Science Societies

Farmers, researchers see varying cover crop benefits

September 1, 2022



Researcher Kristen Brennan performs a visual assessment of soil structure in the field. Photo by Ann Journey.

Minnesota researchers evaluated farms enrolled in USDA-NRCS cover crop contracts and neighboring fields that did not use cover crops. They also surveyed the farmers for their observations. The team found that few of the 42 soil indicators changed with cover crops after one to three years. Farmers' observations aligned with some the researchers' findings, but scientists and farmers largely came away with different results of their respective soil health assessments.

Researchers assessed a subset of fields for response to heavy rain and found that cover crops did not reduce runoff or loss of nitrogen, phosphorus, and carbon. They did measure some improvements, including more earthworms, more cellobiohydrolase enzyme activity (indicating microbial activity), and better Visual Evaluation of Soil Structure results.

Farmers participating in the NRCS contracts reported better physical soil structure, plus benefits such as earlier planting dates and consistent crop growth across fields. Their positive observations increased when they used more diverse cover crops.

The research highlights the need to co-design sampling systems with farmers and other relevant partners to capture the metrics of interest to farmers and also to continue developing new indicators to monitor and manage soil health.

Dig deeper

Gutknecht, J., Journey, A., Peterson, H., Blair, H., & Cates, A. (2022). Cover crop management practices to promote soil health and climate adaptation: Grappling with varied success from farmer and researcher observations. *Journal of Environmental Quality*. **https://doi.org/10.1002/jeq2.20383**

More science

Back to issue

Back to home

Text © . The authors. CC BY-NC-ND 4.0. Except where otherwise noted, images are subject to copyright. Any reuse without express permission from the copyright owner is prohibited.