



Experts talk soil health—Newsletter article #3

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No-till, cover crops go hand-in-hand to build healthy soils, expert says

Even after 30 years of no-till and cover crop experience, Dwayne Beck, manager of South Dakota State University's Dakota Lakes Research Farm near Pierre, South Dakota says there's still much to learn about mimicking nature. But he says the critical first step is to realize that the soil is living and part of a larger ecosystem.

"The diverse plants of the prairies cycled carbon back to the soil, and that slow, steady return of carbon to the soil boosted soil organic matter which continuously fed billions of microbes," Beck says. "Those microbes, in turn, broke down organic matter, making nutrients available to plants. This cycle produced the high levels of active organic matter in virgin prairie soils that accounted for the astounding yields sodbusters enjoyed in past generations."

"In tillage-based systems, mineralization is 'boom and bust.' Booms occur after tillage with busts following shortly after. In contrast, mineralization in no-till soils is more evenly spread over the season," Beck says.

Taken together with intensive rotation, no-till becomes a comprehensive program—there's no need to fall back on occasional tillage, Beck says. "And you don't want to till occasionally, because one year of tillage destroys that environment for microorganisms you've been building for years."

"Once you realize the soil is living, it makes sense that the living organisms in the soil need a balanced diet, just as your livestock [need a balanced diet]," Beck says. "You can't provide that diet with a continuous crop. That's where cover crops and crop rotations come in; they're needed to give that variety of food to the soil," he says.

For more information on how to "Unlock the Secrets in Your Soil," call or visit your local USDA Natural Resources Conservation Service office or visit www.nrcs.usda.gov.

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