



Cover crop management decisions impact phosphorus release

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Cover crop species and termination method directly impact phosphorus release from cover crop

Cover crop species and termination method directly impact phosphorus release from cover crop tissue. To promote water quality, producers should strive to minimize the potential impact of cover crops as a source of phosphorus loss through careful species selection and limiting exposure to freezing conditions.

Non-point agricultural sources of phosphorus loss are a known contributor to the decrease of surface water quality. As such, cover crops have been proposed as a promising practice to help curb phosphorus (P) loss.

New research in the *Journal of Environmental Quality* addresses the impacts of cover crop species (rapeseed, crimson clover, and triticale), termination method (clipping, freezing, and herbicide), and extraction timing (1, 7, and 14 days after termination) on water-extractable P concentrations of cover crop tissue.

The authors found water-extractable P concentrations of cover crop tissue are directly related to species, termination method, and extraction timing. Species selection may be especially important when working to mitigate P loss, as evident by rapeseed releasing less water-extractable P than crimson clover and triticale regardless of termination method or extraction timing. Freezing consistently resulted in the greatest water-extractable P release with all termination methods. Documenting the time between termination and extraction is important when reporting water-extractable P since its release from cover crop tissue increased as time between termination and extraction increased.

This study suggests that producers may be able to reduce potential P loss from cover crops by selecting crop species with low water-extractable P concentrations and minimizing cover crop exposure to freezing conditions.

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Carver, R.E., Nelson, N.O., Roozeboom, K.L., & Kirkham, M.B. (2020). Species and termination method effects on phosphorus loss from plant tissue. *Journal of Environmental Quality*, 49, 97–105. <https://doi.org/10.1002/jeq2.20019>

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