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Cover crops increase microbial biomass and soil carbon

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Plots without cover crops next to actively growing cover crops.

Agricultural soils are largely degraded or under threat of degradation. Agricultural practices are now seeking to improve soils while also maintaining productivity. Cover crops are one such practice gaining popularity. However, relatively little is known regarding how cover cropping will affect soil microbial community composition and function.

In an article recently published in *Agroecosystems, Geosciences & Environment*, researchers report on the effect cover cropping has on soil microbes. This research spanned multiple actively managed farms across Virginia.

The team found that cover cropping increased active microbial biomass by 64% and bioavailable soil carbon by 37% in one season. Surprisingly, cover crops did not increase the ratio of fungi to bacteria. The effect of cover crops on soil microbes was also influenced by biomass, suggesting that managing cover crop biomass may allow farmers to indirectly manage soil microbes.

Given the need to improve soil health, implementing cover cropping regimes may lead to shifts in soil microbial community composition and function. These shifts may ultimately increase soil carbon stores. However, farmers may need to actively manage cover crops with the aim of increasing biomass to optimize these outcomes.

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Strickland, M. S., Thomason, W. E., Avera, B., Franklin, J., Minick, K., Yamada, S., and Badgley, B.D. (2019). Short-term effects of cover crops on soil microbial characteristics and biogeochemical processes across actively managed farms. *Agroecosystems, Geosciences & Environment*, 2(180064).

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