

WEED SCIENCE



VOLUME 72 | NUMBER 2
MARCH 2024



Published online by Cambridge University Press

WEED SCIENCE

Published six times a year by the Weed Science Society of America

William K. Vencill, *Editor*

The Weed Science Society of America publishes original research and scholarship in the form of peer-reviewed articles in three international journals. *Weed Science* is focused on understanding “why” phenomena occur in agricultural crops. As such, it focuses on fundamental research directly related to all aspects of weed science in agricultural systems. *Weed Technology* focuses on understanding “how” weeds are managed. As such, it is focused on more applied aspects concerning the management of weeds in agricultural systems. *Invasive Plant Science and Management* is a broad-based journal that focuses not only on fundamental and applied research on invasive plant biology, ecology, management, and restoration of invaded non-crop areas, but also on the many other aspects relevant to invasive species, including educational activities, policy issues, and case study reports. Topics for *Weed Science* include the biology and ecology of weeds in agricultural, forestry, aquatic, turf, recreational, rights-of-ways, and other settings; genetics of weeds and herbicide resistance; chemistry, biochemistry, physiology and molecular action of herbicides and plant growth regulators used to manage undesirable vegetation, and herbicide resistance; ecology of cropping and non-cropping systems as it relates to weed management; biological and ecological aspects of weed control tools including biological agents, herbicide resistant crops, etc.; effects of weed management on soil, air, and water. Symposia papers and reviews are accepted. Consult the editor for additional information.

Associate Editors (Assignment Year)

Muthukumar V Bagavathiannan, Texas A&M, College Station, TX 77843 (2015)
Nicholas Basinger, Department of Crop & Soil Sciences, University of Georgia, Athens, GA 30602 (2022)
Nathan Boyd, University of Florida, Wimauma, FL 33598 (2021)
Caio Brunharo, Department of Plant Science, Penn State University, University Park, PA 16801 (2022)
Ian Burke, Washington State University, Pullman, WA 99164 (2019)
Carlene Chase, Horticultural Sciences Department, University of Florida, Gainesville, FL 32611 (2016)
Bhagirath Singh Chauhan, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, Queensland, Australia (2014)
Sharon Clay, South Dakota State University Plant Science Department, Brookings, SD 57007 (2002)
Jose L. Gonzalez-Andujar, CSIC: Consejo Superior de Investigaciones Científicas, Cordoba, Spain 14004 (2024)
Timothy Grey, Department of Crop and Soil Science, University of Georgia, Tifton, GA 31793 (2009)
Prashant Jha, Iowa State University, Ames, IA 50011 (2017)
Mithila Jugulam, Kansas State University, Manhattan, KS 66506 (2019)
Vipin Kumar, Kansas State University, Hays, KS 67601 (2020)
Gulshan Mahajan, Punjab Agricultural University, Ludhiana, India 141004 (2022)
Sara Martin, Ag Canada, Ottawa, Canada (2018)
Chris Preston, Australian Weed Management, University of Adelaide, PMB1, Glen Osmond, SA 5064, Australia (2003)
Dean Riechers, Department of Crop Sciences, University of Illinois, Urbana, IL 61801 (2011)
Hilary Sandler, University of Massachusetts–Amherst Cranberry Station, East Wareham, MA 02538 (2008)
Debalin Sarangi, University of Wyoming, Powell, WY 82435 (2020)
Patrick J. Tranel, Department of Crop Sciences, University of Illinois, 360 ERML, Urbana, IL 61801 (2002)
Te-Ming Paul Tseng, Mississippi State University, Mississippi State, MS 39762 (2019)
Martin M. Williams II, USDA-ARS Global Change and Photosynthesis Research, Urbana, IL 61801 (2008)
Tracy Candelaria, *Managing Editor*

Officers of the Weed Science Society of America

<http://wssa.net/society/bod/>

Weed Science (ISSN 0043-1745) is an official publication of the Weed Science Society of America, 12011 Tejon Street, Suite 700, Westminster, CO 80234 (720-977-7940). It contains refereed papers describing the results of research that elucidates the nature of phenomena relating to all aspects of weeds and their control. It is published bimonthly, one volume per year, six issues per year beginning in January.

Membership includes online access to *Weed Science*, *Weed Technology*, *Invasive Plant Science and Management*, and the online *WSSA Newsletter*. Dues should be sent to WSSA, 12011 Tejon Street, Suite 700, Westminster, CO 80234 no later than December 1 of each year. Membership in the society is on a calendar-year basis only.

New subscriptions and renewals begin with the first issue of the current volume. Please visit the *Weed Science* subscription page at <https://www.cambridge.org/core/journals/weed-science/subscribe>; Email: subscriptions_newyork@cambridge.org in USA, journals@cambridge.org outside USA.

Weed Science publishes six times a year in January, March, May, July, September, and November. Annual institutional electronic subscription rates: US \$440.00; UK £306.00.

Please use Editorial Manager to access manuscript submissions (<http://www.editorialmanager.com/ws>). Authors are asked to pay \$65 per page as a portion of the cost of publication, plus an additional processing charge of \$55 per manuscript if none of the authors are WSSA members. The Editor can make exceptions in advance when justified.

The Weed Science Society of America fully subscribes to the belief that progress in science depends upon the sharing of ideas, information, and materials among qualified investigators. Authors of papers published in *Weed Science* are therefore encouraged, whenever practicable and when state and federal laws permit, to share genotypically unique, propagative materials they might possess with other workers in the area who request such materials for the purpose of scientific research.

Weed Science published by the Weed Science Society of America.
Copyright 2024 by the Weed Science Society of America.
All rights reserved. Reproduction in part or whole prohibited.

On the Cover:

Establishment of annual ryegrass cover crop that was drill-interseeded into wide-row (152 cm row spacing) corn at the V3 growth stage.

Photo Attribution: J. Wallace.

WEED SCIENCE

Journal of the Weed Science Society of America

Volume 72 Number 2 March 2024

MY VIEW

Resistance or tolerance: distinction without a difference. *Ramon G. Leon* 113

REVIEW

Herbicide-resistance management: a common pool resource problem?. *Nicolas T. Bergmann, Ian C. Burke and Chloe B. Wardropper*..... 117

RESEARCH ARTICLES

Identification of candidate genes involved with dicamba resistance in waterhemp (*Amaranthus tuberculatus*) via transcriptomics analyses. *Lucas K. Bobadilla and Patrick J. Tranel* 125

Adaptations in wild radish (*Raphanus raphanistrum*) flowering time, Part 1: Individual-based modeling of a polygenic trait. *Gayle J. Somerville, Michael B. Ashworth and Hugh J. Beckie*..... 137

Adaptations in wild radish (*Raphanus raphanistrum*) flowering time, Part 2: Harvest weed seed control shortens flowering by twelve days. *Gayle J. Somerville and Michael B. Ashworth*..... 143

Light partitioning strategies impact relative fitness of weeds and cover crops when drill-interseeding in corn. *John M. Wallace, Tosh Mazzone, Christopher Pelzer, Matthew R. Ryan and Sandra Wayman* 151

Relative contribution of shade avoidance and resource competition to early-season sugar beet yield loss due to weeds. *Joe G. Ballenger, Albert T. Adjesiwor, David A. Claypool and Andrew R. Kniss*..... 159

Effect of environmental, seed burial depth, and straw mulch on germination and seedling emergence in *Cichorium glandulosum*. *Rouhollah Amini, Alireza Hasanfard, Nasrin Ahmadian and Farzaneh Zarei Yuzband* 164

Anatomical characteristics and resprouting capacity of the underground organs of Bohemian knotweed (*Polygonum xbohemicum*). *Antoine Jousson, Marco Conedera, Patrik Krebs, Guido Maspoli and Gianni Boris Pezzatti* 172

Modeling the effect of temperature on rhizome sprouting in the invasive weed silverleaf nightshade (*Solanum elaeagnifolium*). *Omer Kapiluto, Evgeny Smirnov, Guy Achdary, Hanan Eizenberg and Ran Nisim Lati*..... 182

Taxonomic resolution of fleabane species (*Conyza* spp.) based on morphological and molecular markers and their dispersion across soybean-cropping macroregions and seasons in Brazil. *Augusto Kalsing, Felipe A. Nunes, Guilherme A. Gotardi, Jaqueline B. Campos, Angelo A. Schneider, Leandro Tropaldi, Edivaldo D. Velini, Aldo Merotto Jr and Caio A. Carbonari* 192