Science Societies

Winter oilseeds reduce surface runoff

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Water quality impacts were compared in fall-planted winter oilseed–soybean intercropping sys

Water quality impacts were compared in fall-planted winter oilseed–soybean intercropping systems (shown here in late June) with other cover-cropped and fallow systems. Photo courtesy of Carrie Eberle.

The cold, wet climate of the Upper Midwest has hindered growers from widely adopting winter cover cropping systems because they are difficult and expensive to establish. New research demonstrated that winter oilseeds, winter camelina and pennycress, can be established successfully in the fall. These cover crops improve cost–benefit outcomes when farmers relay or intercrop them with a short-season soybean in the spring, but the environmental benefits still need to be established.

New research in the *Journal of Environmental Quality* investigated potential surface water quality benefits of fall-established winter camelina and pennycress oilseeds that were intercropped with soybean in the spring. Compared with fallow, these oilseeds trapped more snow, which increased volume and nutrient content of snowmelt runoff. But they reduced volume, sediment, and nutrient content during high-intensity rainfall

events. These winter oilseeds also sequester available N and reduce soil water nitrates.

So far, these positive findings—including the balance between snowmelt nutrient losses and spring nutrient retention—indicate that these winter oilseeds are prime candidates as alternative winter cover crops. The added economic benefit to farmers from oilseed harvest should encourage adoption and help improve environmental outcomes of cropping systems across the Upper Midwest.

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Weyers, S.L., Gesch, R.W., Forcella, F., Eberle, C.A., Thom, M.D., Matthees, H.L., … & Strock, J.S. (2020). Surface runoff and nutrient dynamics in cover crop–soybean systems in the Upper Midwest. *Journal of Environmental Quality, 49*. **https://doi.org/10.1002/jeq2.20135**

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