

WEED TECHNOLOGY

A Journal of the Weed Science Society of America

VOLUME 8

JANUARY–MARCH 1994

NUMBER 1



ISSN 0890-037X

WETEE9 8(1) 1-176 (1994)

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 \$60 with \$20 student affiliate memberships on a calendar year basis only.

Weed Technology, subscriptions are \$60 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 four issues per year) and *Weed Technology* for \$100 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, 1508 West University Ave., Champaign, IL 61821-3133. 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 manuscripts to Chester L. Foy, Editor, *Weed Technology*, Dept. of Plant Pathology, Physiology, and Weed Science, Virginia Polytechnic Institute and State Univ., 503 Price Hall, Blacksburg, VA 24061-0331. Directions for Contributors were published in the October–December, 1993 issue of *Weed Technology*. Authors are charged \$50 per page (nonmembers \$100) 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. Copyright 1994 by the Weed Science Society of America. Printed in U.S.A. All rights reserved. Reproduction in part or whole is prohibited. Return POD Form 3579 to WSSA, 1508 West University Ave., Champaign, IL 61821-3133.

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

H. D. Coble, President
A. G. Ogg, President Elect
J. L. Barrentine, Vice President
J. Antognini, Past President
D. C. Thill, Secretary
J. M. Chandler, Treasurer
B. Truelove, Editor-in-Chief
H. D. Skipper, Chair,
Constitution and Operating Procedures



Sustaining Members March 4, 1994

A & L Agric. Laboratories Inc.
A C D S Inc.
Agri-Diagnostics Associates
Agri-Growth Research Inc.
Agvise
Allen Machine Works
ALMACO Company
American Agric. Services
American Cyanamid Company
BASF Corporation
Battelle
Cedar Chemical Corporation
Cenex/Land O'Lakes
Chemrose Ltd.
Ciba-Geigy Canada Ltd.
Ciba-Geigy Corporation
CIRTA
Compliance Service Int'l, Inc.
Concord, Inc.
Decagon Devices, Inc.
Deere & Company Tech Center
DowElanco
DuPont Agricultural Products
Environmental Technologies
EPL Bio-Analytical Services
Farmland Industries
FMC Corporation Ag Chem Group
Gandy Corporation
Griffin Corporation
Growmark Inc.
Gylling Data Management Inc.
HarvestMaster Inc.
Heartland Technologies Inc.
Hoechst-Roussel Agri-Vet
Ishihara Sangyo Kaisha Ltd.
ISK Biotech Corporation
Kincaid Equipment Manufacture
Landis International Inc.
Lehigh Agriculture & Biological Service
LI-COR Inc.
MARATHON Ag/Environmental
Miles Inc.
Minnesota Valley Testing Lab
Monsanto Agricultural Company
Mycogen Corporation
Nissan Chemical America Group
NOR-AM Chemical Company
O M Scott & Sons Company
PBI/Gordon Corporation
Research Options
Rhône-Poulenc Ag Company
Rohm & Haas Company
Sandoz Crop Protection
Springborn Laboratories Inc.
Stewart Agric. Res. Services
Terra Chemical Int'l Inc.
The Andersons
Thomson Publication
Uniroyal Chemical Company
United Argi Products
Valent USA Corporation
Vaughn Agricultural Research Service
Weed Systems Inc.
Wintersteiger America Inc.
ZENECA Inc.

A Journal of the Weed Science Society of America

Table of Contents

Technology Notes

- 1 News Notes of General Weed Science Interest

• Feature

- 6 Selection of Herbicide Alternatives Based on Probable Leaching to Groundwater. Ralph E. Franklin, Virgil L. Quisenberry, Billy J. Gossett, and Edward C. Murdock

• Research

- 17 Herbicide Combinations for Soybean (*Glycine max*) Planted in Stale Seedbed. Andrew J. Lanie, James L. Griffin, P. Roy Vidrine, and Daniel B. Reynolds
- 23 Utility of Clomazone for Annual Grass and Broadleaf Weed Control in Peanut (*Arachis hypogaea*). David L. Jordan, John W. Wilcut, and Leslie D. Fortner
- 28 Purple Nutsedge (*Cyperus rotundus*) Control in Reduced-Tillage Cotton (*Gossypium hirsutum* L.) with Low-Volume Technology. Charles T. Bryson, James E. Hanks, and Gene D. Wills
- 32 Absorption and Translocation of ¹⁴C-Imazapyr and ¹⁴C-Glyphosate in Alligatorweed *Alternanthera philoxeroides*. T. A. Tucker, K. A. Langeland, and F. T. Corbin
- 37 Effect of Light on Winter Wheat (*Triticum aestivum*) and Italian Ryegrass (*Lolium multiflorum*) Competition. Claudio M. Ghersa, Maria A. Martinez-Ghersa, Jorge J. Casal, Miriam Kaufman, Mary Lynn Roush, and Victor A. Deregibus
- 46 Bermudagrass (*Cynodon dactylon*) Sod Rooting as Influenced by Preemergence Herbicides. Frederick M. Fishel and G. Euel Coats
- 50 Relative Costs of a Weed-Activated Versus Conventional Sprayer in Northern Great Plains Fallow. William H. Ahrens
- 58 Leafy Spurge (*Euphorbia esula*) Control with Fall-Applied Imazapyr, Imazaquin, and Imazethapyr. Robert A. Masters, Robert N. Stougaard, and Scott J. Nissen
- 64 Sampling Wheat (*Triticum aestivum*) at the Elevator for Jointed Goatgrass (*Aegilops cylindrica*). Drew J. Lyon, John A. Smith, and David D. Jones

•Peer reviewed papers.

Cover

Woolly cupgrass (*Eriochloa villosa*) (Thunb.) Kunth is a rapidly growing and very difficult-to-control weed in corn. The photograph shows a second flush of woolly cupgrass coming in reduced tillage corn after nicosulfuron totally controlled the first flush. This photograph was submitted by Jerry M. Green, E.I. duPont deNemours and Company, Stine-Haskell Research Center, Newark, DE 19714-0030.

- 69 Effect of Irrigation and Weed Control Treatment on Yield and Net Return from Soybean (*Glycine max*). Larry G. Heatherly, C. Dennis Elmore, and Stan R. Spurlock
- 77 Comparison of Herbicide Programs and Cultivation for Sicklepod (*Cassia obtusifolia*) Control in Soybean (*Glycine max*). Donnie K. Miller and James L. Griffin
- 83 Interference of Two Kyllinga Species (*Kyllinga nemoralis* and *Kyllinga brevifolia*) on Bermudagrass (*Cynodon dactylon*) Growth. Osamu Kawabata, Roy K. Nishimoto, and Chung-Shih Tang
- 87 A Simple Low Volume Laboratory Research Spray System. Robert A. Campbell, James E. Wood, E. Garth Mitchell, John Studens, and Robert G. Wagner
- 93 Movement of ¹⁴C-Bentazon with Adjuvants into Common Cocklebur (*Xanthium strumarium*) and Velvetleaf (*Abutilon theophrasti*). Brian C. Levene and Micheal D. K. Owen
- 99 DC X2-5309 Organosilicone Adjuvant Improves Control of Kochia (*Kochia scoparia*) with Bentazon and Bromoxynil. Rick A. Boydston and Kassim Al-Khatib
- 105 Efficacy of Starch-Encapsulated Formulations of Atrazine Containing Two or Three Herbicides in Same Granule. Marvin M. Schreiber, Michael V. Hickman, and Gordon D. Vail
- 114 Using Estimates of Weed Pressure to Establish Crop Yield Loss Equations. R. Gordon Harvey and Clark R. Wagner
- 119 Triticale (*X Triticosecale* Wittmack) Response to Herbicides. Alan C. York, Stewart M. Turner, and Ronald E. Jarrett
- 124 Competitive Abilities of Six Corn (*Zea mays* L.) Hybrids with Four Weed Control Practices. Garry Tyron Ford and Jane Mt. Pleasant
- 129 Effects of Tank-Mix Combinations of Non-Selective Foliar and Selective Soil-Applied Herbicides on Three Weed Species. David E. Hydrick and David R. Shaw
- 134 Canada Thistle (*Cirsium arvense*) Control in No-Tillage Corn (*Zea mays*). Scott Glenn and Lane K. Heimer
- 139 Use of Gene Flow to Control Diclofop-Methyl Resistance in Italian Ryegrass (*Lolium multiflorum*). Claudio M. Ghersa, Maria A. Martinez-Ghersa, Timothy G. Brewer, and Mary Lynn Roush
- 148 The Viability of Seeds in Feed Pellets. David L. Zamora and James P. Olivarez
- 154 Growth and Development of Organic Arsenical-Susceptible and -Resistant Common Cocklebur (*Xanthium strumarium*) Biotypes Under Noncompetitive Conditions. William E. Haigler, Billy J. Gossett, James R. Harris, and Joe E. Toler
- 159 Weed Control with Non-Selective Herbicides in Soybean (*Glycine max*) Stale Seedbed Culture. Andrew J. Lanie, James L. Griffin, P. Roy Vidrine, and Daniel B. Reynolds

• Notes

- 165 Early Broadleaf Weed Control in Potato (*Solanum tuberosum*) with Herbicides. Martina W. Murray, Richard N. Arnold, Eddie J. Gregory, and Dan Smeal
- 168 Sweet Potato Periderm Components Inhibit Yellow Nutsedge (*Cyperus esculentus*) Growth. Howard F. Harrison, Jr. and Joseph K. Peterson

Intriguing World of Weeds

- 172 Beggarticks. Larry W. Mitich

Helpful Hints for Technical Writing

- 176 Examples of Good and Bad Technical Writing. Jean H. Dawson

EDITOR

Chester L. Foy

TECHNICAL EDITOR

Leanne D. Mitchell

ASSOCIATE EDITORS

Randy L. Anderson

Thomas A. Bewick

Barry J. Brecke

John Cardina

William J. Chism

William W. Donald

Joan Dusky

K. Neil Harker

Robert G. Harvey, Jr.

George Kapusta

James P. Martin

Robert F. Norris

Thomas F. Peeper

Donald Penner

Edward P. Richard

Phillip Stahlman

Clarence J. Swanton

Gail Wicks

John Wilcut

Alan C. York

Join the IWSS

IWSS Secretariat: Establish a Society membership in the following category:

- Individual—\$10.00/year
- Affiliate—no fee
- Sustaining—variable
- Lifetime Individual—\$200.00 (one-time only)
- Associate—\$50.00/year

for the person/institution listed below for which US \$ _____ is enclosed, _____ will be sent.

Please print or type:

Name _____

Address _____

Country _____

Checks, bank drafts, or money orders should be made payable to: International Weed Science Society. Service costs to the Society for cashing checks drawn on other than U.S. banks can exceed the face value of small checks. Therefore, whenever possible, either purchase more than a single year's membership, or, arrange to have as many members' fees as possible collected and a single check/draft for the total amount forwarded to the Society with a list of member names and addresses.

International Weed Science Society, c/o I.P.P.C., Oregon State University, Cordley Hall 2040, Corvallis, OR 97331-2915, USA.