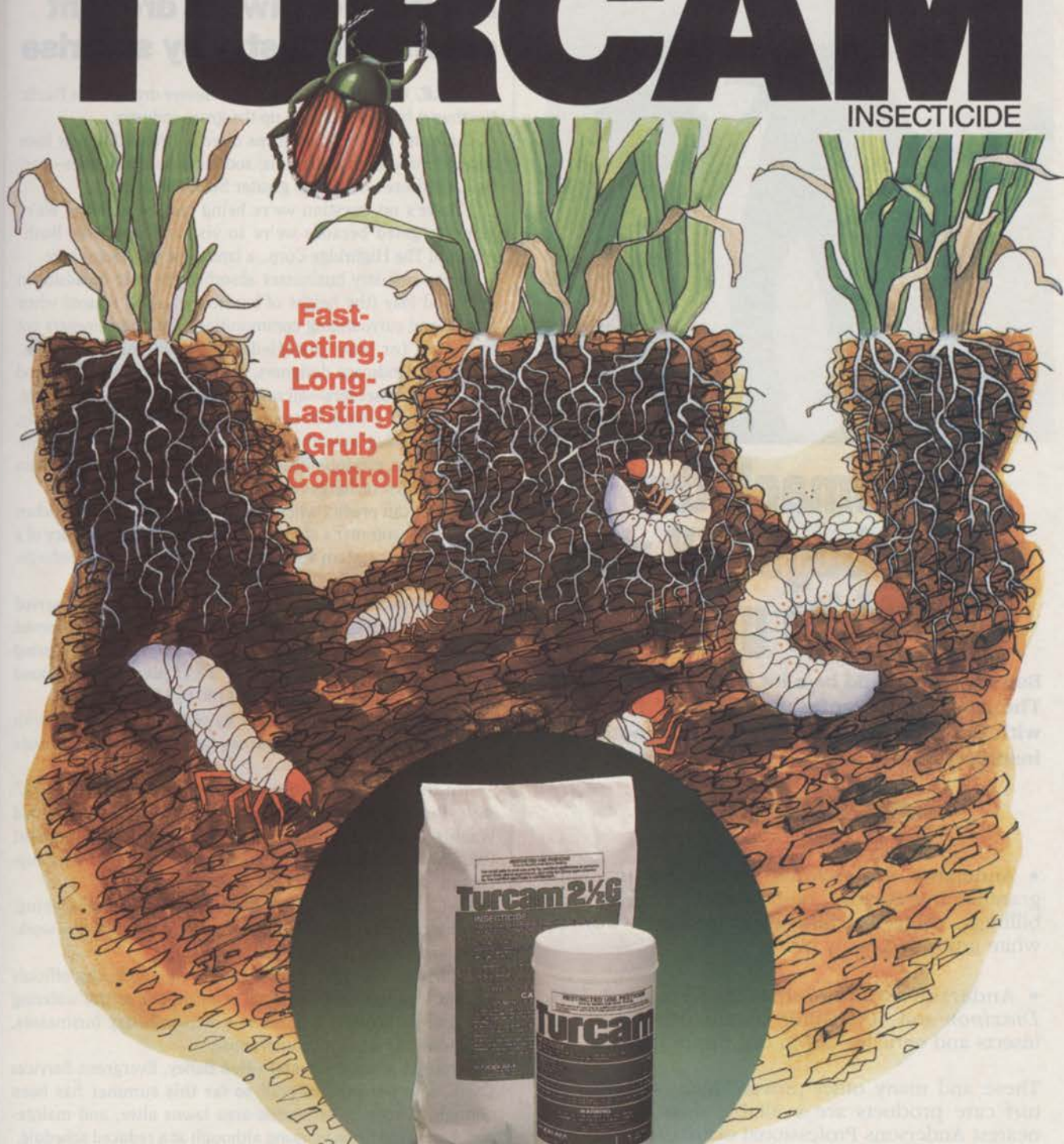


TURCAM®

INSECTICIDE



Fast-Acting,
Long-Lasting
Grub
Control

TURCAM®'s advanced carbamate chemistry goes to work fast—and offers effectiveness that lasts—against white grubs as well as mole crickets, chinch bugs, sod webworms and other destructive pests. This hard-working insecticide is odorless...cost-effective...easy to apply. What's more, TURCAM won't tie up in thatch or damage turf and ornamentals.

NOR-AM
NOR-AM CHEMICAL COMPANY
A Schering Berlin Company

3509 Silverside Road, P.O. Box 7495, Wilmington, DE, 19803

Now available in two convenient forms—TURCAM WP a wettable powder and TURCAM 2½G granular—this versatile insecticide can take care of your toughest pest control problems. For more information on TURCAM, contact the NOR-AM

Communications Department or your local distributor.

CAUTION: TURCAM® is a restricted use pesticide.

Copyright © 1988 NOR-AM Chemical Company. All rights reserved.

IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.

Circle No. 118 on Reader Inquiry Card



“You smack the chinchbugs. I’ll nail the white grubs.”

Bug control should be a lot less work than this. The Andersons Professional Turf™ Products with Diazinon are what you need for optimum insect protection and turf nourishment.

ask us about:

- Andersons Professional 5% *Diazinon*: This granular insecticide controls ants, armyworms, billbugs, chiggers, chinchbugs, sod web-worms, white grubs and many more.
- Andersons Professional 25-3-5 with 3.33% *Diazinon* and 50% sulfur coated urea: Controls insects and enriches turf in one application.

These and many other proven, high-performance turf care products are available now from your nearest Andersons Professional distributor.

For more information, call toll free:
1-800-225-ANDY (2639)

the professional's
partner®

The
Andersons

© 1992, Professional Turf is a trademark of The Andersons

Circle No. 101 on Reader Inquiry Card

Pacific Northwest drought catches industry by surprise

SEATTLE, Wash.—One of the most severe droughts in Pacific Northwest history is drying up the green industry.

Suffering the most are firms directly involved in new lawn and/or landscape installations, sod farms and nurseries—particularly those serving the greater Seattle market.

“There’s no question we’re being treated unfairly. We’re being targeted because we’re so visible,” says Mike Bushmaker of The Highridge Corp., a landscape contractor here.

Green industry businesses absorbed the first broadside in April and May (the height of landscape selling season) when Seattle and surrounding communities urged homeowners not to install (or have installed) new lawns or landscapes. Nurseries; landscape designers, contractors and installers; sod growers; hydroseeders—all saw business fall or not materialize.

In spite of a week of unusually wet weather in early July, the drought dug in as the summer progressed. This past winter there was precious little snow to refill Cascade Mountain streams which recharge reservoirs.

No one can predict when the drought will ease. Even when it does, this summer’s shortage points out the inadequacy of a water delivery system that hasn’t had a substantial enlargement since 1968.

You’re under arrest!—Seattle and the 28 suburbs served by the Seattle Water Department (1.2 million people) moved first to drastically reduce outdoor water use, including passing lawn watering bans monitored by *water police*. Those found watering their lawns face fines of \$100 to \$500.

Shrubs and flowers can still be watered with hoses with shutoff nozzles, or with irrigation systems if they’re separate from turfed areas.

“In the long run these types of restrictions never work,” says Bushmaker, who also chairs the newly formed Washington Coalition for Sensible Water Management (WCSWM). At least 10 allied green industry groups lend support to WCSWM.

(WCSWM says there are more than 3,000 landscaping, nursery and related businesses, employing about 25,000 workers in and around Seattle.)

Although WCSWM representatives met with city officials and pleaded the environmental implications of the watering ban and its economic harm to green industry businesses, water officials wouldn’t compromise.

Drought a wake-up call—Rod Bailey, Evergreen Services Corp., says periodic rainfall so far this summer has been enough to keep most Seattle-area lawns alive, and maintenance/mowing firms working although at a reduced schedule.

Even so, the outdoor watering restrictions are causing landscape firms to alter their services. “We’re standing on our heads doing manual watering of trees and shrubs,” he says.

“Many plants have become turf-water dependent. They started into wilt as soon as the lawn’s turf turned brown.”

Bailey says the drought is a wake-up call to green industry professionals in the Pacific Northwest. It’s telling them that they need a stronger public education effort, and have to be a part of the water-use decision-making process.

Seattle’s water woes won’t be solved until its system is upgraded, he explains. The burgeoning King County area has outgrown its water supply system, and the green industry is paying the price.

—Ron Hall

LAWN CARE PROS

Get on the Fast Track to Success!

The Professional Lawn Care Association of America

presents

"RACE WITH THE BEST"

THE 13th ANNUAL CONFERENCE

Nov. 16-19, 1992

Indiana Convention Center
Indianapolis, Indiana

*You'll gain the competitive edge,
stay informed, and have fun!*

Seminar "Hot Topics" Include:

- New Technology for Old Problems
- Business Concerns: Taxes, Estimating, Diversifying, etc.
- Organic Programs
- Risk Communication
- Marketing Tips
- Maintenance & Mowing

Plus:

- Recertification Track
- Round Table Discussions
- "Shop" the Green Industry Expo/92, Nov. 16-18, and the Giant Outdoor Equipment Demo Nov. 19.

Circle No. 121 on Reader Inquiry Card

Tell me more about PLCAA's Educational Conference!

Name _____

Company _____

Address _____

City/State/Zip _____

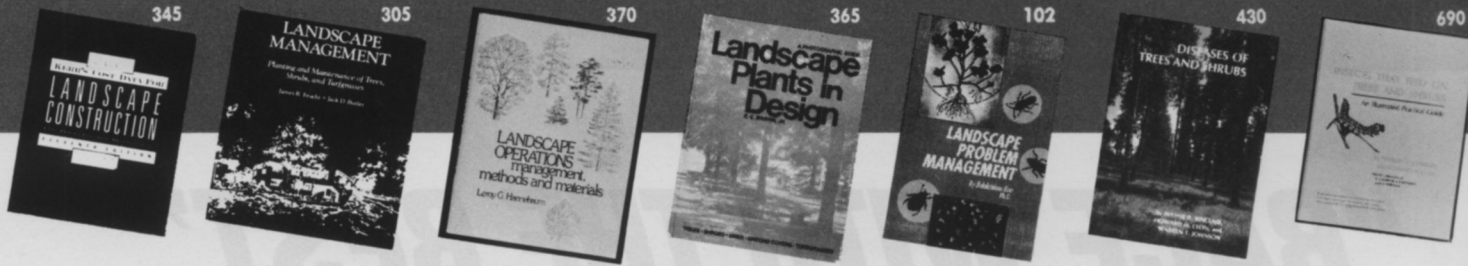
Phone _____ FAX _____

Clip & return to PLCAA, 1000 Johnson Ferry Rd., NE, Suite C-135, Marietta, GA 30068-2112;
(404) 977-5222; FAX (404) 578-6071.



PLCAA '92 November 16-19

LANDSCAPE MANAGEMENT BOOKS



LANDSCAPE

345 – KERR'S COST DATA FOR LANDSCAPE CONSTRUCTION

by Norman L. Dietrich

Eleventh edition. Gives you all the pricing data you need in one convenient source! Save hours on time-consuming research and calculations. Covers site, recreation and landscape development, plus specific data on materials, equipment, labor.

\$49.95

305 – LANDSCAPE MANAGEMENT

by James R. Feucht and Jack D. Butler

Learn important principles of installed landscapes – tree, shrub and turfgrass soils and fertilizers, improved planting and pruning techniques, integrated pest and disease management, spray-equipment calibration and care.

\$42.95

370 – LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS

by Leroy Hannebaum

Combines technical training in landscape science with easy-to-understand accounting, business management, marketing and sales techniques – all in one handy volume! Covers lawn installation, landscape planting and maintenance.

\$66.95

365 – LANDSCAPE PLANTS IN DESIGN

by Edward C. Martin

Annotated photographic guide to aesthetic and functional use of ornamental plants in landscape design. Trees, shrubs, vines, ground covers and turfgrasses are illustrated with over 1,900 black and white photographs. Contains a quick reference guide to particular design qualities, growing conditions.

\$75.95

102 – LANDSCAPE PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D

Enjoyable and educational! Dr. Rao has revised and updated his popular "Problem Management" columns and arranged them in a convenient, categorized format. Dr. Rao sheds light on a wide range of questions.

\$39.95

TREES & SHRUBS

430 – DISEASES OF TREES AND SHRUBS

by Sinclair, Lyon & Johnson

A comprehensive pictorial survey of diseases and environmental damage to trees and woody ornamental plants in the U.S. and Canada. Up-to-date developments in fungal biology, taxonomy, bacteriology, virology, and environmental stress.

\$52.50

690 – INSECTS THAT FEED ON TREES AND SHRUBS

by Johnson and Lyon

Essential information on readily identifying more than 650 insect pests and recognizing the injuries they cause. Enhanced with more than 200 color illustrations.

\$52.50

720 – SHRUB IDENTIFICATION

by George Symonds

Pictorial key to shrub identification. Contains more than 3,500 illustrations. Popular and botanical names are given to each shrub. Handy index tabs for quick reference.

\$19.50

750 – TREE IDENTIFICATION

by George Symonds

Pictorial reference to tree identification. Illustrates leaves, buds, branches, fruit and bark. Like its sister publication, SHRUB IDENTIFICATION, popular and botanical names are listed with index tabs for easy reference.

\$17.95

TURF

220 – CONTROLLING TURFGRASS PESTS

by Shurtleff, Fermanian, Randall

No professional can be without this new comprehensive guide which provides the most recent information available on the identification, biology, control and management of every type of turfgrass pest.

\$56.95

235 – LAWN CARE: A HANDBOOK FOR PROFESSIONALS

by H. Decker, J. Decker

An invaluable guide for playing field managers, golf course managers, lawn care practitioners. Written by turfgrass professionals, this handy reference covers all aspects of turfgrass management.

\$56.95

640 – TURF IRRIGATION MANUAL

by James Watkins

Keep pace with the latest developments in turf and landscape irrigation. Rotary sprinkler and golf course design systems, and expanded engineering and reference material make this a great reference for engineers, architects, designers and contractors!

\$32.95

620 – TURF MANAGEMENT HANDBOOK

by Howard Sprague

Practical guide to turf care under both healthy and poor conditions. Covers special turf problems in cool and warm regions, fertilizer use, regular turf care, weed and disease control. Includes useful seasonal schedules.

\$26.60

630 – TURFGRASS: SCIENCE AND CULTURE

by James Beard

Used in many leading university turf programs, this comprehensive text and reference source includes findings of current research compiled from more than 12,000 sources.

\$62.95

110 – TURF MANAGERS' HANDBOOK

by Daniel and Freeborg

Second edition. Entirely updated! Innovations resulting from research and practice have been added to reflect current techniques. Chapters on grasses, growth regulators and diseases have had extensive modification.

\$39.95

GOLF

615 – TURF MANAGEMENT FOR GOLF COURSES

by James Beard

Ideal reference and "how to" guide, this fully illustrated USGA sponsored text details all phases of golf course operations – design and construction, turf management, course administration, irrigation, equipment and disease and pest control.

\$74.00

GENERAL

410 – DISEASES & PESTS OF ORNAMENTAL PLANTS

by Pascal Pirone

Learn when and how to use the most effective fungicide, insecticides and other control methods on nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. This essential reference covers both diagnosis and treatment.

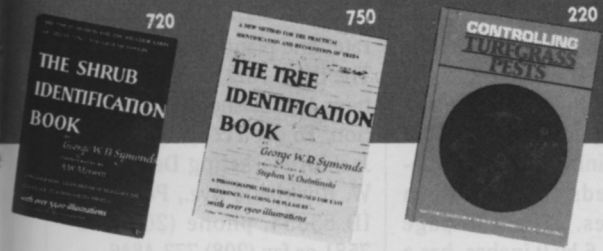
\$55.00



**BOOKS EVERY PROFESSIONAL SH...
TURF • TREES & SHRUBS • GOLF •**

ORE

NEW RELEASE



Successful Practitioners Solve Customers' Problems!

Learn the things you need to know — keep your library up-to-date. Your investment in these valuable reference guides will pay off for you over and over!

BUSINESS BUILDER SERIES

LANDSCAPE CONTRACTORS

Turf Managers Handbook	\$ 39.95
Landscape Operations	\$ 66.95
Kerrs Cost Data	\$ 49.95
Landscape Management	\$ 42.95
Landscape Plants in Design	\$ 75.95
Landscape Problem Management	\$ 39.95
TOTAL VALUE	\$315.70

Save! Buy the entire set at only **\$285.00!**

LAWN CARE OPERATORS

Turf Managers Handbook	\$ 39.95
Landscape Problem Management	\$ 39.95
Controlling Turf Grass Pests	\$ 56.95
Lawn care: A Handbook for Pros	\$ 56.95
Diseases and Pests of Ornamentals	\$ 55.00
Turfgrass Science and Culture	\$ 62.95
PURCHASED SEPARATELY, TOTAL	\$311.75

Combined price for the set, only **\$280.00!**

GOLF

Turf Managers Handbook	\$ 39.95
Landscape Problem Management	\$ 39.95
Controlling Turf Grass Pests	\$ 56.95
Turf Management for Golf Courses	\$ 74.00
Landscape Plants in Design	\$ 75.95
Turf Irrigation Manual	\$ 32.95
PRICED INDIVIDUALLY, SET TOTALS	\$319.75

Great savings! This set just **\$287.00!**

LANDSCAPE PROBLEM MANAGEMENT

By **Balakrishna Rao Ph.D.**



NEW RELEASE!

102 — LANDSCAPE PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D

Enjoyable *and* educational! Dr. Rao has revised and updated his popular "Problem Management" columns and arranged them in a convenient, categorized format. Dr. Rao sheds light on a wide range of readers' questions about weeds, insects, disease, plant selection, and landscape issues. **\$39.95**

KEEP AHEAD OF YOUR COMPETITION — ORDER TODAY!

Yes! I'd like to order the following books to keep myself up-to-date and informed about landscape issues and management. My payment is enclosed.

Book Number and Title	Quantity	Price	Total Price

PAYMENT MUST ACCOMPANY ORDER.

Please charge to my Visa MasterCard American Express

Account Number _____

Expiration Date _____

Name _____

Company _____

Street Address _____

City _____ State _____ Zip _____

Phone Number _____

Signature _____

Date _____

Total _____

Postage & Handling _____

Tax (CA, CO, CT, GA, IL, MN, NJ, NY, OH, TX) _____

Total Enclosed _____

Domestic: Please add \$4.00 per order plus \$1.00 per additional copy for postage and handling.

International: Please add \$10.00 per order plus \$2.00 per additional copy for postage and handling.

Allow 6 to 8 weeks for delivery. Prices subject to change. Quantity rates available on request.

RETURN THIS COUPON TO:
ADVANSTAR DATA/LM
7500 OLD OAK BLVD.,
CLEVELAND, OH 44130

Questions? Call toll free 1-800-225-4569 (ext. 839). In Ohio 216-826-2839.

020592M

COULD HAVE! LANDSCAPE

INFO CENTER

Useful literature and video offered to LM readers

HOW TO MARKET...The second edition of "Practical Marketing Techniques for the Landscape Company," a 90-page instruction manual, is now available from the Landscape Horticulture Center for Personnel Development. It is a compilation of notes, experiences, charts, graphs, examples, case histories and just plain common sense, all geared to the green industry. Copies are \$19.95, plus \$3 for shipping and handling. To order, call (800) 359-6647 or write Landscape Horticulture Center, 2509 E. Thousand Oaks Blvd., #109, Westlake Village, CA 91362. Checks, COD, MasterCard and Visa are accepted; quantity discounts are available.

OSHA STANDARDS...An easy-to-understand regulatory review of key OSHA standards specifically applicable to the green industry is available through the Professional Grounds Management Society. Interested parties have a choice of packets: (351) hazard communication; (352) small chemical disposal; (353) trenching standards; (354) spill control; (355) small quality generator; (356) confined space safety; (357) stormwater/wetlands; (358) underground and above-ground storage tanks. Cost of each packet is \$22; PGMS members get a discount. To order, call the PGMS and ask for Regulatory Review Guidelines: (410) 667-1833 or fax (410) 667-6178.

WEED IDENTIFICATION
...Faculty at the Universities of Georgia, Auburn and Florida are making available for \$8 a book containing 437 color photos: "Weeds of Southern Turfgrasses." The 208-page book, sized 6 by 9 inches, has a waterproof, tearproof cover. To order, send a check payable to the University of Florida (Florida residents add 6% sales tax) to: Publications, P.O. Box 110011, Gainesville, FL 32611. Order book No. SP-79.

GUIDE TO GRASS...The free "Turfgrass Technical Manual," by Jacklin Seed Co., is designed to help golf course superintendents and turf professionals identify varieties, blends and mixtures, recommend seed

rates and planting instructions. The three-ring binder also contains troubleshooting information. To get a copy, contact the Jacklin Marketing Dept., 5300 W. Riverbend Ave., Post Falls, ID 83854, phone (208) 773-7581 or fax (208) 773-4846.

ON CUSTOMERS...A new guide book, "50 Low Cost Ways to Acquire New Customers" is written for small businessmen. Sections include 15 keys, 25 benefits people buy, the 9 P's of marketing, 7 business mistakes to avoid, 20 ways to make the sale and a 12-month plan to acquire new customers. To order, send \$10.70 to J.D. Todd, JDT Marketing, P.O. Box 3316, Wichita Falls, TX 76301 or phone (817) 692-7818.

CUSTOMER SERVICE TIPS

Handling customer complaints: get to the crux of the problem

by E.T. Wandtke

Unfortunately, relationships with your customers do not run smoothly all the time. As service providers, your attitude toward the customer's complaint can mean the difference between keeping a customer or losing several.

Here are some tips on how to deal with a customer complaint:

1. Discover what went wrong. This should be the time for fact-finding, not finger-pointing. During this discovery process, don't make any judgments or place any blame on the customer.

It is also important to discover the problem. Often we listen to a complaint on the phone and assume the cause before we hear all the facts.

Don't assume the cause of a complaint until all information is received and the customer's property is visited. Know 100

percent of the information before you decide on a course of action.

2. Discover who is responsible. This determination may take time, but it is very important to determine if an individual caused the complaint or if the cause of the complaint was outside the control of the employee or customer.

Many customers do not understand that agronomic conditions may not be anticipated or solved until they are discovered. Only by receiving the customer's complaint do you know the condition exists.

Explaining the causes of turf or ornamental problems requires care and understanding. The customer needs to understand what has happened on his or her property, how it came about, and what you are going to do about it.

Use the telephone correctly—Customer service personnel who handle

telephone complaints must know how to deal with complaints a little differently:

1. Have customer service reps pretend it is their company. What would they do if they owned the company? How would they help the customer? How would they follow-up to be certain the customer has been satisfied?

2. Give the customer time to explain the problem. Do not sound rushed. Apologize if you have to take another call. Then, when you get them back on the line, apologize for the delay and restate the problem.

3. If you are not certain about what to do, ask!

Customer service personnel should not make promises that the company might not be able to keep. They should tell the customer they do not have an immediate answer, and that the manager will return the call.

Most important of all, make sure they give the customer time to explain the problem, and that they're efficient and professional.

NEW FROM TURF-SEED!

MOW-LESS

Brand Tall Fescue Blend



Dark blue-green MowLess blend stands out against a Southern California background. Drought and heat tolerant Mow-Less offers year-around color in areas not before considered possible.

MOW-LESS SAVES YOU MORE

- Lower vertical growth means less clipping removal!
- Darker blue-green color requires less nitrogen.
- Dense growth habit reduces competitive weeds.
- Natural insect and disease resistance reduces chemical tools.
- Heat, drought and shade tolerance mean wider range of adaptability.

Circle No. 130 on Reader Inquiry Card

Mow-Less Brand Tall Fescue blend was developed to save conscientious turf managers time, money and clippings.

Mow-Less is a blend of the latest generation of dwarf tall fescues. Today, Mow-Less is composed of Silverado, Tomahawk (5DX), Monarch and Eldorado. As newer varieties are developed, like 5PM and 59D, they will be included in Mow-Less.

The components of Mow-Less all contribute dark blue-green color, heat, drought, shade and insect tolerance ... naturally. Mow-Less has made inroads into areas that tall fescue has not traditionally been adapted. Is this the start of something big? We think it's the start of something small ... with a big savings in mowing.



TURFSEED

1-800-247-6910

PO Box 250
Hubbard, OR 97032
503-981-9571
FAX 503-982-5626
TWX 510-590-0957

Mete-R-Matic III: A Top Performer



from the Original Top Dresser

The manufacturer who's brought you innovative top dressing since 1961 also brings you the most trouble-free golf green and athletic field maintenance yet.

Top dressing with the **Mete-R-Matic III** levels existing turf while stimulating growth and improving soil conditions. Repetitive top dressing fills in the low spots and also promotes the decomposition of thatch.



- Top dress 18 golf greens in under 6 hours
- Top dress an athletic field in under 2 hours
- **22.5 cubic feet** hopper capacity

- Top dress at up to 8 miles/hour
- Spreading width of 60"
- Ground driven — **no hydraulics**
- 6 identical wheels lower PSI
- Easily spreads **grass clippings**



Circle No. 129 on Reader Inquiry Card

TURFCO

Call for a free demonstration or video.

Write for literature, dealer, rental, or sales information

1655 101st Ave. NE, Mpls., MN 55434
Phone: (612) 785-1000. Fax: (612) 785-0556

GREEN INDUSTRY EVENTS

AUGUST

12: Professional Lawn Care Assn. of Mid-America Summer Field Day, Powell Gardens, Kingsville, Mo. Contact: Olivia Golden, PLCAMA, P.O. Box 35184, Kansas City, MO 64134; (816) 765-7616.

12-13: Penn State Turfgrass Field Days, Valentine Research Center, University Park. Contact: Dr. Thomas Watschke, 116 ASI Bldg., University Park, PA 16802; (814) 863-7644 or Christine King, Pa. Turfgrass Council, P.O. Box 1078, Lemont, PA 16851; (814) 863-3475.

18: Golf Course Design/Construction Field Day, SUNY, Delhi. Contact: N.Y. Turfgrass Assn., P.O. Box 612, Latham, NY 12110; (518) 783-1229.

18-19: Texas A&M Turf Field Day, Dallas. Contact: Dr. Bill Knoop, Texas A&M Extension Service, 17360 Coit Rd., Dallas, TX 75252-6599; (214) 231-5362.

19: Michigan Nursery and Landscape Association Summer Field Day, Lincoln Nurseries, Grand Rapids. Contact: MNLA, 819 N. Washington Ave., Suite 2, Lansing, MI 48906; (517) 487-1282.

19: University of Rhode Island Turf Field Day, Kingston. Contact: Dr. Noel Jackson or Dr. Bridget Ruemmele, Dept. of Plant Sciences, Woodward Hall, URI, Kingston, RI 02881; (401) 792-2481.

19: New Hampshire Landscape Association Twilight Meeting: Wetlands, Derry, N.H. Contact: Guy Hodgdon, NHLA (800) 639-5601.

20: Michigan State University Turf Field Day, Lansing. Contact: Dr. Frank Rossi, MSU, Plant & Soil Sciences Bldg., E. Lansing, MI 48824; (517) 353-0860.

20-21: Pennsylvania Landscape & Nursery Trade Show & Conference/West, Pittsburgh Expo Mart. Contact: PLNA, 1924 N. Second St., Harris-

burg, PA 17102; (717) 238-1673.

26: "Landscaping for Wildlife," Cook College/Rutgers University, New Brunswick, N.J. Contact: Office of Continuing Professional Education, Cook College, P.O. Box 231, New Brunswick, NJ 08903; (908) 932-9271.

SEPTEMBER

11-13: Florida Nursery and Allied Trades Show, Orange County Civic Center, Orlando. Contact: Joanne Chive, FNGA, 5401 Kirkman Rd., Suite 650, Orlando, FL 32819; (407) 345-8137.

12-15: California Association of Nurserymen Annual Convention, Silverado Resort & Country Club, Napa Valley. Contact: Holly Hitchcock, CAN, 4620 Northgate Blvd. Suite 155, Sacramento, CA 95834; (916) 567-0200.

12-16: National Conference of the American Society of Irrigation Consultants, Hunt Valley, Md. Contact: Wanda Sarsfield, executive secretary, (510) 516-1124.

13-15: World Fertilizer Conference, Los Angeles Century Plaza Hotel and Tower. Contact: The Fertilizer Institute, 501 Second St. NE, Washington, DC 20002; (202) 675-8250.

15-16: University of California Turfgrass Conference and Field Day & Landscape Management Research Conference, UC Riverside. Contact: Registration Coordinator/Turf & Landscape Conferences, 4110 Batchelor Hall Extension, Botany & Plant Sciences Dept., Univ. of California, Riverside, CA 92521.

20-23: Florida Turfgrass Conference & Show, Prime F. Osborn III Convention Center, Jacksonville. Contact: FTGA, 302 S. Graham Ave., Orlando, FL 32803; (407) 898-6721.

A UNIFIED INDUSTRY WORKING TOWARD A COMMON GOAL

Nearly every key issue affecting one part of the Specialty Pesticide Industry affects the entire industry.



RISE (Responsible Industry for a Sound Environment) is bringing industry leaders together to identify critical public issues and legislation, and address them as a unified body.

We're proud of our industry's commitment to enhancing and preserving the environment. And we're committed to educating policymakers and the public about the environmental, health and safety benefits of proper pesticide use.



A wide variety of companies and organizations are already members of RISE, and have contributed to successes like we enjoyed recently in



Missoula, Montana, which demonstrates the industry is able to work constructively with local government bodies.

If you're a manufacturer, formulator, distributor, supplier or association involved with the use of specialty pesticides, we invite you to join RISE and participate in our future successes.

For more information, call RISE at
(202) 872-3860, or write to 1155 15th St. N.W.,
Suite 900, Washington, D.C. 20005.



GREEN INDUSTRY SHOWCASE

Lightning detection system spots dangers at 25 miles

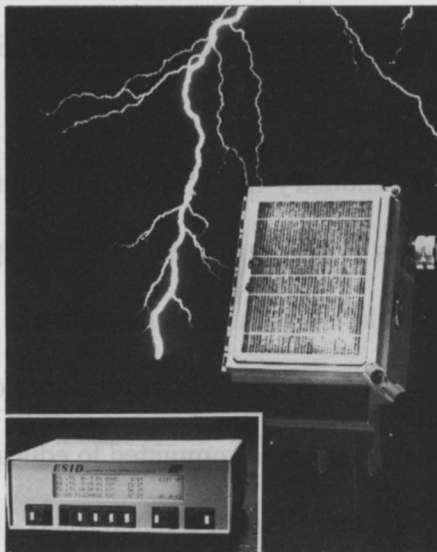
The 1992 Masters Tournament was the first in-practice testing ground for a new technology developed to detect and range lightning within 25 miles of a golf course.

The patented technology was developed by Lightning Location and Protection (LLP), which was recently purchased by the Toro Company's Irrigation Division.

The system, called the Electrical Storm Identification Device (ESID), was first put into public practice at the Masters in Augusta. Midway through the third round of Saturday's play, the sign-boards carried warnings of threatening weather nearby. About 30 minutes later, with no rain in sight and the skies uniformly overcast, the lightning sirens began to sound.

Neither the spectators nor the television commentators could understand the reason for the sirens; it seemed like just another cloudy day. But within 20 minutes, the rains came, complete with thunder and lightning.

Play was suspended with the detection of one flash of lightning, which struck 14



miles away from the course. Twenty minutes later, the big rains came and 26 flashes were seen in a span of 15 minutes.

The ESID also indicates when it is safe to resume play.

Toro and Lightning Location and Protection have entered into a joint agreement, under which the Irrigation Division will market and sell the ESID units manufactured by LLP.

ESID is described as a rugged, solar-powered, omni-directional short-range thunderstorm sensor.

It "looks" for electrical and optical energy emitted by lightning. Detection and analysis hardware is installed at ground level or on a rooftop. The system's "internal logic" system contains algorithms with which the ESID identifies the unique wave-form signature characteristic of lightning. These algorithms coincidence the energy pulses, or determine the time-relationship, and therefore the common source of both pulses. This final step ensures the reliability of a lightning report.

ESID estimates the range of cloud-to-ground lightning.

The unit indicates that lightning is either overhead; 0-5 miles out; 5-10 miles out; or 10-25 miles out.

This information is especially valuable when considering that cloud-to-ground lightning can move laterally a distance of 10 miles.

Circle No. 191 on Reader Inquiry Card

SHOWCASE PRODUCT REVIEW

Heavy duty sweeper mounts to lighter tractor frames

Sweepster, Inc. has introduced the new Model M18 sweeper for lawn and garden tractors.

The M18 mounts to most popular lawn and garden tractors with a minimum of 10 hp. The mechanical sweeper is driven by the tractor's front or mid-PTO, by a constant-velocity drive shaft.

Standard features include: 18-inch wide sectional brush available in polypropylene, wire or 1/2 poly-1/2 wire; manual angle change; electric brush lift and rear casters. Options include: side-mounted brush casters to prevent turf scalping during thatch



removal and storage stands which mount in place of side casters.

Jim Koch, Sweepster Product Manager, says the sweeper's weight might make some question its sturdiness.

"Just because this sweeper weighs less doesn't mean it's not heavy duty," says Koch. "We've incorporated the technology from our larger brooms into the M18. The heavy-duty center gearbox was custom-designed for this special application and extensively tested to ensure a durable low maintenance driveline."

Parallel linkage mounting and rear casters allow the brush head to oscillate sideways and up and down along contours.

Circle No. 192 on Reader Inquiry Card