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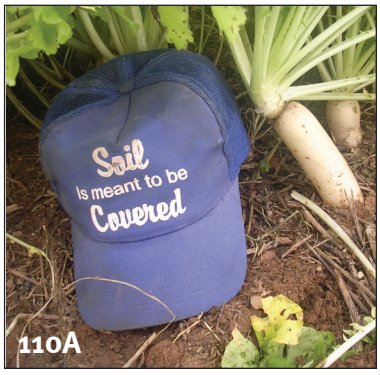

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Lake at dusk.
Photo by J. Grudzinski.

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More on the no-till revolution

"Agriculture's *no-till* revolution?" by David R. Montgomery in the May/June 2008 issue (63[3]:64A–65A) prompted the following letters to the editor.

David Montgomery's excellent article "Agriculture's *no-till* revolution?" pointed out that "no-till farming can bring soil erosion rates down close to soil production rates." It was not point out, however, that no-till—as usually performed—requires increased applications of herbicides to replace the weed control that might otherwise be accomplished with mold-board plows. Organic no-till, using no herbicides, would be much preferred for many reasons. Research into organic no-till, however, is still in its infancy. The Rodale Institute has achieved encouraging weed control results by planting into a vetch cover crop rolled flat with a roll-crimper.

Peter Bray
Organic gardener
Birmingham, Michigan

David Montgomery's article on agriculture's no-till revolution was interesting, especially as a geologist "who gets it." But a transition may be a better description than a revolution. No-till crop production started about 45 years ago and has progressed to include almost 25% annual crop acres in 2004. However, growth has been relatively slow lately, and it is unknown how much growth has occurred in the past 4 years. As stated in the article, no-till improves soil quality, water quality, and reduces carbon dioxide emissions to the atmosphere. However, to see these benefits and changes, it takes 4 to 8 years of *continuous no-till*. And the amount of continuous no-till in the United States has never been quantified (best guess is only 8% to 12% of cropland).

Continuous no-till over time *improves* the soil resource base (better than just reducing soil loss to "T") and will result in increased yields in future years (especially in dry years). Continuous no-till (especially when combined with cover crops) will stimulate the soil biological process, which will improve nutrient cycling and aggregate stability, resulting in the need for less commercial fertilizer and less runoff.

The United States has no goal or initiative to increase the adoption of continuous no-till (thank goodness for a few champions), even though continuous no-till is the most cost-effective conservation practice for cropland. Continuous no-till is the ultimate in sustainable crop production and, if done properly, results in high yields and the highest profits.

Dan Towery
Retired USDA Natural Resources Conservation Service agronomist
Ag Conservation Solutions
West Lafayette, Indiana

Clarification

An error has been brought to my attention in my recent Viewpoint article in the *Journal of Soil and Water Conservation* (Montgomery 2008). Somewhere along the way, the wording in various drafts changed and lost the sense of the original source. Specifically, the last complete sentence in the left-hand column of page 65A should have read "Adoption of no-till practices on the world's 1.5×10^9 ha (3.7×10^9 ac) of cultivated land has been estimated to be capable of absorbing more than 90% of *the increase in* global carbon emissions for the several decades it would take to rebuild soil organic matter." Although I naturally regret this potentially confusing error, it does not alter the conclusion that no-till farming "provides a win-win strategy for increasing agricultural productivity while improving the environment and partially mitigating the greenhouse effect" (Montgomery 2008, p. 65A). For example, Lal (2004) has pointed out that implementing strategies to sequester organic carbon in agricultural and degraded soils has the "potential to offset fossil-fuel emissions by 0.4 to 1.2 gigatons of carbon per year, or 5 to 15% of the global fossil-fuel emissions" (Lal 2004, p. 1623).

David R. Montgomery
University of Washington

References

Lal, R. 2004. Soil carbon sequestration impacts on global climate change and food security. Science 304:1623-1627.

Montgomery, D.R. 2008. Agriculture's *no-till* revolution? Journal of Soil and Water Conservation 63(3):64A–65A.

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