WEED SCIENCE SOCIETY OF AMERICA

VOLUME 37	NOVEMBER 1989	NUMBER 6
PHYSIOLOGY, CHEMISTRY, AND BIO Acifluorfen Action on Growth and Phenolic Metab	OCHEMISTRY Polism in Soybean (Glycine max) Seedlings. Robert	: E. Hoagland 743
WEED BIOLOGY AND ECOLOGY	Glycine max) Grown in Rotations of 97- and 18-cm Ro	wy Spacings Devid D. Shew
Clyde A. Smith, and Charles E. Snipes	•	
T. Henry and Thomas T. Bauman	Common Cocklebur (Xanthium strumarium) Under Indi	
C. Murdock, Joe E. Toler, and Susan U. Walla	cklepod (Cassia obtusifolia) Seed Production and Viab	
	ed Germination. Rakesh Jain and Megh Singh of Potential Biocontrol Agents of Weeds. 1. Inverse Li	
William A. Williams, and Armand R. Maggenti.		771
An Alternative Approach for Evaluating the Efficacy o Williams, and Armand R. Maggenti	of Potential Biocontrol Agents of Weeds. 2. Path Analysi	s. Dan J. Pantone, William A. 778
WEED CONTROL AND HERBICIDE T	ECHNOLOGY	
Recovery of Spring Wheat (<i>Triticum aestivum</i>) Injure E. Smith	ed by Trifluralin. Ian N. Morrison, Ken M. Nawolsky, G	eorge M. Marshall, and Allan 784
Chandrasena and Geoff R. Sagar	ns) as Influenced by Some Application Factors and	
Ronald H. Delaney, and Larry O. Pochop	Fresnel Lens Concentrated Solar Radiation. David V	
	ng Johnsongrass (Sorghum halepense). Mou-Yen Chi	
SOIL, AIR, AND WATER		
	Aqueous Soil Extracts with Eurasian Watermilfoil (<i>Myr</i>	
	Imazethapyr. John R. Campbell, Rex A. Liebl, and	
Effects of Imazaquin Residues on Cotton (Gossy	vpium hirsutum). Clyde J. Barnes, Andrew J. Goe	tz, and Terry L. Lavy 820
SPECIAL TOPICS		
R. Chaudhry	Clover (Trifolium pratense). S. G. Taylor, D. G. Shillin	
D. Reeleder	eld Bindweed (Convolvulus arvensis). Louise Morin, A	
•	the Soil. Katherine L. Gross and Karen A. Renn	
Subject index to volume or weed Science		

WEED SCIENCE

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

R. J. Aldrich, Editor

Associate Editors

Nagi R. Achhireddy, Yoder Brothers, Inc., P.O. Box 68, Alva, FL 33920

N. E. Balke, Department of Agronomy, University of Wisconsin, 1575 Linden Drive, Madison, WI 53706

Michael Barrett, Department of Agronomy, University of Kentucky, Lexington, KY 40546

Sidney S. Harper, USDA-ARS, Southern Weed Science Laboratory, P.O. Box 350, Stoneville, MS 38776

R. D. Ilnicki, Department of Soils and Crops, Rutgers University, New Brunswick, NJ 08903

R. S. McAllister, Dynamac International, Inc., 11140 Rockville Pike, Rockville, MD 20852

Paul W. Santelmann, Department of Agronomy, Oklahoma State University, Stillwater, OK 74078

A. K. Watson, Department of Plant Science, Macdonald College of McGill University, 21111 Lakeshore Rd., Ste. Anne de Bellevue, PQ, Canada H9X 1C0

Allen F. Wiese, Texas Agricultural Experiment Station, Texas A&M University System, P.O. Drawer 10, Bushland, TX 79012

> Jerry Oot, Technical Editor AC/217-892-4329

Reviewers

W. H. Ahrens	Raymond Forney	A. R. Martin	R. F. Turco
L.W.J. Anderson	Greg Gillespie	Wondi Mersie	M. K. Upadhyaya
David Bridges	K. N. Harker	Tom Moorman	Glenn Wehtje
D. D. Buhler	Kent Harrison	L. J. Moshier	S. C. Weller
G. E. Coats	J. S. Holt	D. T. Patterson	G. A. Wicks
J. F. Derr	William C. Koskinen	P. J. Shea	John W. Wilcut
A. G. Dexter	Rex Liebl	C. E. Snipes	M. C. Williams
Charlotte Eberlein		-	Frank Young
	Officers of the Weed Science	Society of America	
H. M. LeBar	on, President A.	S. Hamill, Secretary	

H. M. LeBaron, President	A. S. Hamill, <i>Secretary</i>
L. W. Mitich, President-Elect	J. F. Ellis, Treasurer
J. R. Abernathy, Vice President	B. Truelove, Editor-in-Chief
J. F. Ahrens, Past President	R. A. Schmidt, <i>Executive Secretary</i>

R. A. Schmidt, Executive Secretary

Weed Science (ISSN 0043-1745) is an official publication of the Weed Science Society of America, 309 West Clark Street, Champaign, IL 61820 (AC/217-356-3182). 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 is \$50 per year, student affiliate membership \$20, which includes receipt of Weed Science, Weed Technology, and WSSA Newsletter. Dues should be sent to WSSA, 309 West Clark Street, Champaign, IL 61820 not later than December 1 of each year. Membership in the society is on a calendar-year basis only.

Subscriptions (institutions, libraries, etc.) are \$80 per year, one volume per year of six issues beginning in January. New subscriptions and renewals begin with the first issue of the current volume and should be sent to WSSA, 309 West Clark Street, Champaign, IL 61820.

Change of address affecting the mailing list for members, students, and subscribers, inquiries about copies lost in the mail, requests for back issues, and all matters pertaining to the receipt of the Journal, membership and subscription information should be sent to WSSA, 309 West Clark Street, Champaign, IL 61820. Claims for copies lost in the mails must be received within 30 days (90 days foreign) of the date of issue to insure replacement at no charge.

Manuscripts must be sent to the Editor, Richard J. Aldrich, 701 Wildwood Drive, Columbia, MO 65203 (Oct. 16 to April 30); or Box 236, Marcell, MN 56657 (May 1 to Oct. 15). Directions for contributors are published in the January issue of Weed Science. Authors are asked to pay \$50 (member) or \$100 (nonmember) per page charge as a portion of the cost of publication. The Editor can make exceptions in advance when justified.

> Weed Science published by the Weed Science Society of America. Second class postage paid at Champaign, IL and at additional mailing offices. Copyright 1989 by the Weed Science Society of America. Printed in USA. All rights reserved. Reproduction in part or whole prohibited.

Return POD form 3579 to WSSA, 309 West Clark Street, Champaign, IL 61820.

Sustaining Members WEED SCIENCE SOCIETY OF AMERICA November 17, 1989

ABC Laboratories, Inc. A & L Agricultural Laboratories ACRES Agric. Custom Research Agri-Growth Research Inc. Agrolinz Inc. Allen Machine Works American Cyanamid Company American Hoechst Corporation The Andersons **BASF** Corporation Battelle Chemalysis Inc. Chevron Chemical Company CIBA-GEIGY Canada Inc. **CIBA-GEIGY** Corporation Conviron Deere & Company De Soto, Inc. Dow Chemical USA E. I. DuPont de Nemours Company Eli Lilly & Company Environmental Technologies Institute Inc. Fermenta ASC Corporation FMC Corporation Gandy Corporation Growmark Inc. Gylling Data Management, Inc. Heartland Technologies, Inc.

ICI Americas, Inc. W. R. Landis Associates LI-COR, Inc. Mandel Scientific Company Ltd. Marbicon Inc. Micro Simplified Inc. Mobay Corp./Ag Chem. Div. Monsanto Company Mycogen Company Nippon Soda Company Ltd. NOR-AM Chemical Company Pan-Agricultural Labs., Inc. PBI/Gordon Corporation Pioneer Overseas Corporation R & D Sprayers Inc. Research Options, Inc. Rhone Poulenc Inc. Rogers Engineering Inc. Rohm & Haas Company Sandoz Crop Protection O. M. Scott & Sons Company SSI Mobley Company, Inc. Stewart Agricultural Research Service Inc. Sumitomo Chemical America Inc. Terra International Inc. Uniroyal Chemical Corporation Watson Consulting and Research Inc.