12-DEC-1997 BSDS

WEED TECHNOLOGY





1/1

# [EE] TECHNOLOGY

A Journal of the Weed Science Society of America

**VOLUME 11** 

**OCTOBER-DECEMBER 1997** 

**NUMBER 4** 



ISSN 0890-037X

WETEE9 11(4) 639-868 (1997)

# WEED TECHNOLOGY

### A Journal of the Weed Science Society of America

Weed Technology, published quarterly beginning each January–March issue, is included along with Weed Science and WSSA Newsletter to Weed Science Society of America (WSSA) members. Annual membership costs \$75 with \$30 student affiliate memberships on a calendar year basis only.

Weed Technology subscriptions are \$75 per year (four issues per volume). New subscriptions begin with the January-March issue. Subscribers, including libraries and institutions, can obtain both Weed Science (volume of six issues per year) and Weed Technology for \$125 annually.

Changes of mailing address, inquiries about copies lost in the mail, and requests for back issues and for information about placing advertisements and about receiving journals, membership and subscriptions should be sent to WSSA, 810 East 10th Street, P.O. Box 1897, Lawrence, KS 66044-8897. Send dues by December 1 each year. Claims for copies lost in the mail must be received within 30 days (90 days foreign) of the issue date to insure replacement at no charge.

Send three copies of the manuscript to Sheila M. Rake, Managing Editor, Allen Press, Inc., 810 East 10th Street, Lawrence, KS 66044-8897 and one copy to Chester L. Foy, Editor, Weed Technology, Dept. of Plant Pathology, Physiology, and Weed Science, Virginia Polytechnic Institute and State Univ., 502 Price Hall, Blacksburg, VA 24061-0331. Directions for Contributors are published in each October–December issue of *Weed Technology*. Authors are charged \$50 per page to cover a portion of publication costs. The Editor can exempt page charges in advance when justified.

Weed Technology (ISSN 0890-037X) is published by the Weed Science Society of America, 810 East 10th St., Lawrence, KS 66044-8897. Periodical postage paid at Lawrence, KS and at additional mailing offices. Copyright 1997 by the Weed Science Society of America. Printed in U.S.A. All rights reserved. Reproduction in part or whole is prohibited. POSTMASTER: Send address changes to WSSA, 810 East 10th Street, Lawrence, KS 66044-8897.

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 Technology* 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 that area who request such materials for the purpose of scientific research.

# **WSSA OFFICERS**

Calvin G. Messersmith, President
F. Dan Hess, President Elect
James M. Chandler, Vice President
Stephen O. Duke, Past President
Jodie S. Holt, Secretary
Joan Dusky, Treasurer
Anne Légère, Director of Publications
Horace D. Skipper, Chair,
Constitution and Operating Procedures



# **Sustaining Members**

July 7, 1997

### **PATRON**

American Cyanamid Company DowElanco DuPont Agricultural Products Griffin Corporation ISK Bioscience Corporation Monsanto Agricultural Company

### CONTRIBUTING

AgrEvo USA Company
Bayer Corporation
Cenex/Land O'Lakes
Ciba-Geigy Corporation
Compliance Service Int'l., Inc.
FMC Corporation Ag Chem Group
Mycogen Corporation
Terra Chemical Int'l. Inc.

## **ASSOCIATE**

**ABC** Laboratories Agri Business Group Agri-Growth Research Inc. Agvise Laboratories Allen Machine Works **ALMACO Company** American Agricultural Services The Andersons **Burch Company CIRTA** Concord Environmental Equipment Conviron Decagon Devices, Inc. Deere & Company Tech. Center **EPL Bio-Analytical Services** Farmland Industries **Gandy Corporation** Growmark Inc. Gylling Data Management Inc. HarvestMaster Inc. Heartland Technologies Inc. Kincaid Equipment Manufacture Corp. LI-COR Inc. MARATHON Ag/Environmental Nissan Chemical America Group Novartis Crop Protection, Inc. PBI/Gordon Corporation R & D Sprayers, Inc. Research Options Inc. Rhone-Poulenc Ag Company The Scotts Company Springborn Laboratories Inc. Stewart Agric. Research Services Stone Environmental Inc. Uniroyal Chemical Company United Agri Products

Weed Systems Equipment, Inc.

Wintersteiger Inc.



Volume 11 Number 4

A Journal of the Weed Science Society of America

# **Table of Contents**

# Research ==

- 639 Effect of Formulation and Nozzle Type on Droplet Size with Isopropylamine and Trimesium Salts of Glyphosate. Thomas C. Mueller and Alvin R. Womac
- Effects of Herbicides on Grass Seed Production and Downy Brome (*Bromus tectorum*). Tom D. Whitson, Mark E. Majerus, Reginald D. Hall, and Jay D. Jenkins
- 649 Control of Volunteer Sethoxydim-Resistant Corn (Zea mays) in Soybean (Glycine max). Bryan G. Young and Stephen E. Hart
- 656 Influence of Postemergence Herbicides on Tropical Soda Apple (Solanum viarum) and Bahiagrass (Paspalum notatum). Rais U. Akanda, J. Jeffrey Mullahey, Clyde C. Dowler, and Donn G. Shilling
- 662 Glufosinate-Resistant, BAR-Transformed Rice (*Oryza sativa*) and Red Rice (*Oryza sativa*) Response to Glufosinate Alone and in Mixtures. Sujatha Sankula, Michael P. Braverman, and Steven D. Linscombe
- 667 Longspine Sandbur (Cenchrus longispinus) Ecology and Interference in Irrigated Corn (Zea mays).
  Randy L. Anderson
- 672 Effects of Purple Nutsedge (Cyperus rotundus) on Tomato (Lycopersicon esculentum) and Bell Pepper (Capsicum annuum) Vegetative Growth and Fruit Yield. Jose P. Morales-Payan, Bielinski M. Santos, William M. Stall, and Thomas A. Bewick
- 677 Effects of Fallow Bermudagrass (Cynodon dactylon) Control Programs on Newly Planted Sugarcane (Saccharum spp. hybrids). Edward P. Richard, Jr.
- Bermudagrass (Cynodon dactylon) Control in Sunflower (Helianthus annuus), Soybean (Glycine max), and Potato (Solanum tuberosum) with Postemergence Graminicides. Francisco Bedmar
- Tolerance of Four Seashore Paspalum (*Paspalum vaginatum*) Cultivars to Postemergence Herbicides. B. Jack Johnson and Ronny R. Duncan
- Sequential Applications of Preemergence and Postemergence Herbicides for Large Crabgrass (*Digitaria sanguinalis*) Control in Tall Fescue (*Festuca arundinacea*) Turf. B. Jack Johnson
- 698 Effect of Tillage and Soil-Applied Herbicides on Broadleaf Signalgrass (*Brachiaria platyphylla*) Control in Corn (*Zea mays*). Thomas C. Mueller and Robert M. Hayes

### Cover

Soybean [Glycine max (L.) Merr.] harvest in central Illinois. A recent survey found that grower concern over harvest problems was a major factor limiting the use of economic thresholds for weed management in Illinois. See the accompanying article, "Grower Acceptance of Economic Thresholds for Weed Management in Illinois" for further details. This photograph was submitted by George F. Czapar, University of Illinois, Springfield Extension Center, P.O. Box 8199, Springfield, IL 62791.

<sup>•</sup> Peer reviewed papers.

- 704 ALS-Inhibiting Herbicide Seed Treatments Control Striga hermonthica in ALS-Modified Corn (Zea mays). Dana K. Berner, Felix O. Ikie, and Jerry M. Green
- 708 Influence of Herbicides and Timing of Application on Broadleaf Weed Control in Peanut (Arachis hypogaea). W. James Grichar
- 714 Nutsedge (*Cyperus* spp.) Control in Peanut (*Arachis hypogaea*) with AC 263,222 and Imazethapyr. W. James Grichar and Paul R. Nester
- 720 Effect of Timing and Adjuvants on the Efficacy of Reduced Herbicide Rates for Sweet Corn (Zea mays). John O'Sullivan and William J. Bouw
- 725 Efficacy of Pyrithiobac and Bromoxynil Applied with Low-Volume Spray Systems. Joyce A. Tredaway, Michael G. Patterson, and Glen R. Wehtje
- 731 Impact of *Tyta luctuosa* (Lepidoptera: Noctuidae) on Hedge Bindweed (*Calystegia sepium*) in Corn (*Zea mays*). Philip W. Tipping and Gaetano Campobasso
- 734 Diets of Angora Goats Grazing Leafy Spurge (Euphorbia esula)-Infested Rangeland. Donald R. Kirby, Thomas P. Hanson, and Carolyn Hull Sieg
- 739 Control of Palmer Amaranth (*Amaranthus palmeri*) in Peanut (*Arachis hypogaea*) with Postemergence Herbicides. W. James Grichar
- 744 Control of Quackgrass (*Elytrigia repens*) and Field Mint (*Mentha arvensis*) with Glyphosate Applied Preharvest. Jerry A. Ivany and Douglas J. Doohan
- 748 Weed Control and Crop Injury in Ecofallow Corn (Zea mays) Using Imazethapyr. Gail A. Wicks, Garold W. Mahnken, and Gordon E. Hanson
- 755 Preemergence Weed Control in Potatoes (Solanum tuberosum) with Rimsulfuron Mixtures. Mary J. Guttieri and Charlotte V. Eberlein
- 762 Influence of Adjuvants and Formulation on Barnyardgrass (*Echinochloa crus-galli*) Control with Propanil in Rice (*Oryza sativa*). David L. Jordan, Ann B. Burns, C. Jeff Barnes, Wayne Barnett, and J. Kelly Herrick
- 767 A Rapid Bioassay for Selective Algicides. Kevin K. Schrader, Marjan Q. De Regt, Craig S. Tucker, and Stephen O. Duke
- 775 Differential Varietal Response of Green Pea (Pisum sativum) to Metribuzin. Kassim Al-Khatib, Carl Libbey, Sorkel Kadir, and Rick Boydston
- 782 Accuracy of a Global Positioning System (GPS) for Weed Mapping. Theodore M. Webster and John Cardina
- 787 Competitive Grasses for Leafy Spurge (*Euphorbia esula*) Reduction. Rodney G. Lym and Dwight A. Tober
- 793 Growth of Containerized Landscape Plants Is Influenced by Herbicides Residues in Irrigation Water. Rajgopal M. Bhandary, Ted Whitwell, and Jeanne Briggs
- 798 Image Analysis of Leafy Spurge (*Euphorbia esula*) Cover. Jennifer L. Birdsall, Paul C. Quimby, Jr., Norman E. Rees, Tony J. Svejcar, and Bok F. Sowell
- 804 Comparison of Graminicides Applied at Equivalent Costs in Soybean (*Glycine max*). David L. Jordan, James L. Griffin, P. Roy Vidrine, David R. Shaw, and Daniel B. Reynolds
- Acetolactate Synthase-Resistant and -Susceptible Corn (Zea mays) Response to Imazethapyr, Imazaquin, Chlorimuron, and CGA-152005. Ronald F. Krausz, George Kapusta, and Joseph L. Matthews

# Notes =

- 817 Weed Management in Northeast China. Shao Q. Su and William H. Ahrens
- Oviposition Site Preferences of Galerucella calmariensis and G. pusilla, Biological Control Agents of Purple Loosestrife (Lythrum salicaria). Cory John Lindgren

# • Education/Extension/Survey

828 Grower Acceptance of Economic Thresholds for Weed Management in Illinois. George F. Czapar, Marc P. Curry, and Loyd M. Wax

# • Mini-Review \_\_\_\_\_

832 Quality Control Procedures in Herbicide Field Dissipation Studies. Michael R. Blumhorst and Thomas C. Mueller

# • Weed Alert \_\_\_\_\_

838 Kyllinga, a Genus of Neglected Weeds in the Continental United States. Charles T. Bryson, Richard Carter, Lambert B. McCarty, and Fred H. Yelverton

# Intriguing World of Weeds \_\_\_\_\_

843 Fumitory (Fumaria officinalis L.). Larry W. Mitich

# WSSA Communications ——————

- 846 Recognition of Reviewers and Associate Editors. Chester L. Foy
- 848 Directions for Contributors to Weed Technology
- 854 Notes on Acceptance/Rejection/Delay of Manuscripts Submitted to Weed Technology
- 855 Ethical Obligations of Manuscript Reviewers for Weed Technology
- 856 Responsibilities of Weed Technology Reviewers
- 857 Author Index, Volume 11
- 858 Subject Index, Volume 11

# Book Review

864 Principles in Weed Management by R. J. Aldrich and R. J. Kremer. Inderjit

# Technology Notes

- 866 Web Page on Genealogy of Major U.S. Herbicide Companies
- 866 World Wide Web: A Saltcedar Management and Restoration Workshop
- 866 Publications
- 867 Schedule of Dates and Events

EDITOR
Chester I. Fov

Chester L. Foy

MANAGING EDITOR Sheila M. Rake ASSOCIATE EDITORS

Randy L. Anderson
Philip A. Banks
Prasanta C. Bhowmik
Douglas Buhler
Robert H. Callihan
Jerry M. Green
James L. Griffin
K. Neil Harker
George Kapusta
Mary L. Ketchersid

John Masiunas
Robert A. Masters
Patrick McMullan
Tim R. Murphy
Robert F. Norris
Thomas F. Peeper
Edward P. Richard, Jr.
William H. VandenBorn
Leslie Weston

Gail Wicks

Malcolm D. Devine, Ex Officio Chair, Reviews of Weed Science Committee

# Accessing Your New WSSA Business Office

Memberships, subscriptions, address changes, missing journal issues, single journal issue and back issue orders, reprints, color plates and page charge payments, ordering special publications: WSSA Business Office, 810 East 10th St., P.O. Box 1897, Lawrence, KS 66044-8897 [phone: 1-800-627-0629 (U.S. and Canada), 913-843-1235; fax: 913-843-1274; e-mail: wssa@allenpress.com]. Executive Secretary: John Breithaupt (jbreith@allenpress.com); Business Manager: Gina Black (gblack@allenpress.com).

# Directions for Submission to Weed Science

Send two copies of the manuscript and all illustrations to Sheila M. Rake, Managing Editor, Allen Press, 810 East 10th St., P.O. Box 1897, Lawrence, KS 66044-8897 and one copy to R. L. Zimdahl, Editor, Weed Science, Weed Research Laboratory, Colorado State University, Fort Collins, CO 80523. In the accompanying cover letter to R. L. Zimdahl provide: 1) the corresponding author's name and telephone number, b) three stick-on labels showing the name and address of the corresponding author, c) the category that best describes the paper's content: Weed Management; Physiology, Chemistry, and Biochemistry; Weed Biology and Ecology; Soil, Air, and Water; or Special Topic, and d) a brief list of names, addresses, phone numbers, fax numbers, and e-mail addresses of suggested reviewers.

# Directions for Submission to Weed Technology

Send three copies of the manuscript and all illustrations to Sheila M. Rake, Managing Editor, Allen Press, Inc., 810 East 10th St., P.O. Box 1897, Lawrence, KS 66044-8897 and one copy to Chester L. Foy, Editor, Weed Technology, Dept. of Plant Pathology, Physiology, and Weed Science, Virginia Polytechnic Institute and State Univ., 502 Price Hall, Blacksburg, VA 24061-0331. Please include the names, addresses, phone numbers, fax numbers, and e-mail addresses of suggested reviewers.