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Seeding cover crops into standing cash crops decreases greenhouse gas emissions

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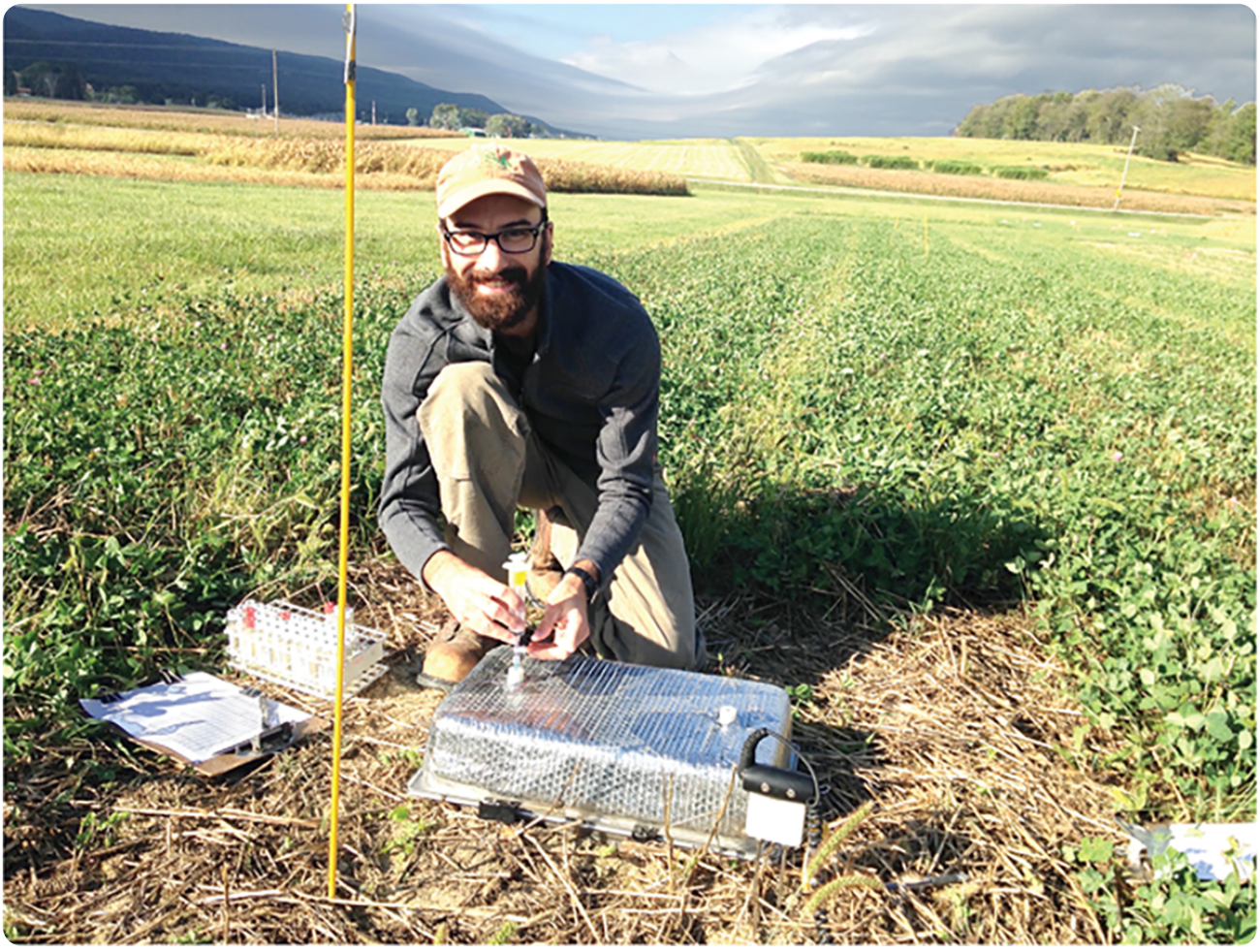

Lead author Andrew Morris measuring nitrous oxide emissions. Photo by Brosi Bradley.

Nitrous oxide is a greenhouse gas with a global warming effect 300 times that of carbon dioxide. The primary human source of nitrous oxide is agriculture where nitrogen inputs such as fertilizer and manure can increase nitrous oxide emissions from soil.

This is particularly problematic during fallow periods, such as after winter grain harvest in a typical corn–soybean–winter grain crop rotation. One strategy to extend the growing season is to use cover crop underseeding, where a cover crop is seeded into a standing cash crop so that it is already growing after cash crop harvest. In a new *Journal of Environmental Quality* article, researchers tested cover crop underseeding as a strategy to capture soil nitrogen and decrease nitrous oxide emissions.

The research team measured soil nitrous oxide emissions after winter grain harvest and found that emissions were lower under a cover crop than in a fallow field and that the nitrous oxide was produced by a different group of bacteria. This means that cover crop underseeding could minimize a major period of greenhouse gas emissions without requiring any new technology.

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Morris, A.H., Isbell, S.A., Saha, D., & Kaye, J.P. (2021). Mitigating nitrogen pollution with under-sown legume–grass cover crop mixtures in winter cereals. *Journal of*

Environmental Quality. https://doi.org/10.1002/jeq2.20193

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