate pollution. Saturated buffers are an edge-of-field conservation practice to reduce nitrate pollution from tile-drained fields, but because this is a relatively new practice, many questions remain about their potential application.

In an article recently published in *Agricultural & Environmental Letters*, researchers used a simple GIS approach with publicly available datasets to estimate the total stream length suitable for saturated buffer implementation across 11 Midwestern states. They then used those results to estimate the reduction in nitrate pollution assuming saturated buffers were installed in all the suitable locations.

More than 75,000 km of cumulative stream banks—nearly two times the earth’s circumference—were deemed suitable to host a saturated buffer based on the local streams, soils, and proximity to likely tile-drained areas. Widespread implementation of this practice alone could provide a benefit of as much as 10% reduction of nitrate pollution from Midwestern tile-drained land.

There are no “silver bullets” to reducing nitrate pollution from tile-drained fields while maintaining crop production, but saturated buffers are a new, practical option.


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*A young cover crop mixture containing oat, rye, radish, canola, pea, and clover. Photo by Macdonald Burgess.*

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*Below: Aerial view of a saturated buffer in Illinois. Photo by J. Burel/UIUC. Inset: University of Illinois researchers discussing the water table at a saturated buffer in Illinois. Photo by J. Chandrasoma/UIUC.*

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