

Table of Contents

A SECTION

EDITOR'S DESK

- 96A **The gap between cover crop knowledge and practice**
Mark Anderson-Wilk

READERS' FORUM

- 97A **More on the no-till revolution**

HOMEFRONT

- 98A **Continuing work to advance the conservation cause**
Craig A. Cox

VIEWPOINT

- 99A **Americans should be proud of their accomplishments in soil conservation: A tale of two regions**
Stanley W. Trimble

CONSERVATION IN ACTION

- 100A **The conservation report from Iraq**
David R. Speidel

IN THE NEWS

- 102A **Ground lost and gained in 75 years of conservation at Coon Creek**
Joseph Hart

CONSERVATIONIST PROFILE

- 107A **Conservation pioneer Melville H. Cohee**
Peggie James

CONSERVATION POLICY

- 109A **SAFE: New Conservation Reserve Program practice to benefit soil, water, and wildlife**
Jason C. Selvog

CONSERVATION IN PRACTICE

- 110A **Mixtures and cocktails: Soil is meant to be covered**
Steve Groff

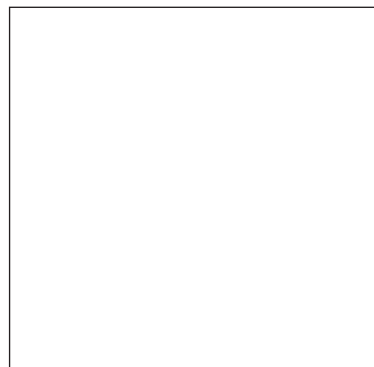
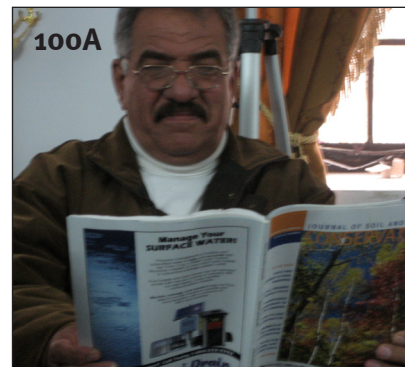
FEATURES

- 113A **Promise and limitations of soils to minimize climate change**
Rattan Lal

- 119A **Forest carbon offsets in the United States**
Burl Carraway and Weihuan Xu

- 121A **Badlands and gully erosion in the Karoo, South Africa**
John Boardman and Ian Foster

- 126A **Integrated nutrient management for improving crop yields and nutrient utilization efficiencies in China**
Mingsheng Fan, Zhenling Cui, Xinping Chen, Rongfeng Jiang, and Fusuo Zhang





On the Cover
Lake at dusk.
Photo by J. Grudzinski.



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- IDEAS & INNOVATIONS**
- 129A** **Deep-planting methods that require minimal or no irrigation to establish riparian trees and shrubs in the Southwest**
David R. Dreesen and Gregory A. Fenchel
- IMPLEMENTATION UPDATE**
- 134A** **Drop-box weir for measuring flow rates under extreme flow conditions**
James V. Bonta
- TECH TRANSFER BRIEFING**
- 135A** **Benefits of agroforestry and grass buffers in grazed pasture systems**
Sandeep Kumar, Stephen H. Anderson, Laura G. Bricknell, Ranjith P. Udawatta, and Clark J. Gantzer

RESEARCH SECTION

- 173** **Modeling long-term soil losses on agricultural fields due to ephemeral gully erosion**
L.M. Gordon, S.J. Bennett, C.V. Alonso, and R.L. Bingner
- 182** **Nitrogen mineralization from broiler litter applied to southeastern Coastal Plain soils**
R.K. Hubbard, D.D. Bosch, L.K. Marshall, T.C. Strickland, D. Rowland, T.S. Griffin, C.W. Honeycutt, S.L. Albrecht, K.R. Sistani, H.A. Torbert, B.J. Wienhold, B.L. Woodbury, and J.M. Powell
- 193** **Modeling runoff and sediment yields from combined in-field crop practices using the Soil and Water Assessment Tool**
D. Maski, K.R. Mankin, K.A. Janssen, P. Tuppad, and G.M. Pierzynski
- 204** **Assessing manure management strategies through small-plot research and whole-farm modeling**
A.M. García, T.L. Veith, P.J.A. Kleinman, C.A. Rotz, and L.S. Saporito
- 212** **Trends in surface-water quality of an intermittent cold-desert stream**
C.A. Ellison, Q.D. Skinner, and L.S. Hicks
- 224** **Soil hydraulic properties influenced by agroforestry and grass buffers for grazed pasture systems**
S. Kumar, S.H. Anderson, L.G. Bricknell, R.P. Udawatta, and C.J. Gantzer
- 232** **A design aid for determining width of filter strips**
M.G. Dosskey, M.J. Helmers, and D.E. Eisenhauer
- 242** **An economic risk analysis of no-till management and rental arrangements in Arkansas rice production**
K.B. Watkins, J.L. Hill, and M.M. Anders
- 250** **Comparing and predicting soil carbon quantities under different land-use systems on the Red Ferrosol soils of southeast Queensland**
T.N. Maraseni, N.J. Mathers, B. Harms, G. Cockfield, A. Apan, and J. Maroulis
- 257** **Sediment and phosphorus removal from simulated storm runoff with compost filter socks and silt fence**
L.B. Faucette, K.A. Sefton, A.M. Sadeghi, and R.A. Rowland

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 pointed 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

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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

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- 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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