CRABGRASS?

TAKE CONTROL WITH PENDIMETHALIN.

If crabgrass is a growing problem on your turf, you're not using the right herbicide. What you need is Pendimethalin.

No other preemergent offers a broader spectrum of control. Fact is, this high-performance

herbicide effectively controls crabgrass, most annual grassy

CRABGRASS CONTROL				
PRODUCT	Rate (lb ai/A)	97 DAT Cor	% Control 97 DAT 129 DAT	
PENDIMETHALIN 60WDG	3.0			
PENDIMETHALIN 60WDG	1.5+1.5			
BARRICADE 65WG°	0.75			
DIMENSION 1EC	0.5	99		
TEAM .87 FG ^c	1.5+1.5	88	82	

Ohio State University 1996

And Pendimethalin has excellent turf tolerance.

University and field research studies have shown that

Pendimethalin provides consistent, superior weed

control—yet offers tremendous tolerance to warm- and

cool-season turfgrasses.

Here's how it works: After Pendimethalin makes contact with the germinating weed seed, it disrupts the seed's biochemical

processes, which makes the weed seed

CRABGRASS CONTROL				
PRODUCT	Rate (lb ai/A)	ontrol 154 DAT		
PENDIMETHALIN 60WDG	3.0			
PENDIMETHALIN 60WDG	1.5+1.5			
BARRICADE 65WG ^a	0.75			
DIMENSION 1EC	0.5			
RONSTAR 2G°	2+2	97	24	

Virginia Polytechnic Institute & State University

what's more, Pendimethalin works hard—and long.

Through the entire season. That's because its low volatility and slow decomposition characteristics keep it active in the soil longer.

Pendimethalin also makes your life easier. You

have the flexibility to spread it on as a dry granule,

combination with fertilizer products. Or you can use

alone, or in

weeds.

annual broadleaf

weeds.

and many

CRABGRAS	S CONTROL	
PRODUCT	Rate (lb ai/A)	% Control 120 DAT
PENDIMETHALIN 60WDG	1.5	
BARRICADE 65WG®		
DIMENSION 1EC		
RONSTAR 2G°	3	92

Penn State University 1996

the sprayable formulations, available as a 3.3 EC, 60 WDG and 60 WP.

No wonder professional turf managers have made Pendimethalin the #1 preemergent herbicide.

So take control of your turf—and your reputation.

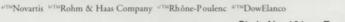
Use Pendimethalin herbicide to control crabgrass and more. Because the only thing you should see growing like a weed is beautiful grass.

Call now for more information or for the distributor nearest you.

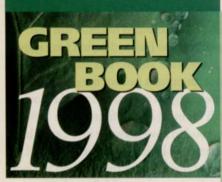
1-800-545-9525

extension 1609A





DECEMBER 1997 VOLUME 36• NUMBER 12



ON THE COVER: KEEP THE TURF AND ORNAMENTALS GREEN AND GROWING WITH HELP FROM THE PEOPLE AND PRODUCTS LISTED IN GREEN BOOK 1998.

COLUMNS

OPENING SHOTS

DEPARTMENTS

176 AD INDEX

177 CLASSIFIED

VOICE OF THE GREEN INDUSTRY

management

GREEN BOOK 1998

GREEN INDUSTRY ASSOCIATIONS

EVENT CALENDAR 32

UNIVERSITY CONTACTS 40

REGULATORY CONTACTS 52

56 POISON CONTROL CENTERS

STATE POSTING REGULATIONS 60

64 **GUIDES TO COOL- AND** WARM-SEASON WEED, **INSECT AND DISEASE** CONTROL

EDITORIAL INDEX 84

> Feature articles News stories Contributing authors

PRODUCT INDEX 88

PRODUCTS & SERVICES 89

Equipment: 89 Suppliers and services: 105 Control products: 109 Seed/sod/sprigs: 119

123 DISTRIBUTOR LISTINGS

SUPPLIER ADDRESSES

PRODUCT REVIEW

LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Advanstar Communications, Inc. Corporate, editorial and advertising offices: 7500 Old Oak Blvd., Cleveland, OH 44130. Accounting,

Subscription rates: one year, \$39, two years \$58 (U.S.); one year \$66, two years \$99 (Canada and Mexico); one year \$130, two years \$195 (all other countries). For air mail delivery, include an additional \$70 per order annually. Current issue single copies (pre-paid only); \$4 (U.S.); \$7 (Canada and Mexico); one year \$130, two years \$195 (all other countries). For air mail delivery, include an additional \$70 per order annually. Current issue single copies (pre-paid only); \$4 (U.S.); \$7 (Canada and Mexico); \$12 (elsewhere), add \$3.50 per order for shipping and handling. Back issues, if available, \$10 (U.S.); \$1 (Canada and Mexico); \$20 (Cana

Copyright ©1997 by Advanstar Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from Advanstar Marketing Services, Attn: Permissions, 7500 Old Oak Blvd., Cleveland, OH 44130 or phone (800) 225-4569 x742. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Advanstar Communications for libraries and other users registered with the Copyright Clearance Center



Canadian G.S.T. Number: R-124213133, IPM number: 841919

POSTMASTER: Send address changes to Landscape Management, P.O. Box 6198, Duluth, MN 55806.



ooking over our article index for 1997, we're glad to have brought you a variety of articles and news this year. But onward we go, as many things we reported on for you in 1997 will continue to pick up steam in 1998.

The biological market is "bubbling," as we wrote in June. These products are getting the attention of our leading turfgrass researchers, and have achieved official "seminar subject status" at turfgrass conferences.

Those who have reported favorably on biologi-

cal products include Dr. Hank Wilkinson of the Univ. of Illinois, Dr. Fred Baxendale of Nebraska, and Dr. Eric Nelson of Cornell. Nelson, while not endorsing any particular bio product, spoke of their promise at the New York State Turfgrass Association show in Syracuse last month. Some supers like them for positive pr, says Nelson. The "environmentally friendly" angle, a valid concern, is more acceptable to some. The questions is, are they

also easy to fit into existing control strategy?

"Others see biological controls as perhaps the most effective and sustainable approach to disease management," says Nelson. The use of corn gluten meal products as herbicides is on the rise, reports Nelson. Discovered by Dr. Nick Christians of the University of Nebraska, and reported on by LM a couple years back, five million pounds have been sold in 1997, for goosegrass and crabgrass control. Not a huge amount, but it's good to see an "alternative" product that works. There are also some notable new control products from the big boys, such as Rohmid's MACH 2, Bayer's Merit, and Conserve, from DowAgrosciences (the soon to be new name for DowElanco).

We feel we were assertive in our athletic field

editorial this year. Groups such as the STMA and its regional chapters; people such as Floyd Perry; Dr. Kent Kurtz; David Mellor; and Dr. David Minner have all contributed mightily this year. Managing editor Ron Hall and myself have spoken with many other athletic turf managers who feel the most important issue of the day is finding ways to fund turfgrass management and renovation. Watch for more on this from LM in 1998.

We're proud to have been the first Green Industry magazine to highlight the growing need for equipment maintenance training, and the lack of good mechanics in times of full employment.

We also broke the story on the Green Industry labor crisis, which earned us an award from Turf & Ornamental Communicators Association (TOCA). In fact, we took six TOCAs!

Other employee issues we covered in 1997: recruitment; training; retention; incentive pay and motivation.

In October, we brought you our 35th Anniversary Issue, a special look back at how far the industry has come since 1962.

Looking ahead, the EPA is on a roll as it cranks up its Food Quality Protection mandates and examines endocrine disorders and children's exposure to pesticides and dirty air.

But let's not get too excited about 2000. It's just another year when it comes to getting the customers, getting the employees, getting the funding, and getting the job done. There are no breaks from '99-00, and the season then will be just as long as in any other year.

As editors, we know what you want to see from this magazine, and we strive to get you the best information you can use on any given day.

This *Green Book* is an example. It's your yearlong reference to the people and places that make the Green Industry tick. Just about anyone you need to call is listed here, from turfgrass researchers to equipment manufacturers. When you have a question that needs answering, think *'Green Book,'* and your answer is not far off.

Best wishes for a great '98!

Green Industry ideas, issues are 'to be continued'



Deny Trofan

TERRY McIVER
Editor-in-Chief

There's more than fertilizer in this bag.



here's a total resource. One that can help you grow healthy, green turf with a strong root system and a solid base. Turf that's healthy and better able to fight disease, pests and everyday wear and tear. That resource is Terra. You'll find a complete, new line of Terra Professional Fertilizers – with primary, secondary, micronutrient and pesticide packages available. Plus, you can count on the support, service, assistance and expertise it takes to select and use the right

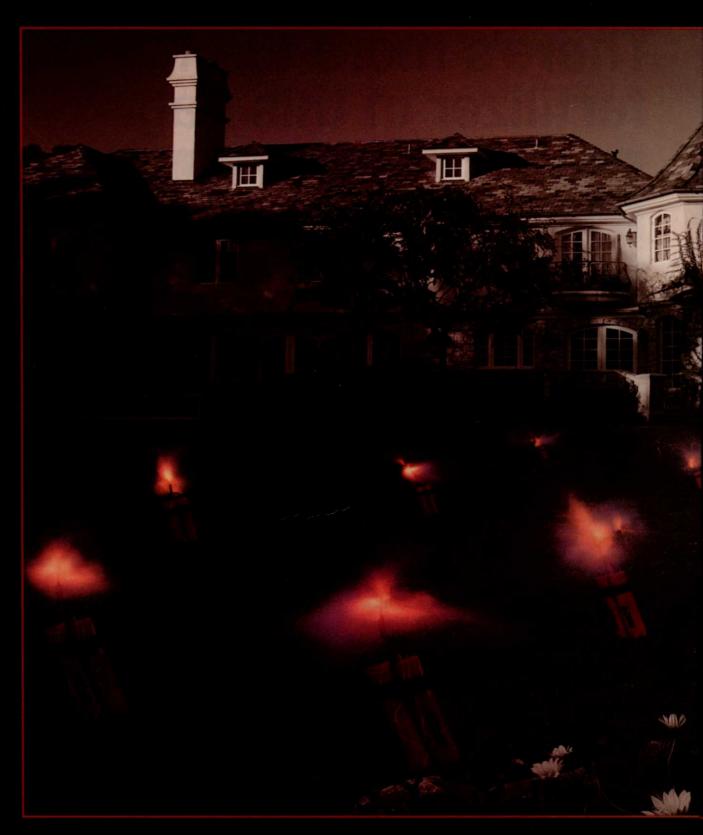
fertilizer. The product that will do the job for you. For fertilizers, turf seed, plant protection products and a whole lot more – work with Terra. You'll get more.



Terra Industries Inc. P.O. Box 6000 Sioux City, Iowa 51102 1-800-831-1002 www.terraindustries.com

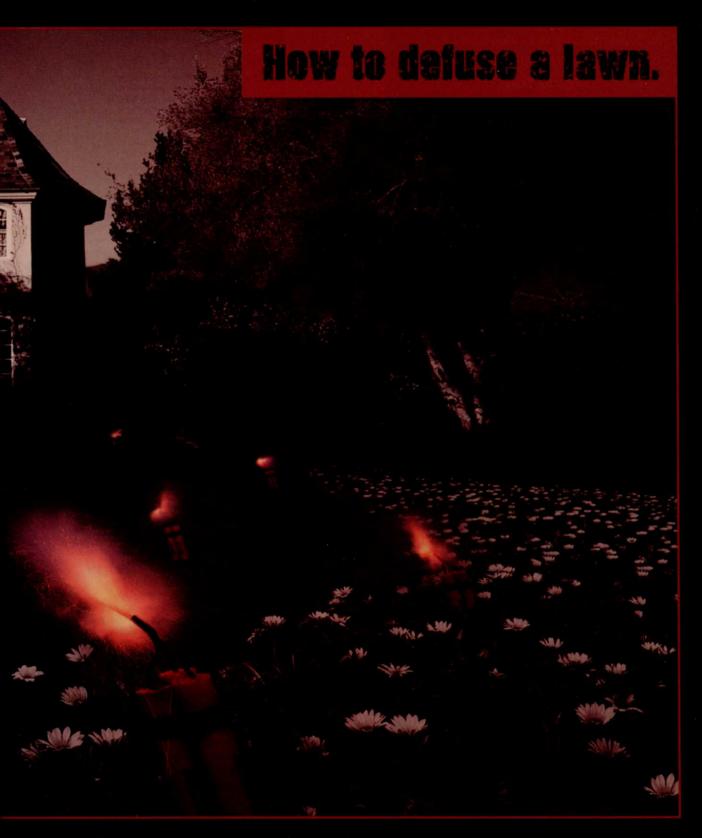
Working with you.





Every lawn and landscape has thousands of tiny time bombs hiding in the soil. Broadleaf weed seeds. And the best time to stop the explosion is before they emerge. A preemergent herbicide application creates a zone of protection where weeds get whacked as fast as they germinate. So your customers never see any weeds, and the turfgrass gets off to a fast, healthy start. It works so well, it can eliminate a lot of callbacks and





maybe two or three postemergence herbicide applications. One treatment of Gallery* preemergent herbicide is all it takes. Use it spring or fall on turf or ornamentals to prevent more than 95 kinds of broadleaf weeds for up to eight months. Now, Gallery is even labeled for use in California. Always read and follow label directions. For more information, call us toll-free at 1-800-352-6776.



"PEN WRITER"

If you could make more money, increase your customer service & eliminate posting...

Would You?



"Pen Writer" electronically synchronizes The Newton-MP 2000 hand held, with 161mhz speed & 5mb Ram, and "Route Rite" software, version 3.2+. Providing an efficient paperless environment for your office, a hardcopy for your customer without the technician needing to come back to the office. No Posting because its all electronic.



"Pen Diagramer Plus" allows the integrated drawing of diagrams with labels, notes, findings & recommendations. This makes our inspections reports a breeze. Fill in the blanks, Draw, Print, fax, integrate it or upload it, from the field.



Bar-code item with "Pen Diagramer Plus" and wand. Scan barcodes with date, time and your notes. Accurate reporting!



Invoices printed right at the customers door with your logo. The customer signs on "Pen Writer" and it is printed on bill. It is also great for bids with inventory of material, product, people, & equipment

"Route Rite" is our fully featured desktop routing and accounting package, since

1991. It is totally integrated and works in the DOS, Win.
3.11, Win 95, single and multi-user environments with Novell, NT, Win Terms, Intranet, DDE, DLL, ODBC & data warehousing. Mix & match your

Purchase or Lease (from \$85.00 monthly - includes "Route Rite" 1000, plus one "Pen Writer" software & MP2000, "Pen Diagramer Plus"). Printers, Barcode Wands & fax modems are optional.

erformance oftware echnologies, Inc.

For more information please CALL 800-788-0788. FAX 818-889-4623 or visit us on the **INTERNET** www.gopst.com

Circle 123

EDITORIAL STAFF

Editor-in-Chief (216) 891-2709 E-mail: tmciver@advanstar.com Terence McIver

Ron Hall Managing Editor (216) 891-2636 E-mail: rhall@advanstar.com

Dr. Bill Knoop Technical Editor (903) 860-2410 E-mail: knoop@mt-vernon.com

Vernon Henry Group Editor (216) 826-2829 Lisa Lehman Art Director (216) 891-2785

Lisa Bodnar Graphic Designer (216) 891-3101

READER ADVISORY PANEL

Jerry Coldiron Boone Links / Lassing Pointe G.C. Florence, Ky. Corey Eastwood Stockdale Country Club Bakersfield, Calif. Mike Guthrie Ground Control Landscaping Orlando, Fla. Larry Iorii Down to Earth Landscaping Wilmington, Del.

Pat Nibler ProGrass Wilsonville, Ore

David Mellor Milwaukee Brewers Mihvaukee, Wisc

BUSINESS STAFF

William J. Cooke John D. Payne Executive Vice President (216) 891-3130 Group Publisher (216) 891-2786

Brenda Dunlap Administrative Coordinator (216) 891-2734 Linda O'Hara Senior Production Manager (218) 723-9281

Karen Laszlo Controller/Marketing Director (216) 891-2705 Debi Harmer Production Director (218) 723-9325

Karen Edgerton Circulation Manager (218) 723-9280 Lynn Viele Green Book Coordinator (218) 723-9393

ADVERTISING OFFICES

Headquarters

7500 Old Oak Blvd. Cleveland, OH 44130-3369 (216) 243-8100 Fax: (216) 891-2675

John D. Payne Group Publisher (216) 891-2786 E-mail: jpayne@advanstar.com

Patrick K Toal

Regional Manager (904) 280-4205 Fax: (904) 280-2122 E-mail: ptoal@advanstar.com

Tom Galligan National Sales Manager

3901 52nd Ave. Kenosha, WI 53144-1830 (414) 653-9523 Fax: (414) 653-9524 E-mail: tgalligan@advanstar.com

John Kiesewetter Western Sales Manager

Eugene, OR 97401

(541) 461-0022 Fax: (541) 461-0044 E-mail: jkiesewetter@advanstar.com

Denise Zappola Classified / Market Showcase (216) 891-3162

Anthony Lavdas Account executive (216) 891-3118

MARKETING SERVICES

Marcie Nagy Reprints (100 minimum) (216) 891-2744

Mike Balzano Circulation List Rental (800) 225-4569, ext. 697 Advanstar Marketing Microfiche/film Copies (800) 225-4569, ext. 839

Chris Baxter Subscriber/Customer Service (218) 723-9477

Tammy Lillo International Licensing (218) 723-9518
Books, directories, back issues, photocopies (800) 598-6008; (218) 723-9180



Chairman and Chief Executive Officer Robert L. Krakoff

Vice Chairman James M. Alic

VP, Business Development Skip Farber

VP/Finance, CFO and Secretary David W. Montgomery

VP, Strategic Planning Emma T. Lewis

Executive Vice Presidents Kevin J. Condon, William J. Cooke, Alexander S. DeBarr, Brian Langille,

Glenn A. Rogers

Treasurer & Controller Adele D. Hartwick



Move to Kubota Country

Move to Kubota country and you'll find versatility, durability and operator comfort. The Kubota B-Series (13 to 18 PTO horsepower) tractors are compact to fit in tight places and powerful to get lots of jobs done. Kubota perfor-

mance matched implements include rotary tillers, front loaders, mid and rear mount mowers, boxscrapers and snowblower.

Need more power? Move up to the innovative Grand L-Series (25 to 37 PTO horsepower). Hydrostatic steering, shuttle transmission with shift-on-the-go provides ease of operation. Kubota's exclusive optional Glideshift transmission has clutchless operation through all eight speeds, forward and



conditioning for year 'round comfort.

Visit your Kubota dealer and find out how to make your move – to Kubota country! reverse. These tractors are smooth and quiet, with Kubota's E-TVCS engine which ensures clean emissions while providing high torque rise. Get one with an integral cab with heat and air-



For more information, please write to:

Kubota

KUBOTA TRACTOR CORPORATION

P.O. Box 2992, Dept. LM Torrance, CA 90509-2992 or call Toll Free 1-888-4 KUBOTA ext. 403 (1-800-458-2682 ext. 403)

Financing available through Kubota Credit Corporation





Circle 136

Introducing A New Kind of Savings Plan: Jiffy-Pots® from **Jiffy Products**

Plant pot-and-all!

Jiffy-Pots are 100% biodegradable - roots grow right through the pot wall!



All natural Jiffy-Pots from Jiffy Products increase efficiency, eliminate waste and add favorably to your bottom line. Available in a full range of sizes to meet any planting need.

Call 1-800-323-1047 to start your new savings plan today!



Jiffy Products of America, Inc. Batavia, IL 60510 Fax: 630-406-3906 www.jiffyproducts.com

Save money.

Circle 114

A proud supporter of these green industry professional organizations:



Associated Landscape Contractors of America 150 Elden Street, Suite 270, Herndon, VA 20170 (703) 736-9666; http://www.alca.org



American Association of Nurserymen (National Landscape Association) 1250 I St. NW, Suite 500, Washington, DC 20005 (202) 789-2900



Golf Course Superintendents Assn. of America 1421 Research Park Dr Lawrence, KS 66049-3859 (913) 841-2240; http://www.gcsaa.org



Independent Turf and Ornamental Distributors Association 1217 Wayburn Grosse Pointe Park, MI 48230 (313) 331-7739

International Turfgrass Society Crop & Soil Environmental Sciences, VPI-SU, Blacksburg, VA 24061-0403 (561) 996-3062



National Arborist Association The Meeting Place Mall, P.O. Box 1094, Amherst, NH 03031-1094 (603) 673-3311; http://www.natlarb.com



National Golf Foundation 1150 South U.S. Highway One, Jupiter, FL 33477 (407) 744-6006



Ohio Turfgrass Foundation P.O. Box 14824, Columbus, OH 43214 (614) 261-6750



The Outdoor Power Equipment Institute 341 South Patrick St. Old Town Alexandria, Va. 22314 (703) 549-7600; http://opei.mow.org



Professional Grounds Management Society 120 Cockeysville Rd., Suite 104, Hunt Valley, MD 21031 (410) 584-9754



Professional Lawn Care Association of America 1000 Johnson Ferry Rd., NE, Suite C-135, Marietta, GA 30068-2112 (770) 977-5222; http://www.plcaa.org



Responsible Industry for a Sound Environment 1156 15th St. NW, Suite 400, Washington, DC 20005 (202) 872-3860



Sports Turf Managers Association 1375 Rolling Hills Loop, Council Bluffs, IA 51503-8552 (712) 366-2669; (800) 323-3875; http://www.aip.com/stma



Turf and Ornamental Communicators Association P.O. Box 156, New Prague, MN 56071 (612) 758-5811

No Matter What the Job Always Take a ShortCut"



With the introduction of the revolutionary ShortCut", **Excel Hustlers distance themselves** from the crowd as never before.

New HBar Steering

The most operator-friendly steering system on the market - the learning curve is measured in minutes, not hours.



The Hustler ShortCut is more compact than comparable walk-behind mowers.

- True zero degree turns and compact size -twice as productive as hydro walk-behinds, even more productive than either front-mount or mid-mount zero turn riders.
- Choose between sitting or standing mow comfortably all day long.
 - Several horsepower and deck sizes to choose from there's a ShortCut to meet your needs.



1-800-395-4757

www.excelhustler.com Excel Industries, Inc. . Hesston, KS 67062

Circle No. 110 on Reader Inquiry Card

AGRONOMY

American Society of Agronomy/Crop Science Society of America

677 S Segoe Rd Madison WI 53711 608-273-8080 Fax: 608-273-2021 WWW: http://www.agronomy.org

Soil & Water Conservation Society

7515 N E Ankeny Rd Ankeny IA 50021 515-289-2331 Fax: 515-289-1227 WWW: http://www.swcs.org Contact: Douglas M Kleine

ATHLETIC TURF

ASTM Committee F-8

100 Barr Harbor Dr West Conshohocken PA 19428-2959 610-832-9710 Fax: 610-832-9666 EMail: gluciw@astm.org WWW: http://www.astm.org Contact: George Luciw

National Institute on Park & Grounds Management

730 W Frances St Appleton WI 54914-2365 920-733-2301 Fax: 920-733-2301 EMail: nipgm@tpo.org Contact: Barbara Walters

National Recreation & Park Association

22377 Belmont Ridge Rd Ashburn VA 20148 703-858-0784 Fax: 703-858-0794 WWW: http://www.nrpa.org Contact: Kathy Spangler

Sports Turf Association Canada

328 Victoria Rd Guelph ON Canada N1H6H8 519-763-9431 Fax: 519-766-1704 WWW: http://www.voguelph.ca/ gti/gest/sta.htm Contact: Lee Huether

Sports Turf Managers Association

1375 Rolling Hills Loop Council Bluffs IA 51503-8552 712-366-2669 Fax: 712-366-9119 EMail: trustytips@aol.com WWW: http://www.aip.com/stma Contact: Lee Huether

AQUATICS

Center for Aquatic Weed Control

University of Florida 7922 Northwest 71st St Gainesville FL 32653 352-392-9613 Fax: 352-392-3462 WWW: http://www.aquat1. ifas.ufl.edu/

Midwest Aquatic Plant Management Association

Roy LeFevre Dow Gardens 1018 W Main St Midland MI 48640 517-631-2677 Fax: 517-631-0675

USDA Aquatic Weed Laboratory

University of California Davis CA 95616 916-752-0631

Water Wastewater Equipment Manufacturers Association

Dulles International Airport PO Box 17402 Washington DC 20041 703-444-1777 Fax: 703-444-1779

BOTANY

American Society of Plant Physiologists

15501 Monona Dr Rockville MD 20855 301-251-0560 Fax: 301-279-2996 EMail: aspp@aspp.org WWW: http://www.aspp.org Contact: Kenneth M Beam

International Plant Propagators Society Western Region

743 Linda Ave NE Salem OR 97303-4549 503-393-2934 Fax: 503-393-2030 EMail: wlbluhm@juno.com Contact: Wilbur L Bluhm

US Botanic Garden Conservatory

First St & Maryland Ave SW Washington DC 20024 202-225-8333

CHEMICALS/ FERTILIZERS/ PESTICIDES

Agricultural Retailers Association

11701 Borman Dr Ste 110 St Louis MO 63146 314-567-6655 800-844-4900 Fax: 314-567-6808 EMail: amills@agretailerassn.com

Association of Official Analytical Chemists

481 N Frederick Ave #500 Gaithersburg MD 20877 301-924-7077 Fax: 301-924-7089 WWW: http://www.aoac.org

Chemical Specialties Manufacturers Association

1913 | St NW Washington DC 20006-2106 202-872-8110 Fax: 202-872-8114 EMail: csma@juno.com WWW: http://www.csma.org

Fertilizer Institute

501 Second St NE Washington DC 20002 202-675-8250 Fax: 202-544-8123

Mid America Crop Protection Association

9735 Landmark Parkway Dr Ste 14 St Louis MO 63127 314-849-9446 Fax: 314-849-0988 EMail: macpa@tetranet.net

National Agricultural Chemicals Association

1156 15th St NW Washington DC 20005 202-296-1585 Fax: 202-463-0474

National Fertilizer Solutions Association

11701 Borman Dr St Louis MO 63146 800-844-4900 Fax: 314-567-6808

EMail: amills@agretailerassn.com

Potash & Phosphate Institute

655 Engineering Dr Ste 110 Norcross GA 30092-2837 770-447-0335 Fax: 770-448-0439 EMail: sfox@ppi-far.com Contact: David W Dibb

Responsible Industry for a Sound Environment

1156 15th St NW Ste 900 Washington DC 20005 202-872-3860 Fax: 202-463-0474 WWW: http://www.acpa.org

Southern Agricultural Chemicals Association

PO Box 686 Dawson GA 31742 912-995-2125

Western Agricultural Chemicals Association

3835 N Freeway Blvd Sacramento CA 95834 916-568-3660 Fax: 916-565-0113

ENVIRONMENTAL

Alliance for Environmental Concerns

PO Box 4292 Warren NJ 07059-4292 908-563-9252 Fax: 908-560-8588