JOURNAL OF SOIL AND WATER CONSERVATION



142A TAXING NUTRIENT LOADS

Can environmental taxes help manage nutrient loads?

By Philippe Baveye

148A A FUTURE FOR SOIL SCIENCE
A frank discussion on the discipline of soil science, and the trend toward a profound crisis.

By Sandra Hoffmann, James Boyd, and Eleanor McCormick

DEPARTMENTS

152A

132A HOMEFRONT — THE NEXT 50 YEARS

Column by the Soil and Water Conservation Society executive director

executive director

134A RAISE YOUR VOICE

136A NOTEBOOK

Conservation News You Can Use

CONSERVOGRAM

Letters to the Editor

The Soil and Water Conservation Society in Action

CONSERVATION

On the Cover Cover image by PhotoDisc.



RESEARCH

243	TRACKING FARMLAND CONVERSION AND FRAGMENTATION USING TAX PARCEL DATA C.D. Clark, W. Park, and J. Howell	
250	PRIORITIZING FARMLAND PRESERVATION COST-EFFECTIVELY FOR MULTIPLE OBJECTIVES E.A. Machado D.M. Stoms, F.W. Davis, and J. Kreitler	
258	COMBINING MANAGEMENT PRACTICES TO REDUCE SEDIMENT, NUTRIENTS, AND HERBICIDES IN RUNOFF M.B. Zeiman, K.A. Janssen, D.W. Sweeney, G.M. Pierzynski, K.R. Mankin, D.L. Devlin, D.L. Regehr, M.R. Langemeier, and K.A. McVay	
268	COMPOST EFFECT ON WATER RETENTION AND NATIVE PLANT ESTABLISHMENT ON A CONSTRUCTION EMBANKMENT J.W. Singer, R.W. Malone, M.D. Tomer, T.G. Meade, and J. Welch	
273	RIPARIAN BUFFER WIDTH AND NITRATE REMOVAL IN A LAGOON-EFFLUENT IRRIGATED AGRICULTURAL AREA T.A. Smith, D.L. Osmond, and J.W. Gilliam	
282	MONITORING AND PREDICTING MANURE APPLICATION RATES USING PRECISION CONSERVATION TECHNOLOGY P.E. Cabot, F.J. Pierce, P. Nowak, and K.G. Karthikeyan	
293	EVALUATION OF THE EFFECTIVENESS OF VEGETATIVE FILTER STRIPS FOR PHOSPHORUS REMOVAL WITH THE USE OF A TRACER Y.J. Kim, L.D. Geohring, J.H. Jeon, A.S. Collick, S.K. Giri, and T.S. Steenhuis	
303	APPLICATION OF PHOSPHORUS SORBING MATERIALS TO STREAMSIDE CATTLE LOAFING AREAS C.J. Penn and R.B. Bryant	
311	INFLUENCES OF CUTTING DIAMETER AND SOIL MOISTURE ON GROWTH AND SURVIVAL OF BLACK WILLOW, <i>SALIX NIGRA</i> E. Greer, S.R. Pezeshki, and F.D. Shields, Jr.	

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION I. Title of Publication: Journal of Soil and Water Conservation

2. Publication Number: 0282-8800 3. Date of Filing: September 21, 2006 4. Frequency of Issue: Six times per year in January, March, May, July, September, November 5. Number of Issues Published Annually: Six 6. Annual Subscription Price: \$83 7. Complete Mailing Address of Known Office of Publication: 945 SW Ankeny Road, Ankeny, Iowa 50023-9764 (Polk County) 8. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher: 945 SW Ankeny Road, Ankeny, Iowa 50021-9764 9. Names and Complete Addresses of Publisher, Editor and Managing Editor: Publisher: Craig Cox, executive director, Soil and Water Conservation Society, 945 SW Ankeny, Iowa 50021-9764. Editor: Deb Happe, Soil and Water Conservation Society, 945 SW Ankeny, Iowa 50021-9764 10. Owner: Soil and Water Conservation Society, 945 SW Ankeny Road, Ankeny, Iowa 50023-9723; Polk County. 11. Known Bondholders, Mortgages, and Other Security Holders Owning of Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: None 12. The purpose, function, and non-profit status of this organization and the exempt status for federal income tax purposes has not changed during the past 12 months 15. Extent and Nature of Circulation:

A. Iotal No. Copies Fillited (flet press ruli)	0,317	6,200	
B. Paid and/or Requested Circulation			
1. Paid or Requested Outside-County Mail Subscriptions	5,497	5,419	
2. Paid In-County Subscriptions	0	0	
Sales Through Dealers and Carriers, Street Vendors,			
Counter Sales, and Other Non-USPS Paid Distribution	502	433	
4. Other Classes Mailed Through the USPS	0	0	
C. Total Paid and/or Requested Circulation	5,999	5,852	
D. Free Distribution by Mail (Samples, Complimentary, and Other Free)	0	0	
E. Free Distribution Outside the Mail	0	0	
F. Total Free Distribution	0	0	
G. Total Distribution	5,999	5,852	
H. Copies Not Distributed	318	348	
I. Total	6,317	6,200	
J. Percent Paid and/or Requested Circulation	100%	100%	
II I and the statement and burns about an armount and complete Balton Fallone Fallone Call and Water Commentation Coulder			

II. I certify that the statements made by me above are correct and complete. Debra Happe, Editor, Soil and Water Conservation Society

CONSERVATION

PUBLISHER | Soil and Water Conservation Society
Craig Cox, Executive Director

EDITOR-AT-LARGE Deb Happe

RESEARCH EDITOR | Jorge Delgado, USDA-Agricultural Research Service

ASSOCIATE RESEARCH EDITORS

Madhi Al-Kaisi, Iowa State University Francisco Arriaga, USDA-Agricultural Research Service James Ascough II, USDA-Agricultural Research Service Mike Burkart, USDA-Agricultural Research Service Grant Cardon, Utah State University Michael Dosskey, USDA-National Agroforestry Center Bradley King, University of Idaho Peter Kleinman, USDA-Agricultural Research Service Kokasse Kpomblekou-A, Tuskegee University David Lobb, University of Manitoba Birl Lowery, University of Wisconsin Loretta Lynch, University of Maryland Maurice Mausbach, retired USDA-Natural Resources Conservation Service Laura M.J. McCann, University of Missouri Guy R. Mehuys, McGill University Kenneth Potter, USDA-Agricultural Research Service David Sotomayer-Ramirez, University of Puerto Rico Mary E. Stromberger, Colorado State University John White, Louisiana State University John Williams, USDA-Agricultural Research Service Wanhong Yang, University of Guelph Ted Zobeck, USDA-Agricultural Research Service

ADVISORS

Lynn Betts, USDA-Natural Resources Conservation Service Warren Busscher, USDA-Agricultural Research Service Mary Rayburn, USDA-Natural Resources Conservation Service

COMMUNICATIONS SPECIALIST | Suzi Case

COMMUNICATIONS INTERNS Heather Behrens and Kala King

ADVERTISING REPRESENTATIVE | Chancey Montag

BOARD OF DIRECTORS

Theo Dillaha, President & Southeastern
Peggie James, Vice President & West North Central
Deborah Cavanaugh-Grant, Secretary & At-large
Becky Fletcher, Treasurer & East North Central
Joseph Arbour, Canada
Ron Follett, Northern Plains
Jerry Hatfield, At-large
James Hotaling, Northeastern
Harold Klaege, Southwestern
Ira Linville, South Central
Jean Steiner, At-large
Don Wysocki, Western
Shannon Brown, Student director

Journal of Soil and Water Conservation (ISSN 0022-4561) is published bimonthly by the Soil and Water Conservation Society. Editorial, executive, and membership offices: 945 SW Ankeny Road, Ankeny, Iowa 50023; swcs@swcs.org; (515)289-2331. Advertising offices: 319 E. 5th Street, Suite 3, Des Moines, Iowa 50309, (800)577-4638 or tsmull@inanews.com. Periodicals postage paid at Ankeny, Iowa and additional mailing offices.

POSTMASTER: Send address changes to Journal of Soil and Water Conservation, 945 SW Ankeny Road, Ankeny, Iowa 50023. Copyright 2006 by the Soil and Water Conservation Society. Subscriptions for 2007 are \$91 per year (\$119 outside the United States). Page charges are assessed to authors in pages other than the A-section.

The *Journal of Soil and Water Conservation* assumes no responsibility for statements and opinions expressed by contributors.

S|O 2006 VOLUME 61 NUMBER 5 **133A**

RAISE YOUR VOICE

YOUR FORUM TO REACT TO PUBLISHED ARTICLES, TO EXCHANGE IDEAS, AND DESCRIBE INNOVATIVE APPROACHES TO CONSERVATION INCLUDING LEGISLATION

Rebuttal on hydroseed treatments

In response to the Raise Your Voice letter, "Need Government Funding" found in the March-April 2006 issue of the *Journal of Soil and Water Conservation*, we disagree with the author and feel that our project was scientific, reproducible, and defensible and would like to make that argument here

We feel this was an unbiased project. The principle author was a graduate student and employee of the University of Georgia at the time the research was conducted, written, and originally submitted to this journal for publication. The research was conducted as part of his doctoral dissertation with the University and this led to his subsequent employment in industry. Mr. Carpenter will also be relieved to know that principle support and funding for the project was from government sources: the Pollution Prevention Assistance Division of the Georgia Department of Natural Resources and the Animal and Poultry Waste Management Center from North Carolina State University, and with the exception of some donated materials very little support came from industry sources.

As stated in the original research report, the goal of the project was to compare the use of compost to conventional sediment and erosion control practices. In Georgia, the use of hydroseeded mulches and silt fence is the most commonly used method of erosion and sediment control. The authors chose the treatment application rates because they reflected state and federal specifications for these erosion control practices, specifical-Department ly the Georgia Transportation (DOT) and the American Association of State Highway Transportation Officials (also adopted by the U.S. Enviornmental Protection Agency after this report was published). State DOT specifications were followed for fertilizer application rates for the hydroseed treatments because without the addition of fertilizer, it's unlikely that vegetation would have established in these plots. Vegetation evaluation was part of the overall study (and will hopefully be published in the near future). There is no published specification for compost blankets that call for the addition of fertilizer, principally because compost generally supplies sufficient nutrients for plant growth. It's unclear where Mr. Carpenter obtained the pricing criteria cited for compost blankets in the letter-to-the-editor, as compost blanket prices vary widely from state to state.

We do agree that it would have been beneficial to comparatively evaluate a wider range of erosion control measures, including BFMs, straw mulch, and single and double net rolled erosion control blankets; however, funding and space were limiting factors when the study was designed. Follow-up research that compares these erosion control practices to compost blankets has been conducted and will be submitted to this journal for peer review. The author of the letter should understand that at the time this research was designed (2000), there was no information on compost blanket performance in the research literature, and as such, we did not know the capabilities of compost blankets used for erosion control.

Mr. Carpenter is correct in that "...the sediment control devices were totally different...." in the experimental treatment set up of the study. Our experimental set-up allowed us to do comparisons of both mulch filter berms to silt fences at the same time as comparing compost blankets to silt fences. This is why the study included bare soil controls for both silt fence and mulch filter berms, two widely used perimeter sediment control devices. The environmental variables surrounding and applied to these two treatments were exactly the same, otherwise it would not

be considered scientific research, we would not be able to draw conclusions, and undoubtedly it would not have been accepted by the peer review panel of this journal. Erosion control professionals need information like this to help them chose which sediment control practices to use, and until a standard test method is created that treats all sediment control devices the same, the best way to evaluate them is in a side-by-side comparison.

The authors of this report have over 100 years of combined research experience relating to soil erosion and water quality. We believe this journal is a superior outlet for reporting our research due to the qualifications and high standards upheld by their peer review panel. If our report was not "scientific" or "defensible" we do not believe it would have been accepted by this journal for research publication.

—Mark Risse, Ph.D., professor and water quality coordinator, Extension Engineering, University of Georgia and Britt Faucette, Ph.D., research ecologist, Filtrexx International, GA

Readers are invited to express their views on land and water management.

Please make your letter less than 150 words. Letters may be edited for length and clarity.

Send to Editor:

deb.happe@swcs.org

fax 515-289-1227

Journal of Soil and Water Conservation, 945 SW Ankeny Road, Ankeny, Iowa 50021-9764

— Debra Happe, editor

The 3-R's—Regulate, responsibility, and remediate

In response to the March/April view-point article, "Before Bureaucracy: Environmental Spillovers," by Robert Higgs. Arguably, CERCLA may need modifications to make it more efficient and effective and/or we need a new tool(s) to clean up our waste sites, bill the costs to the responsible parties and to prevent new contaminated sites from being created.

But I find it naive to think that an individual property owner, or even a group of property owners, with limited resources, could typically be successful having a corporation accept responsibility for its environmental damage.

How would the legal process that stalls CERCLA proceedings not stall private property rights cases in "ordinary law courts"?

There are several disincentives for a polluter to avoid and resist actions to clean up their process, remediate the environmental damage, and when appropriate, provide restitution to property owners. First: the need for profits. Second: the power of greed. Third, the limitations of nearsightedness. Without regulatory oversight, what incentives exist to motivate the polluter to "do the right thing"?

I find Mr. Higgs reference to the mining industry to be particularly shocking and misleading! Were the "creative" remedial measures taken over the years by the mining industry ("dams in waterways," onsite "tailings ponds," "pollution easements," impound ... on shore"), supposed to demonstrate efficient and effective measures to remediate existing environmental damage and prevent future damage? "Private property rights, deal making, and ordinary law courts" have not prevented the continued environmental damage from, for example, moun-

tain top mining. Furthermore, I am confident that we should not rely on the conscience of industry to avoid, minimize, and mitigate environmental damage from their actions.

Many of the nation's and world's, surface and groundwater resources are contaminated and are unfit to drink, contact and to support wildlife. The dead zone in the Gulf of Mexico illuminates an often ignored economic cost to our excesses.

Mr. Higgs viewpoint has served to show how necessary is regulatory oversight of nearsighted and self-serving individuals and corporations that fail to recognize and accept responsibility for the impacts of their actions on the global ecosystem.

— Mark L. Snopek, ecologist, Iowa DOT, Ames, IA