

## Table of Contents

### A SECTION

#### FEATURES

- 117A** **Cover crop impacts on US cropland carbon sequestration**  
Sami Tellatin and Robert L. Myers
- 122A** **Groundwater and agriculture: Insights from farmers in central Minnesota on how to protect both**  
Brian J. Bohman, Jen Kader, Darren Newville, Brittney Johnson, Leslie Yetka, and Carrie E. Jennings
- 128A** **Communicating the 4Rs to farmers: Insights and opportunities**  
Lara Moody
- 132A** **Designed strategic redeployment of perennial cover in North American farm landscapes**  
Robert C. Corry

### A SECTION Call for Papers

Are you working on cutting edge research in soil and water conservation? Does your work involve new tools, technologies, or materials that others should be aware of? Have you observed or been a part of conservation practices that are worth sharing with the journal audience?

If you answered “Yes” to any of these questions, you are invited to submit your article ideas for the A Section of the *Journal of Soil and Water Conservation*.

Your work could be published in one of the A Section topic areas: Conservation in Practice, Viewpoint, Ideas & Innovations, Conservation in Action, In the News, Feature, etc.

To submit your article ideas or for more information, contact editor Annie Binder at [annie.binder@swcs.org](mailto:annie.binder@swcs.org)

JOURNAL OF SOIL AND WATER  
**CONSERVATION**

**o n l i n e**

The *Journal of Soil and Water Conservation* is online.

#### AUTHORS

Please submit manuscripts using the online manuscript review system.

#### MORE INFORMATION

Go to [www.jswnonline.org](http://www.jswnonline.org)



**On the Cover**  
Hearty barley in a continuous no-till system in North Dakota.  
Photo by Beth Burdolski.



Printed on 100% post-consumer waste recycled paper with vegetable-based inks.

## RESEARCH SECTION

- 493** **A three-pronged approach for identifying source and extent of nitrate contamination in groundwater**  
Y. Ju, D. Kaown, and K.-K. Lee
- 504** **Spatial optimization of watershed best management practices based on slope position units**  
C.-Z. Qin, H.-R. Gao, L.-J. Zhu, A.-X. Zhu, J.-Z. Liu, and H. Wu
- 518** **Assessing hydrological connectivity development by using a photogrammetric technique with relative surface connection function (RSCf) in a plot-scale experiment**  
S. Wang, P. Strauss, A. Yao, X. Wang, and Y. Yuan
- 533** **Assessment of irrigation reservoir levee impairment in Arkansas, United States**  
D.G. Wren, Y. Ozeren, J.M. Taylor, M.L. Reba, and C. Bowie
- 541** **The influence of crop rotation on corn total biomass production**  
M.J. Kazula and J.G. Lauer
- 549** **Drip fertigation improves water and nitrogen use efficiency of *Bt* cotton**  
K. Singh, A.S. Brar, and H.P. Singh
- 558** **Phosphorus dynamics in agricultural drainage ditches: An influence of landscape properties**  
O.O. Iseyemi, J.L. Farris, M.T. Moore, M.A. Locke, and S. Choi
- 567** **Susceptibility of soil organic matter fractions to soil erosion under potato-legume intercropping systems in central Kenya**  
S. Nyawade, N. Karanja, C. Gachene, M. Parker, and E. Schulte-Geldermann
- 577** **Uniformity and spatial variability of soil moisture and irrigation distribution on natural turfgrass sports fields**  
C.M. Straw, R.N. Carrow, W.J. Bowling, K.A. Tucker, and G.M. Henry
- RESEARCH BRIEF**
- 587** **Evaluation of the Haney Soil Health Tool for corn nitrogen recommendations across eight Midwest states**  
M.A. Yost, K.S. Veum, N.R. Kitchen, J.E. Sawyer, J.J. Camberato, P.R. Carter, R.B. Ferguson, F.G. Fernández, D.W. Franzen, C.A. Laboski, and E.D. Nafziger
- RESEARCH EDITORIAL**
- 593** **Values and groundwater management in the Ogallala Aquifer region**  
S. Lauer, M.R. Sanderson, D.T. Manning, J.F. Suter, R.A. Hrozencik, B. Guerrero, and B. Golden

**CHIEF EXECUTIVE OFFICER**

Clare Lindahl  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**EDITOR & DIRECTOR OF PUBLICATIONS**

Annie Binder  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**RESEARCH EDITOR & CHAIR OF EDITORIAL BOARD**

Jorge A. Delgado  
Soil Management and Sugar Beet Research Unit  
USDA Agricultural Research Service  
Fort Collins, Colorado, USA

**EDITORIAL ASSISTANT**

Jody Thompson  
Soil and Water Conservation Society  
Ankeny, Iowa, USA

**EDITORIAL BOARD**

J. Gordon Arbuckle, Jr.  
Department of Sociology  
Iowa State University  
Ames, Iowa, USA

Cecilia María Armas Herrera  
University of Zaragoza  
Zaragoza, Spain

Francisco Arriaga  
Department of Soil Science and UW-Extension  
University of Wisconsin-Madison  
Madison, Wisconsin, USA

Karl Auerswald  
Technische Universität München  
Freising, Germany

Jamiu Oladipupo Azeez  
Department of Soil Science and Land Management  
Federal University of Agriculture Abeokuta  
Abeokuta, Ogun, Nigeria

Claire Baffaut  
Cropping Systems and Water Quality Research Unit  
USDA Agricultural Research Service  
Columbia, Missouri, USA

Andrew Barnes  
Land Economy Research Group  
Scotland's Rural College  
Edinburgh, United Kingdom

Kathryn J. Brasier  
Department of Agricultural Economics & Rural Sociology  
The Pennsylvania State University  
University Park, Pennsylvania, USA

Chongfa Cai  
College of Resources and Environment  
Huazhong Agricultural University  
Wuhan, Hubei Province, China

Zhibao Dong  
Key Laboratory of Desert and Desertification  
Chinese Academy of Sciences  
Lanzhou, Gansu Province, China

Moustafa A. Elrashidi  
National Soil Survey Center  
USDA Natural Resources Conservation Service  
Lincoln, Nebraska, USA

Uriel Figueroa-Viramontes  
National Institute of Forestry, Agricultural, and Livestock Research  
Matamoros, Coahuila, Mexico

Clark J. Gantzer  
Soil, Environmental, and Atmospheric Sciences  
University of Missouri  
Columbia, Missouri, USA

Margaret W. Gitau  
Agricultural and Biological Engineering  
Purdue University  
West Lafayette, Indiana, USA

Valentin Golosov  
Lomonosov Moscow State University  
Moscow, Russia

Juan M. Herrea  
Institute of Agricultural and Environmental Biosciences  
University of Buenos Aires  
Buenos Aires, Argentina

Chunsheng Hu  
Center for Agricultural Resources Research  
Shijiazhuang, Hebei, China

Kanika Sharma Inglett  
Soil and Water Science Department  
University of Florida  
Gainesville, Florida, USA

Thomas Iserloh  
Department of Physical Geography  
Trier University  
Trier, Germany

**Gergely Jakob**

Research Center for Astronomy and Earth Sciences  
Hungarian Academy of Sciences  
Budapest, Hungary

Jane M.F. Johnson  
North Central Soil Conservation Research Laboratory  
USDA Agricultural Research Service  
Morris, Minnesota, USA

Amy L. Kaleita  
Agricultural and Biosystems Engineering  
Iowa State University  
Ames, Iowa, USA

Mohammad Khakbazan  
Brandon Research Center  
Agriculture and Agri-Food Canada  
Brandon, Manitoba, Canada

Peter J.A. Kleinman  
Pasture Systems & Watershed Management Research Unit  
USDA Agricultural Research Service  
University Park, Pennsylvania, USA

Andreas Klik  
Institute of Hydraulics and Rural Water Management  
BOKU-University of Natural Resources and Life Sciences  
Vienna, Austria

Sheng Li  
Fredericton Research and Development Center  
Agriculture and Agri-Food Canada  
Fredericton, New Brunswick, Canada

Lisa Lobry de Bruyn  
School of Environmental and Rural Science  
University of New England  
Armidale, New South Wales, Australia

Loretta M. Lynch  
Department of Agricultural and Resource Economics  
University of Maryland  
College Park, Maryland, USA

Machito Mihara  
Faculty of Regional Environmental Science  
Tokyo University of Agriculture  
Tokyo, Japan

Daniel Moriasi  
Great Plains Agroclimate and Natural Resources Research Unit  
USDA Agricultural Research Service  
El Reno, Oklahoma, USA

Rachid Mrabet  
Institut National de la Recherche Agronomique (INRA)  
Rabat, Morocco

Karin Müller  
The New Zealand Institute for Plant and Food Research Limited  
Hamilton, New Zealand

Mark A. Nearing  
Southwest Watershed Research Center  
USDA Agricultural Research Service  
Tucson, Arizona, USA

Paulo Tarso Sanches de Oliveira  
Federal University of Mato Grosso do Sul  
Campo Grande, Mato Grosso do Sul, Brazil

Zeyuan Qiu  
Department of Chemistry and Environmental Science  
New Jersey Institute of Technology  
Newark, New Jersey, USA

Gretchen Sassenrath  
Department of Agronomy  
Kansas State University  
Manhattan, Kansas, USA

Maria Lucia Silveira  
Range Cattle Research and Education Center  
University of Florida  
Ona, Florida

M.S. Srinivasan  
National Institute of Water and Atmospheric Research Ltd.  
Christchurch, New Zealand

Peter Strauss  
Institute for Land and Water Management Research  
Federal Agency for Water Management  
Pöchlarn, Austria

R. Scott Van Pelt  
Wind Erosion and Water Conservation Research Unit  
USDA Agricultural Research Service  
Big Spring, Texas, USA

John Westra  
Department of Agricultural Economics and Agribusiness  
Louisiana State University  
Baton Rouge, Louisiana, USA

John D. Williams  
Columbia Plateau Conservation Research Center  
USDA Agricultural Research Service  
Pendleton, Oregon, USA

**BOARD OF DIRECTORS**

Rex Martin, Chair & At-Large Director  
Wendi Goldsmith, Vice-Chair & Northeastern Director  
Dale Threatt-Taylor, Secretary & Southeastern Director  
Don Wysocki, Treasurer & Northwestern Director  
Steve Kadas, Southwestern Director  
Bruce Knight, At-Large Director  
William Kuckuck, At-Large Director  
Rebecca Power, North Central Director  
Jason Weller, At-Large Director

The *Journal of Soil and Water Conservation* (print ISSN 0022-4561, online ISSN 1941-3300) is published bimonthly by the Soil and Water Conservation Society. © 2018 by the Soil and Water Conservation Society. All rights reserved.

For subscriptions or membership, please visit [www.swcs.org](http://www.swcs.org) or call 800-THE-SOIL. POSTMASTER: Send address changes to *Journal of Soil and Water Conservation*, 945 SW Ankeny Road, Ankeny, IA 50023 USA. Periodicals postage paid at Ankeny, IA, and additional mailing offices.

Submit comments, contributions, advertising queries, and requests for reprints and permissions to the editor at [pubs@swcs.org](mailto:pubs@swcs.org). Articles in the Research Section have undergone peer review. The Soil and Water Conservation Society assumes no responsibility for statements and opinions expressed by contributors.

## Soil and Water Conservation Society Corporate Membership

### GOLD CORPORATE MEMBERS

Agri Drain Corporation  
[www.agridrain.com](http://www.agridrain.com)

Hickenbottom Inc.  
[www.hickenbottominc.com](http://www.hickenbottominc.com)

### SILVER CORPORATE MEMBERS

Agribusiness Association of Iowa  
[agribiz.org](http://agribiz.org)

The Fertilizer Institute  
[www.tfi.org](http://www.tfi.org)

### BRONZE CORPORATE MEMBERS

Conservation Technology  
Information Center  
[www.ctic.org](http://www.ctic.org)

La Crosse Seed  
[www.lacrosseseed.com](http://www.lacrosseseed.com)

Watershed Materials  
[www.maddogfoambridges.com](http://www.maddogfoambridges.com)

For information on becoming a  
corporate member, please contact  
**515-289-2331 ext. 114**  
[corporate.info@swcs.org](mailto:corporate.info@swcs.org)