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Pasture systems benefit soil health and grain yields

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Co-authors Newell Kitchen, a soil scientist with USDA-ARS (left), and Jeffrey Svedin, an agronomist with AgriNorthWest and lead author on the study, collect soil samples from a cornfield in central Missouri. Photo by Matthew Henry.

Pasture systems are a recommended conservation practice to mitigate widespread erosion and other negative environmental effects common with corn and soybean cropping. However, when pastureland is converted to corn and soybean systems, there is little data on the long-term effects on grain productivity and soil health.

In a recent *Agricultural & Environmental Letters* article, researchers tackled this question. The team contrasted two adjacent fields: one that had been in pasture for three decades before transitioning to a corn–soybean rotation in 2011, the other a corn–soybean rotation with annual tillage. In 2011, both fields were converted to no-till with cover crops.

Results showed the pasture field produced greater annual yields than the continuously cropped system, even after a decade of farming. Yield benefits were clear in both soybean and corn production with an average increase of 46%. Soil health metrics were also greater (60%) in the former pasture field. These results demonstrate the legacy effects of historical management practices on grain yield and soil health while verifying the benefits of perennial pasture systems on long-term sustainability of soil resources and crop productivity.

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Svedin, J., Kitchen, N.R., Ransom, C.J., Veum, K.S., & Myers, R.L. (2022). A tale of two fields: Management legacy, soil health, and productivity. *Agricultural & Environmental Letters*, *7*, e20090. **https://doi.org/10.1002/ael2.20090**

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