



# *Weeds*

VOLUME 9  
APRIL 1961  
NUMBER 2

*Journal of the Weed Society of America*

# Weeds

*Issued Quarterly by the Weed Society of America*

C. J. WILLARD, *Editor*, Department of Agronomy, The Ohio State University, 1827 Neil Ave., Columbus 10, Ohio

W. C. JACOB, *Business Manager*, Department of Agronomy, University of Illinois, Urbana, Illinois

## EDITORIAL COMMITTEE

O. C. LEE, Department of Botany and Plant Pathology, Purdue University, Lafayette, Indiana

R. A. PETERS, Department of Plant Science, University of Connecticut, Storrs, Connecticut

W. C. ROBOCKER, Crops Research Division, ARS, USDA, State College of Washington, Pullman, Washington

E. G. RODGERS, Department of Agronomy, University of Florida, Gainesville, Florida

D. W. STANFORTH, Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa

WEEDS is a quarterly journal published by the Weed Society of America. The subscription price is \$10.00 yearly for four issues; single copies \$2.50. Address all communications regarding subscriptions, advertising, and reprints to W. C. Jacob, Department of Agronomy, University of Illinois. All checks, money orders, and other remittances should be made payable to the Weed Society of America. The editorial office is located at Department of Agronomy, The Ohio State University, 1827 Neil Avenue, Columbus 10, Ohio. Inquiries concerning manuscripts and other material for publication should be addressed to the editorial office. Printing is by the W. F. Humphrey Press, Inc., Geneva, New York.

Entered as second-class matter at the post office at Urbana, Illinois with additional entry at Geneva, New York.

## Table of Contents

	Page
Penetration of Living and Non-living Surfaces by 2,4-D as Influenced by Ionic Additives. S. S. Szabo and K. P. Buchholtz . . . . .	177
Some Factors Affecting the Control of Wild Oats with Barban. H. A. Friesen	185
Penetration and Persistence of Diuron in Soil. L. W. Weldon and F. L. Timmons . . . . .	195
Post-Planting Weed Control in Garden Chrysanthemums. R. E. Widmer and R. J. Stadtherr . . . . .	204
Some Chemical and Physical Properties of Weed Killers, Supplement 1. A. W. Swezey and R. W. Nex . . . . .	209
Effects of Different Densities of Downy Brome ( <i>Bromus tectorum</i> ) on Growth and Survival of Crested Wheatgrass ( <i>Agropyron desertorum</i> ) in the Greenhouse. Raymond A. Evans . . . . .	216
Penetration of 3-Amino-1,2,4-triazole in Canada Thistle and Field Bindweed. R. A. Herrett and A. J. Linck . . . . .	224
The Uptake, Translocation, and Metabolism of Simazine and Atrazine by Corn Plants. Marvin Montgomery and Virgil H. Freed . . . . .	231
Control of <i>Pennisetum clandestinum</i> , Kikuyugrass. Victor B. Youngner and J. R. Goodin . . . . .	238
Relation of Light Quality to Effects of 2,4-D on Chlorophyll and CO <sub>2</sub> Exchange. George Williams and Stuart Dunn . . . . .	243
Effects of Light Intensity and Quality on the Growth of <i>Elodea densa</i> and <i>Heteranthera dubia</i> . R. D. Blackburn, J. M. Lawrence, and D. E. Davis . . . . .	251
Influence of Nozzle Size and Type, Hardness of Water, and Wetting Agents on Spray Drift. Glen E. Page . . . . .	258
Some Physiological Effects of 2,2-Dichloropropionic Acid. M. Ingle and B. J. Rogers . . . . .	264
Control of Barnyardgrass ( <i>Echinochloa crusgalli</i> ) in Western Irrigated Cotton. J. H. Miller, H. M. Kempen, J. A. Wilkerson and C. L. Foy . . . . .	273
The Influence of <i>N</i> -(3,4-dichlorophenyl)methacrylamide on Early Growth and Development of Cotton. S. W. Bingham and W. K. Porter, Jr. . . . .	282
The Activities of Certain Enzymes from Cotton Treated in Cotyledon Stage with <i>N</i> -(3,4-dichlorophenyl)methacrylamide. S. W. Bingham and W. K. Porter, Jr. . . . .	290
Glycolic Acid Oxidase, Catalase, and Peroxidase of Cotton Tissue. S. W. Bingham and W. K. Porter, Jr. . . . .	299
The Chemical Composition of Medusahead and Downy Brome. Rodney W. Bovey, Duane Le Tourneau, and Lambert C. Erickson . . . . .	307
The Herbicidal Effect of EPTC, CDEC, and CDAAs on <i>Echinochloa crusgalli</i> with Various Depths of Soil Incorporation. Floyd M. Ashton and Kenneth Dunster . . . . .	312
3,4-Dichloropropionanilide for Control of Barnyardgrass in Rice. Roy J. Smith, Jr. . . . .	318
<b>Brief Papers:</b>	
A Small Plot Sprayer Using Disposable Spray Containers. D. H. Webster and J. S. Leefe . . . . .	323
A Variable Dosage Sprayer for Treating Small Plots. J. S. Leefe . . . . .	325
Loss of Geotropism and Modification of Root Hair Development Produced by Amitrole. B. Counts . . . . .	329
Toxicity of Simazine to Seedling Oat Plants. T. J. Sheets . . . . .	331
News and Notes . . . . .	334
Sustaining Members . . . . .	335
Bibliography of Weed Investigations, July to September, 1961 . . . . .	336



**ATLACIDE:** Safer chlorate weed killer...widely used for non-selective eradication of bindweed, Canada thistle, quack grass, Johnson grass and other tough perennials. Kills roots...discourages regrowth. Applied dry or dissolved in water.

**ATLACIDE-2,4-D:** Offers dual killing action of sodium chlorate and 2,4-D.

**CHLOREA:** A combination of sodium chlorate, borate and monuron in powder form. Kills weeds and grasses. Combines the proven effectiveness of chlorate on deep-rooted weeds with the soil-surface action of monuron on shallow-rooted grasses and annual seedling growth. Lasting residual effect inhibits new growth. Does not create a fire hazard when used as directed. Applied dry or as a water-mixed spray.

**CHLOREA GRANULAR** Similar to Chlorea, but a "pelletized" material. No mixing...easy to apply by hand or with mechanical spreader.

**CHLORAX "40":** A composition of sodium chlorate and borate...for weed and grass control. Has lasting residual effect. Does not create a fire hazard. Applied dry or as a spray.

**ATLAS "A":** A 40% sodium arsenite solution (4 lbs. arsenic trioxide per gal.). Destroys vegetation and algae in ponds and lakes. Controls certain turf weeds. Used as general weed killer and to kill trees and stumps. Also used to kill potato vines prior to harvesting.

**ATLAS "A" SP:** A spray powder containing 94% sodium arsenite. Used for the same purposes as Atlas "A". Applied as a water-mixed spray.

**CHIP-CAL:** Special low-lime calcium arsenate formulation in granular and spray powder forms. Used as crabgrass preventative for established turf. Applied before crabgrass seed starts to germinate. Treatment lasts for several years.

**2,4-D & 2,4,5-T:** 2,4-D Amine and 2,4-D Ester liquids; 2,4-D Ester dusts; Low Volatile 2,4,5-T and Brush Killer.

**METHOXONE:** Contains MCP sodium salt. Used for control in small grains, flax, rice and grass. Controls same weeds as 2,4-D; considered safer for selective spraying.

**BUTOXONE:** A liquid containing 4-(2,4-DB). For selective control of many broadleaf weeds in established alfalfa and certain other legumes.

Write for Weed Control Bulletins

**CHIPMAN CHEMICAL COMPANY, INC.**

Chicago, Ill.

Bound Brook, N. J.

Portland, Ore.

Palo Alto, Calif.

Pasadena, Tex.

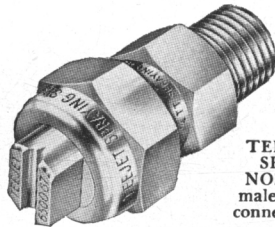
Bessemer, Ala.

*Manufacturers of Weed Killers Since 1912*

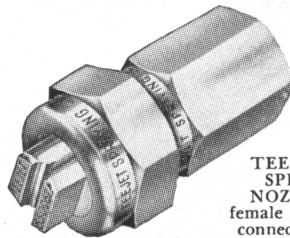


the precision nozzle for effective spraying

Supplied in a full range of interchangeable orifice tip and strainer sizes to meet every capacity requirement. TeeJet Spray Nozzles for Weed Control by spraying make it possible to take maximum advantage of the chemical and sprayer unit. TeeJet nozzles are precision built and provide a flat spray with uniform distribution. Atomization is properly controlled to give coverage with an absolute minimum of driftage. Patented tip design, with set-back orifice opening protects precision orifice from accidental damage. TeeJet spray nozzles are built for use on spray booms and portable sprayers.



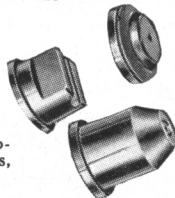
TEEJET SPRAY NOZZLE male pipe connection



TEEJET SPRAY NOZZLE female pipe connection

**OFF-CENTER SPRAY NOZZLES**

Spraying Systems Spray Nozzles with TeeJet tips are supplied in a variety of special body types to meet any unusual spraying requirement. For example, one type of off-center spray nozzle with swivel body provides a flat spray up to 35 feet wide for spraying areas with a single nozzle, that are not accessible with a boom.



INTER-CHANGE-ABLE ORIFICE TIPS flat and cone spray types

**SUPPLEMENTARY EQUIPMENT**

Complete accessories relating to nozzle use are supplied. These include strainers, special nozzle fittings, and hand valve equipment.

TeeJet Spray Nozzles are supplied for Weed Control... as well as all other types of agricultural spraying. For complete information and reference data write for Catalog 30.

**SPRAYING SYSTEMS CO.**  
*Engineers and Manufacturers*

**3296 RANDOLPH STREET BELLWOOD, ILLINOIS**

**For Agriculture and Industry . . .**

# **Du Pont WEED KILLERS**

*offer new economies  
and efficiency in killing  
weeds, grass and brush*

**KARMEX®** diuron for weed control in many crops; irrigation and drainage ditches; and industrial areas.

**KARMEX® DL** for pre-emergence weed control in cotton.

**TELVAR®** monuron for weed control in many crops; irrigation and drainage ditches; and industrial areas.

**KLOBEN®** neburon for weed and grass control in nursery plantings and tomatoes.

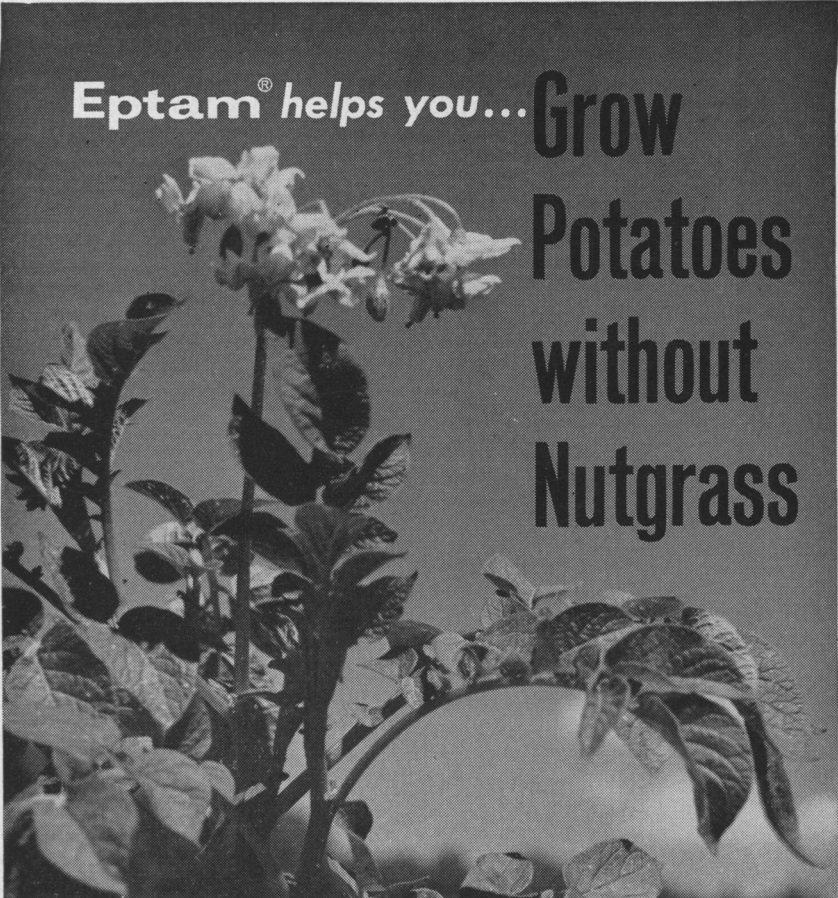
**DYBAR®** fenuron—a pelleted product for dry application to the soil for control of brush in fence rows, drainage ditches, utility and railroad right-of-ways, and other non-cultivated areas.

**TRYSBEN® 200**, a new weed killer based on trichlorobenzoic acid, for control of bindweed and other noxious weeds; mixed broadleaf weeds; and certain woody vines and brush.

**AMMATE® X** for long-term, low-cost brush control.



Better Things for Better Living . . . *through Chemistry*



**Eptam<sup>®</sup> helps you... Grow  
Potatoes  
without  
Nutgrass**

Now nutgrass, seedling Johnson grass and other annual grasses can be controlled in Irish potatoes. You can stop them before they start with one application of EPTAM herbicide applied directly to the soil.

EPTAM knocks out nutgrass and annual grass seed as they germinate. Potato plants have a full chance to grow without competition for moisture and plant foods. You save money on cultivations, and have a cleaner crop to harvest.

The liquid or granular formulation of EPTAM may be

used either at preplant or between drag-off and last cultivation. Immediately after application incorporate (mix) EPTAM thoroughly in the soil. Now you are ready to grow potatoes without grass!

EPTAM is also recommended for control of annual grasses in snap and pole beans, dry beans, alfalfa, birdsfoot trefoil and other small seeded legumes. For more details, see your dealer, or write to Stauffer Chemical Company, Agricultural Chemicals Division, 380 Madison Avenue, New York 17, New York.



©Stauffer's Reg. T. M. for an herbicide.