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## DROUGHT REPERCUSSIONS

*Are You Still Feeling the Effects?*

**ALSO IN THIS ISSUE:**

**POSTING PROBLEMS**

**COSTING MOWING JOBS**

**TESTING BEFORE INVESTING**

**RAINFALL RESIDUAL EFFECTS**

**HOW PREEMERGENCE HERBICIDES WORK**

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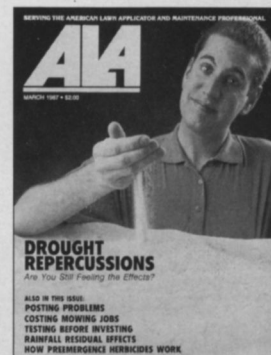
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### COVER

Last year's southeastern drought had some lawn care operators quite concerned.  
(Cover photo by Barney Taxel)

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# VIEWS ACROSS THE TURF INDUSTRY

## WHAT IMPROVEMENT SHOULD BE MADE IN LAWN CARE CHEMICALS?



"I think there should be an improvement in the staining property of pendimethalin. It just makes a sloppy appearance and hurts the company's image if you can't get those stains off the truck or the customer's driveway and sidewalk. I get a lot of feedback from other lawn care companies about what they've had problems with. That's one problem that I can see with the materials. I'd also like to see more public awareness from the chemical companies. They should supply us with literature about their chemicals that we could deliver to the homeowners." — *Glen Greene, Greene's Lawn Care Service, Harrison, Ohio.*



"They're doing a good job with chemicals right now. I think it's sufficient at this point in time. Dow made a great improvement with Dursban® by making it low odor. I think that went a long way in improving things for employees who had to deal with that product. I would also like to see manufacturers improve public safety awareness of lawn care products. They should work to educate the public, operators, and their employees. The more informed people are, the better. The more the employees communicate with the customer, the better off we all will be." — *John Meyer, Harvest Services, Inc., Norcross, Georgia.*



"Well, I guess the non-phenoxy's are the big issue right now. Because of the industry concern, I'd like to see something come out that would be a non-phenoxy and also control the weeds. I'm currently using 2,4-D. We're going to go ahead and use it this season. I don't know how the pressure from ChemLawn Corporation's decision to take it out of their program is going to affect us this year. It's still labeled for use in New Jersey right now. I would say that's the biggest concern I have, finding a non-phenoxy that does as well as the 2,4-D compound." — *Joe Fagan, Spring Green Lawn Care, Hazlet, New Jersey*

## CALENDAR

### Mar. 13-14

California Landscape Contractors Association Winter Tri-Board, Capitol Plaza, Sacramento, California. Contact: Micheyl Hannon, CLCA, 2226 K Street, Sacramento, California 95816; 916/448-CLCA.

### Apr. 5-6

California Landscape Contractors Association Certification Test, Pierce College, Woodland Hills, California. Contact: Micheyl Hannon, CLCA, 2226 K Street, Sacramento, California 95816; 916/448-CLCA.

### Apr. 8-10

1987 UPF DA Spring Meeting, Sheraton Harbor Island Hotel, San Diego, California. Contact: Nancy Chandler, United Pesticide Formulators and Distributors Association, Inc., P.O. Box 398, Buford, Georgia 30518.

### Apr. 10-11

Landscape Trade Show Spectacular, Miami Expo/Center, Miami, Florida. Contact: Dade County Chapter, Florida Nurserymen and Growers Association, 19160 North Krome Avenue, Miami, Florida 33187; 305/235-2035.

### Apr. 22-24

California Landscape Contractors Association "IQuick Classes," Long Beach Convention Center, California. Contact: Micheyl Hannon, CLCA, 2226 K Street, Sacramento, California 95816; 916/448-CLCA.

### Apr. 22-24

California Landscape Contractors Association Landscape Industry Show, Long Beach Convention Center, California. Contact: Larry Rohlfes, CLCA, 2226 K Street, Sacramento, California 95816; 916/448-CLCA.

### May 20

North Carolina Turf and Landscape Field Day, NCSU Turf Field Center, Raleigh, North Carolina. Contact: J.M. DiPaola, North Carolina State University, Box 7620, Raleigh, North Carolina 27695-7620; 919/737-2657.

### Jun. 21-24

The Outdoor Power Equipment Institute's Annual Meeting, Monterey, California. Contact: Outdoor Power Equipment Institute, 1901 L Street, Northwest, Suite 700, Washington, D.C. 20036; 202/296-3484.

### July 27-29

OPEI Expo '87, Kentucky Fair and Exposition Center, Louisville, Kentucky. Contact: Outdoor Power Equipment Institute, 1901 L Street, NW, Suite 700, Washington, D.C. 20036; 202/296-3484.

### Aug. 27-30

ALCA Exterior Landscape Contracting Division Conference, Red Lion Inn, Portland, Oregon. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

### Sept. 22-23

Virginia Tech Turfgrass Research Field Days, Virginia Tech, Blacksburg, Virginia. Contact: J.R. Hall, III, Virginia Polytechnic Institute, Virginia Cooperative Extension Service, Blacksburg, Virginia 24061; 703/961-5797

### Nov. 17-19

Pro Show '87, Dallas Convention Center, Dallas, Texas. Contact: Outdoor Power Equipment Institute, 1901 L Street, NW, Suite 700, Washington, D.C. 20036; 202/296-3484. ■



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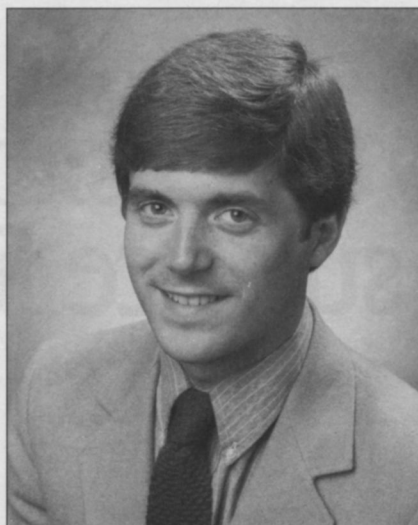
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# INSIDE STORY

**L**ast summer, lawn care operators' businesses throughout the Southeast suffered under the weight of what some experts have called the worst drought of the century. Granted, they may not have suffered quite as much as the farmers of the region who had bales of hay shipped in from northern farms to keep their livestock alive. Still, many look back on last season and admit that sales were down and customer turnover was up. Assistant Editor Vivian F. Rose checked in with some of those southeastern lawn care businessmen and reported on the steps they took to turn their losses into gains in this month's cover story, "Drought Repercussions."

The topic of "Costing Mowing Jobs" is somewhat taboo with mowing/maintenance professionals. For one thing, a businessman who has discovered an effective way of setting up his pricing schedule is generally reluctant to talk about his "system" for fear his competitors might be listening — or reading. But just as many businessmen are mute



on the subject because they are a little ashamed to admit that they are still trying to refine their own job costing formulas. We found that a lot of operators fall into one of these two categories or somewhere in-between while researching

this article.

More and more lawn care operators are going to find themselves caught up in "Posting Problems." The State of Massachusetts passed a prenotification/posting law last November that will take effect on April 1. On the heels of that law, many New England lawn care businessmen expect similar regulations to materialize in Connecticut and Rhode Island in the next couple months. We visited with some of those businessmen to find out what, if anything, can be done about these posting regulations.

One final note. In the April issue of *ALA* magazine we will announce the winner of our "Award for Professionalism" that we had publicized in the October and November 1986 issues. Stay tuned!

*Tim Weidner*

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# LETTERS

## TURFSEED OMISSION

I was surprised when I read your article "Turfseed Market Report" in the September issue, that you didn't contact anyone in our organization for your survey. We have a number of new Scotts-developed varieties either on the market or coming out shortly — Abbey and Coventry Kentucky bluegrass, Ovation perennial ryegrass and Chesapeake improved tall fescue.

*Jim Fetter, Manager  
Professional Marketing  
O.M. Scott and Sons  
Marysville, Ohio*

*We would like to apologize for our oversight in not contacting O.M. Scott and Sons when researching our turfseed market report. This report is an annual endeavor, so we will be sure to contact you when the time comes to file our September 1987 "Turfseed Market Report." Ed.*

## RAKING LEAVES

I read with interest the answer by Dr. Joe Vargas of Michigan State University to a question regarding raking of leaves. (Published in the January "Questions and Answers" department.) Dr. Joe says leaves are toxic to most other vegetation including turf. I have been mulching 90 percent of the leaves and all of the clippings on my lawn for seven or eight years.

I would describe the leaf coverage as moderate to heavy and is composed of pin oak, silver maple, red maple, sweet gum, and American beech. My next door neighbor removed every leaf by raking. The only visible difference in turf condition is a quick green-up after his first application by ChemLawn. I have applied fertilizer only once in the past four years and sprayed for broadleaf weeds this fall for the first time in nine years.

There is no significant difference in quality of turf between these two lawns. They both look great. But mine costs far less and is cared for in one-third of

the time. Where should I look for damage?

*Harold N. Timmer  
Bunch Nurseries, Inc.  
Terre Haute, Indiana*

*Dr. Joe Vargas has received a copy of your letter, so he has the opportunity to respond to your question. Ed.* ■

## WRITE TO US

**If you would like to write to us to comment on anything you have read about in American Lawn Applicator, write: ALA Magazine, Letters Department, 4012 Bridge Avenue, Cleveland, Ohio 44113. We reserve the right to edit letters for reason of space or clarity. We value the opinions of our readers and we look forward to hearing from you.**

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# NEWS IN BRIEF

## TURF PRO AND NEW ENGLAND GREEN MERGE

Michael McKee and Daniel Chopp are now Chairman of the Board and President, respectively, of the newly reorganized New England Green, Inc. The new company was formed by the merger of New England Green, Inc. of Springfield, Massachusetts and Turf Pro, Inc. of Plymouth, Michigan. McKee was President of the old New England Green and Chopp was President of Turf Pro.

Chopp wants to make it clear that the merger has created a new corporation, not a partnership. "At this point, we have a combined board of directors," says Chopp. "Right now we are running it as an eastern zone and a western zone." He says the personnel of both companies will stay on board with the new company.

The new company will be united under the name New England Green, Inc. "It fit very nicely because Turf Pro was in the midst of changing its name anyway," says Chopp. He says Turf Pro had run into some problems in attempting to register the name nationally last year. Last year, Turf Pro locations outside of the state of Michigan were operating under the name Ecologreen.

Chopp describes Turf Pro and New England Green as mirror images of one another. "Even in the past, we had developed our software packages together, as well as our equipment development," says Chopp. "Actually, the merger itself was pretty much born in heaven."

Chopp and McKee had once worked for the same national lawn care company, but the two went separate ways when they left the company four years ago. "Mike went his way in the Northeast and I went my way in the Midwest," says Chopp. The reformed New England Green will continue to service customers from its existing locations in the Midwest and the Northeast, but the company is definitely in an expansion mode. Last November, Chopp and McKee bought Mr. Lawn Care of Buffalo, New York, which brought another 6,700 customers into the New England Green fold. Chopp says that acquisition helped bridge the geographical gap between the two formerly separate companies.

The new company services approximately 77,000 accounts. During the off-season, New England Green employs approximately 150 people, but during the



*The merger of Turf Pro and New England Green creates a new lawn care "heavy hitter."*

peak season, Chopp expects they will employ upwards of 750 to 1,000 full-time and part-time personnel. Combined sales last year for the two companies was in excess of \$13 million. The merger will expand the new company to seven states serviced from 24 branches.

Chopp credits much of both companies' success to their employees. He says both companies were built on the philosophy that good employees are the key to success. "It is the employees who have really built this new company and will continue to build this new company," says Chopp. "They are the ones who should be recognized for the results we have achieved during the past four years. Too many times people look at the corporate staff and say what a great company, but the company is only as good as its people.

## RECENT CHEMLAWN ACQUISITIONS

ChemLawn Services Corporation recently purchased The Shur-Lawn Company of Omaha, Nebraska. Former Shur-Lawn President Keith Weidler will stay on as manager of the now ChemLawn-owned facility. Shur-Lawn was founded in 1972. Pete Poll, ChemLawn's Midwest Zone Vice President, says he anticipates no major operational changes for Shur-Lawn. "Shur-Lawn is a well-run business, and

we have confidence in its management," says Poll.

"In Lincoln, we will serve Shur-Lawn customers out of our ChemLawn branch for efficiency," says Poll. "Otherwise, the Shur-Lawn name, trucks, uniforms, and people will continue as they are. The purchase of Shur-Lawn demonstrates our commitment to serve the Omaha and Lincoln market. We were simply presented with a good business situation and decided to act."

Poll's counterpart in ChemLawn's East Coast Zone, Vice President William Vorn Holt, says the company has also recently purchased Lawnrite of Long Island, New York. Lawnrite was owned by Paul Kampe who Vorn Holt says will stay on to work on "special projects." In addition to Kampe, about four additional Lawnrite employees may also stay on. "We are trying to tell them about ChemLawn and its benefits and at the same time get a reading on how interested they may be in staying in the industry," says Vorn Holt. Prior to the acquisition, Lawnrite had 16 employees.

Lawnrite had been servicing customers on Long Island for about 14 years. The company serviced 5,000 lawn care customers and around 1,000 tree and shrub customers. Lawnrite revenues for 1986 were approximately \$1.1 million, according to Vorn Holt.

"We will operate under the name ChemLawn Corporation even though we did buy the rights to the name Lawnrite," notes Vorn Holt. The mechanics of making the transition should be no problem since both companies utilize a combination liquid/dry application program.

*(continued on page 18)*





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## NEWS

(continued from page 15)

### NEBRASKA TURF CONFERENCE DRAWS 700 ATTENDEES

The Silver Jubilee of the Nebraska Turfgrass Conference was held on January 13-15 at the Holiday Inn in Omaha, Nebraska. Over 700 professionals were in attendance from Nebraska and surrounding states. General and special interest sessions covered such areas as lawn care, golf course, grounds maintenance, sports turf, cemeteries, irrigation installation, sod production, and turfgrass basics. Pesticide recertification was featured on the last day of the conference.



OMC Lincoln representatives present turf equipment to Texas A&M officials.

### TEXAS A&M TO USE OMC LINCOLN EQUIPMENT

The Texas A&M Research and Extension Center at Dallas has received free use of several pieces of turf maintenance equipment. The equipment was provided under a special College and University Turf Equipment Program by OMC Lincoln, a Division of Outboard Marine Corpora-

tion. Under the program, Texas A&M research personnel have free use of the equipment, and equipment items are replaced annually through the OMC Lincoln dealer in Irving, Texas, Watson Distributing Company.

The equipment includes a Cushman® Turf-Truckster™ vehicle with hydraulic dump box and top dresser attachment, a Cushman Front Line® mower with

72-inch cutting deck, a Ryan® Greensaire® II turf aerator, Ryan Lawnaire® III walk-behind aerator, and a Ryan 12-inch Jr. Sod Cutter. According to Dr. James Reinert, Resident Director of Research at the Center, the equipment will be used in the university's turf research and extension programs.

The Texas A&M Research and Extension

(continued on page 20)

**TWO JOBS AT ONCE:** The Professional Turf System can be designed to spray lawns and trees from the same unit.

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**COMPARTMENTAL TANK:** Allows you to spray different solutions from the same unit or induct specific products through our special inductor.



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NITROFORM<sup>®</sup> is available as BLUE CHIP<sup>™</sup> or GRAY CHIP<sup>™</sup> for dry application, or as POWDER BLUE<sup>™</sup> or POWDER GRAY<sup>™</sup> for liquid application.

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





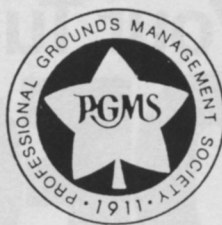
## NEWS

(continued from page 18)

sion Center is located on a 300-acre site in north Dallas, and provides a research facility for urban agriculture, including turfgrass, ornamentals, and several other production agriculture crops. Some 20 acres at the site are devoted to turfgrass research, including turfgrass breeding and cultivar development, management, entomology, pathology and soil science, and nutrition studies. The center also provides facilities for graduate student training.

### PGMS DIRECTORY AND GUIDES AVAILABLE

The Professional Grounds Management Society has made its 1986 Membership Directory available. The directory is free to PGMS members and can be ordered by non-members for \$20. Also available from the Society are their three management guides: *Grounds Maintenance Estimating Guidelines*, *Grounds Maintenance Management Guidelines*, and *Grounds Management Forms and Job Descriptions Guide*.



These manuals are also free to PGMS members and can be ordered by non-members at a cost of \$9 each (if check is sent with order) or \$12 each (if billed). If all three manuals are ordered together, the cost is \$22.50 (if check is sent with order) or \$30 (if billed). All orders should be sent to: PGMS, 3701 Old Court Road, Suite 15, Pikesville, Maryland 21208.

### ELMS PROTECTED BY PARASITE

When the Chinese elm was imported, someone forgot to pack the parasite that feeds on the elm leaf beetle. However, the New Mexico State University Cooperative Extension Service reports

that help is on the way. In 1986, elm leaf beetles feasted on Chinese elms in the Las Cruces, New Mexico area until they looked "like they'd been hit by a flame-thrower," says Dr. Joe Ellington, an entomologist with the New Mexico State University Agricultural Experiment Station.

Last year might be the last time the beetles will have free reign, however. Ellington has received a shipment of *Tetrastichus gallerucae*. This microscopic parasite of the elm leaf beetle egg is going to be put to work as a biological control.


"The Chinese elm is one of the few big trees we have in this area, so we want to do what we can to improve the looks of it," says Ellington. "Few individual owners want to spray because of the expense. In this case, a biological agent is an important control option to look at." According to Ellington, *Tetrastichus gallerucae* evolved with the elm leaf beetle. The parasite will feed on elm leaf beetle eggs, leaving the Chinese elm and other plants unharmed.

California has done some research with *Tetrastichus gallerucae* as a biological control of elm leaf beetles. However,

(continued on page 22)

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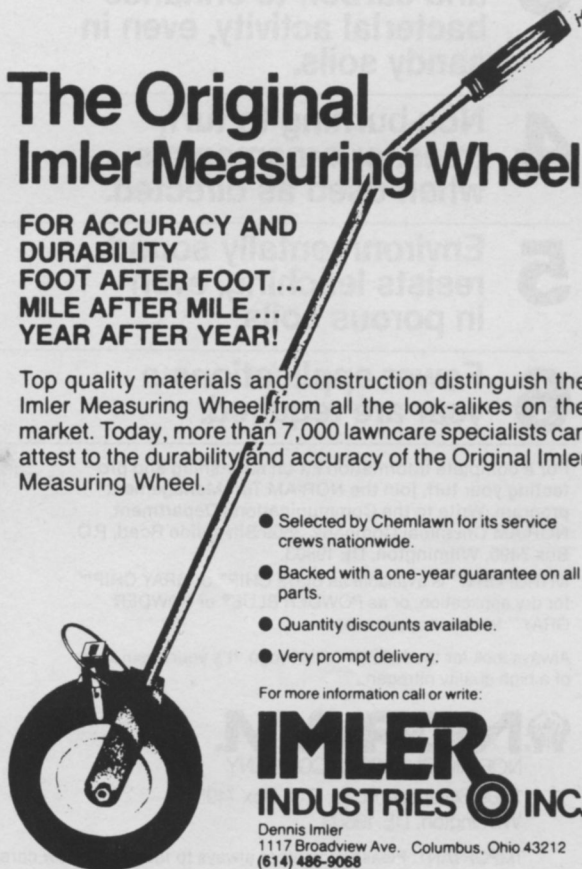
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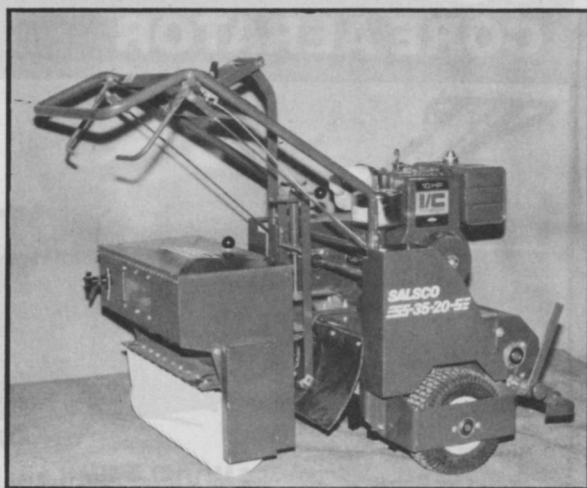


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\* This price may not include dealer prep, freight and accessories; and prices may vary depending on area.



## NEWS

(continued from page 20)

warm winters there prevent the parasite from completing its lifecycle. Scientists are hopeful that the cooler winter climate in southern New Mexico will provide a better habitat. If the parasite is able to complete its lifecycle, it could eventually be distributed in the area so that the elm leaf beetle will become less of a threat to Chinese elms.

### GEORGIA GOVERNOR DEDICATES KUBOTA SITE

Georgia Governor Joe Frank Harris, Gwinnett County Commissioners and other dignitaries joined with executives of Kubota Tractor Corporation in dedicating the firm's new Southeast headquarters in Gwinnett County, Georgia on November 21. The new facility covers 156,000 square feet and houses Kubota's offices, assembly, warehouse, and training facilities for the Southeast division's operations, serving approximately 250 dealers in 11 states.

The facility will serve as an assembly



Georgia's Governor, Joe Frank Harris (right), joins Kubota Tractor Corporation President, S. Egusa, at the dedication ceremony for Kubota's new Southeast headquarters in Gwinnett County, Georgia.

plant for Kubota's agricultural and light utility tractors, as well as a distribution center for 65 models of tractors and a full line of implements from loaders to mowers. Other products shipped to dealers from this facility include compact

construction machinery, lawn and garden equipment, pumps, generators, engines, and parts.

The new facility will provide fast parts availability to dealers through a com-

(continued on page 24)

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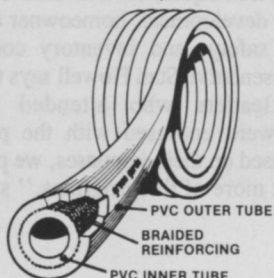
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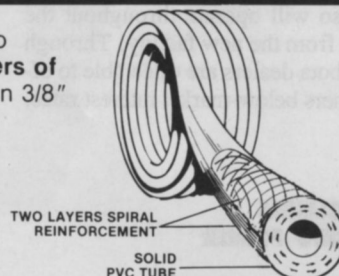


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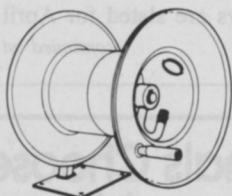
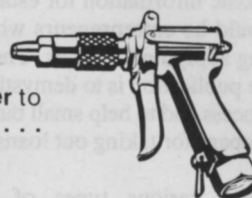
**NEW! 4-SPIRAL WHITE HOSE** ... a unique 600 PSI hose designed to withstand the rigors of the spray industry. **Solid PVC Tube** with **two layers of criss-cross spiral reinforcement** ... **nothing like it anywhere!** Available in 3/8" and 1/2" ID, 300 and 400 foot continuous lengths.



**BRAIDED NEON HOSE** ... the best quality hose money can buy. **Avoid downtime and chemical spills ... use the hose preferred by top operators all over North America.** 800 PSI working pressure; available in 1/4", 3/8", 1/2", 5/8" and 3/4" ID; 300, 400 and 600 foot continuous lengths. Some odd lengths, in various ID's, also available at special prices.

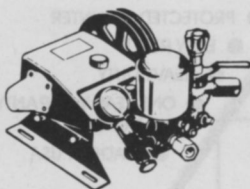
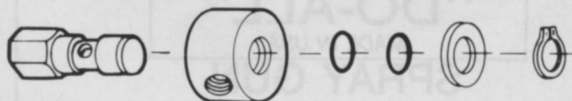


**JD9-C Hi-Performance SPRAY GUN** ... used by just about everybody. A rugged, dependable, versatile performer in any spray application. Fully adjustable from fog to long distance stream. **Five tips** available to fit your needs ... **adapter** to attach the many fine Spraying Systems wands and spray tips. **Also available ... JD9-CT with gauge port and plug**, allows you to easily calibrate your sprayer.



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## NEWS

(continued from page 22)

puterized inventory, order, and shipping system. A fully equipped center provides modern facilities for service training on Kubota products for company and dealer personnel. Kubota Credit Corporation (KCC) also will operate throughout the Southeast from the new facility. Through KCC, Kubota dealers are often able to offer customers below-market interest rates.

### NFIB PUBLISHES BORROWING PRIMER

The National Federation of Independent Business and the American Bankers Association have collaborated to publish a primer on small business borrowing. It provides basic information for established and would-be entrepreneurs who are considering applying for loans. The purpose of the publication is to demystify the lending process and to help small business owners prepare for taking out loans. The booklet:

- Describes various types of loans available — their relative advantages and

disadvantages and usual uses.

- Summarizes the information usually required by banks — why it is requested and how best to present it.
- Outlines criteria business owners should consider when selecting a lender.

The booklet is available from NFIB at the following prices: 1 to 10 copies, \$2.50 each; 11 to 25 copies, \$2 each; 26 or more, \$1.50 each. NFIB members get the following price breaks: 1 to 10 copies, \$1.50 each; 11 to 25 copies, \$1.25 each; 26 or more, \$1.00 each. Business owners may obtain copies by writing: "Financing Booklet," National Federation of Independent Business, 150 West 20th Avenue, San Mateo, California 94403.

### DOW SAYS SEMINARS ARE A SUCCESS

Approximately 600 lawn care operators from the Midwest learned about marketing and business management at



Dow Chemical Company's new series of Lawn Care Business Planning Seminars. The seminars, sponsored by Dow and conducted by Dr. Rudd McGary and Ed Wandtke, were conducted in Cincinnati, Chicago, Cleveland, Indianapolis, Kansas City, Detroit, and St. Louis during November and December last year.

McGary and Wandtke, of All-Green Management Associates, Columbus, Ohio, discussed customer attraction and retention, alternate uses of employees, purchasing techniques, costs of callbacks, manpower development, homeowner and employee safety, and inventory costs. Dow representative Stan Howell says that industry leaders who attended the seminars were enthused with the program. "Based on their responses, we plan to conduct more of the programs," says Howell.

### 11th ANNUAL ALCA STUDENT FIELD DAYS

The Eleventh Annual Associated Landscape Contractors of America Student Field Days are slated for April 3 to 5,

(continued on page 26)

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## NEWS

(continued from page 24)

1987, at Richland College in Dallas, Texas. The ALCA Student Field Days is a three-day competitive event among students from horticulture and landscape architecture programs from colleges and universities from across the country. The students have a chance to compete in events which are directly related to the skills necessary in the horticulture/landscape contracting industry.

The program also includes an evening social event to allow the participating students to meet and visit with contractors in the landscape industry. The landscape contractors enjoy meeting with the students and often find future employees from this event. For further information, please write to Frank Milsap, Richland College, 12800 Abrams Road, Dallas, Texas 75243.

### GUIDE TO FLOWER LANDSCAPING AVAILABLE

A guide to landscaping with flowering annuals is available for the professional



Landscaping with flowering plants enhanced the marketplace Jacques-Cartier in the heart of Montreal.

user. The professional will find this a complete guide in one concise booklet. "The Professional Guide to Landscaping With Annuals" has been published by Bedding Plants, Inc., a non-profit association that disseminates information on flowering annuals. The guide was writ-

ten by noted horticultural writer Ann Reilly. The 28-page booklet contains 16 pages of full-color photographs depicting use and identity of a large number of flowering annuals.

The booklet contains sections on use,

(continued on page 28)

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The **VCD-14** is a proven performer for maintaining a healthy, thatch-free lawn. Also used for renovating or seed bed preparation.

## Tractor-drawn Aerifiers:

The **TM-140** cultivates a full 6 ft. swath, for the most economical aerification of large turf areas. Attaches to the 3-point hitch of your category "3" tractor or, add a conversion kit and it's a tow-type. Kit includes transport wheels, draw bar and hydraulic lift jack. Fourteen discs, hold 140 tines or blades.

**NEW** The **TM-60**, cultivates a 32 inch swath for fast aerification of smaller turf areas. Attaches to the 3-point hitch of your category "0" or "1" tractor. Six discs, hold 60 tines or blades.

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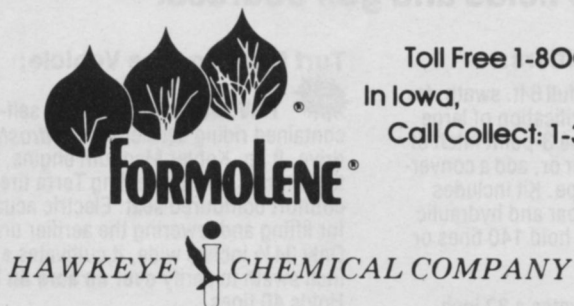
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### NEWS

(continued from page 26)

design, color selection, plant selection, planting, and maintenance of annual beds and borders. Special charts outline plant height, flower color and requirements for planting distance, soil, temperature, and light. There are lists for special use plants, such as plants for shade, dry conditions, moist conditions, low maintenance, and cut flowers. A sample planting plan is enclosed with calculations as to how to determine the number of plants needed. There is also a section on container plantings, plus a complete encyclopedia of plants with 63 photos and both common and scientific names identified.

The booklet is available for only \$1 plus a self-addressed 6-inch by 9-inch or larger envelope with 90 cents postage affixed. Write to "The Professional Guide to Landscaping With Flowers," Bedding Plants, Inc., 210 Cartwright Boulevard, Massapequa Park, New York 11762.

### MILORGANITE MAY CAUSE LOU GEHRIG'S DISEASE

According to an *Associated Press* report, heavy metal present in the fertilizer Milorganite<sup>®</sup> from the Metropolitan Sewerage District of Milwaukee may be linked to the fatal illness known as Lou Gehrig's disease. The report was quick to caution, however, that there is as yet no evidence of a definite connection, that reports of a link are so far anecdotal, and that clusters of Gehrig's disease cases are not unusual.

The fertilizer has been produced since 1926 and was applied to fields used by professional football's San Francisco 49ers in the 1960s. Three members of the 1964 team contracted the neuromuscular disease, and two of them, Gary Lewis and Matt Hazeltine, have died. The third, Western Carolina University football coach Bob Waters, 48, is battling the disease.

The Milwaukee *Sentinel* reported recently that other patients suffering from the disease have told of some contact with Milorganite, and that of 155 sewer district employees who died since 1961, two died from this disease. The normal incidence of Lou Gehrig's disease is two cases per 100,000 people.

"I'm a little uncomfortable about the way this has taken on headline proportions," said Dr. Neil J. Lewis, Assistant Director of Research with the Muscular Dystrophy Association in New York City. Investigations into past clusters found no causal factor. ■



# QUESTIONS & ANSWERS

**Q.** How can I counteract the negative publicity which insecticides seem to be getting? — *T. Hunt, Newark, New Jersey*

**A.** First of all, you should make sure you are using insecticides only when there is enough insect activity to warrant treating. While most universities have not identified "economic thresholds" for many turf insects, you should develop a good sense of what your clients' lawns will tolerate.

Second, you should consider offering your clients alternatives, one of which could be a regular IPM (scouting/treat only as needed) approach. Such an approach normally results in fewer insecticides, but occasionally will result in some insect feeding damage on the lawn.

Another alternative would be to use some of the biological agents which are becoming increasingly available. Note that some of these agents do not work well in certain parts of the country.

Finally, whether your state requires it

or not, you should provide each customer with general information about each material you use and the reason you are using it. Much of the negative publicity has developed because the general public perceives lawn care as a "black magic" industry. If the public can increase its understanding of pesticides and fertilizers - and lawn care concepts - the overall effect should be positive. — *Dr. Patricia Vittum, University of Massachusetts, Waltham, Massachusetts.*

**Q.** I am looking for a triple-chambered truck-mounted tank with a maximum capacity of 50 gallons per chamber. This will be a refilling station for smaller sprayers and must have a means of mechanical agitation in each chamber, preferably simultaneous agitation.

One 12-foot-long discharge hose is to be mounted on each chamber.

Discharge hose can be gravity-fed, but we would prefer the system to operate on a low-pressure pump.

That's the order! Any Ideas? — *Presi-*

*dent, Landscape Management Systems, Inc., Candler, North Carolina*

**A.** Your letter has been forwarded to Tom Sayward of Tuflex Manufacturing Company, Pompano Beach, Florida; Vic Shirley of Modern Welding Company, Inc., Newark, Ohio; and a representative of Smithco, Wayne, Pennsylvania. We trust that one of these companies will be able to build you the rig you are looking for. — *Ed.*

Do you have a burning lawn care question for a member of our Advisory Board? Address your question to **Gordon LaFontaine**, Lawn Equipment Corporation; **Dr. William Meyer**, Turf-Seed, Inc.; **Des Rice**, Turf Management Systems, Inc.; **Dr. Al Turgeon**, Pennsylvania State University; **Dr. Joseph Vargas**, Michigan State University; or **Dr. Patricia Vittum**, University of Massachusetts. Submit your question to **Questions and Answers, ALA, 4012 Bridge Avenue, Cleveland, Ohio 44113.** ■

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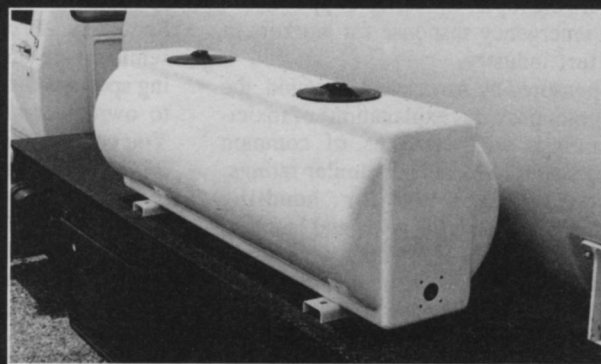
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# PLCAA UPDATE

Lawn care operators will find a wealth of information in a library featuring cassette tapes from the 1984, 1985, and 1986 Annual Professional Lawn Care Association of America Conferences. Each set is hand-somely packaged in free custom storage albums.

Produced by Chesapeake Audio/Video Communications, Inc., cassettes can be purchased individually or in complete sets. Cost per tape is \$8. The 1986 set is \$104; the 1985 set, \$168; and the 1984 set, \$160. Accessories also for sale by PLCAA include a Panasonic RQ-Cassette Recorder/Player for \$59.95 and a Custom Cassette Storage Album for \$6. Maryland residents should add 5 percent state sales tax. To calculate postage costs, include \$3 per order. Add 15 percent of the total order to be shipped outside the U.S. To order cassettes, send payment to Chesapeake Audio/Video Communications, Inc., 6330 Howard Lane, Elkridge, Maryland 21227. For credit card orders, call 301/796-0040.

Other training tools offered from PLCAA include a new 15-minute videotape titled "Pesticide Handling for the Turf Industry". The tape comes complete with an eight-page workbook and covers the topics of storage, application, and emergency response for workers in the turf industry.

Sponsored by American Cyanamid, the program provides explanations of toxicity ratings and examples of common household products with similar ratings. Safety precautions for handling pesticides, protective gear, and laundering instructions for clothing worn while handling pesticides are also reviewed. It is designed for newcomers in the industry and as a refresher course for seasoned employees. A 1/2-inch VHS format video is available from PLCAA for \$50 per copy for PLCAA members, \$75 per copy for non-members.

Riding the wave of professionalism and green industry growth, PLCAA's recent Seventh Annual Conference and Show in Baltimore set attendance records and earned high marks from participants.

At the recent show, a total of 1,703 attendees accounted for a 43 percent increase over the 1985 conference. The trade show floor saw growth of 23 percent, with an exhibit area of 34,800 square feet. The Baltimore conference also set a record with its 158 exhibitors.

Plans are already underway for the



*Pictured (left to right) are the PLCAA Board of Directors for 1987: Paul Schnare, John Kerr, Robert Parmley, Paul Moore (Secretary/Treasurer), James Marria (Immediate Past President), James Wilkinson (President), J. Martin Erbaugh, Russell Frith (Vice President), James Mello, David Sek, Joe Winland, and Tom Arnold. (Roger Funk is not pictured.)*

1987 conference in San Antonio, November 12-15.

Lawn care professionals hailing from the Central and Midwestern states have been invited to attend one of five seminars sponsored by PLCAA and Elanco Specialty Products Division. The seminars are one-day workshops featuring speakers discussing topics of concern to owners, managers, and technicians. You can get more information about the PLCAA/Elanco seminars by contacting the PLCAA at 1225 Johnson Ferry Road, NE, Suite B-220, Marietta, Georgia 30068.

Please note that PLCAA Headquarters has changed its zip code. The new zip code is 30068, and is effective immediately.

**S**ince the income tax deadline is drawing near, we wanted to share with you some more "IRS Audit Hot Spots" that weren't included in the February article of the same name. This list of activities that are most likely to attract the attention of IRS auditors was featured in a PLCAA *Legal Update* newsletter last year.

•**Entertainment expenses.** Expenses for business meals and travel to business seminars and business entertainment are favored areas of IRS audit. Written travel and entertainment diaries plus credit card receipts will help save the deduction.

•**Loans.** Loans to a shareholder in a closely-held business can create audit potential. The IRS may treat the loan as compensation or a dividend if there is no evidence that the shareholder ever intended to repay the loan. To avoid this appearance, the shareholder-taxpayer should sign a promissory note and set up a repayment schedule which the taxpayer should meet. Of course, the taxpayer should retain his cancelled checks showing he is actually paying the company back.

•**Casualty losses and theft.** If a lawn care operator has property stolen and wishes to claim a casualty loss for the theft, the operator should document the theft by reporting it to the police immediately. Otherwise, the IRS may claim that the taxpayer really misplaced the property and no casualty in fact occurred. The taxpayer should keep evidence of the cost of the property and if the property was a gift, and keep all references to it, such as a letter from the donor stating that the donor in fact gave the property to the taxpayer.

Finally, for disaster losses to a home or other property, the best evidence of the casualty is to have before and after pictures proving that the property was damaged. Real estate professionals should be able to provide the taxpayer with evidence of how much the property's value has decreased as a result of the casualty. ■



# PEOPLE

A full slate of officers was recently voted into office at the recent California Landscape Contractors Association Annual Convention in Hawaii. Headquartered in Sacramento, CLCA is the nation's oldest and largest organization of state-licensed landscape and irrigation contractors, and their suppliers.

**Nelson Colvin** was elected 1987 President of the organization. Past Vice President of CLCA, Canoga Park, Colvin has been an active member for 16 years. He's served on the Association's Executive Board since 1982; was President of the San Fernando Valley Chapter in 1974; Convention Chairman from 1975 through 1984; and CLCA "Associate Member of the Year" in 1980. Colvin has also worked on more than 12 committees since 1971. In addition, he's an active member of the California Landscape Industry Council and the Expert Witness Program of the Contractors State License Board. With the election, Outgoing President **Roger D. Fiske** was automatically made

It is with deep sadness that we report the passing of **Dr. Paul Tilford**, Executive Secretary of the National Arborist Association from 1940 through his retirement in 1965. Tilford was a plant pathologist and spent his early career at the Ohio Agricultural Experiment Station in Wooster, Ohio overseeing research on the diseases of shade trees and other plants.

In 1940, Tilford was employed as a part time Executive Secretary for NAA. Five years later, the position became full time. NAA's office was in the Tilford home in Wooster for the next 25 years. Tilford's wife Esther served as his Secretary. For much of this period, he was also Editor for the National Shade Tree Conference (ISA).

Under Tilford's leadership, NAA grew and prospered. His full time availability enabled him to travel, visit members and help solve their problems. After he retired, Tilford embarked upon a career as Mayor of the city of Wooster.

The love, affection, and respect that those who knew him had for Tilford, caused NAA to name its Foundation in his memory. A memorial service was held on December 13, 1986.

The Tilford family requests that donations be made in his memory to the Paul Tilford National Arborist Foundation, 174 Route 101, Bedford, New Hampshire 03102.

Chairman of the Board.

Also voted to the board were Vice Presidents **Barry L. Cohen** of B.L. Cohen Landscape, San Jose; **Jay West** of

Gardens West, Petaluma; **Ron Dietz** of Dietz Hydroseding Co., Van Nuys; and **Robert Baier** of Plant Control Corporation, Irvine.

## ANOTHER SUCCESS STORY

### LAWN CARE FILE #17

..."I have to admit, I was a little skeptical at first. I mean...what did I know about organics? Fertilizers, weed killers, fungicides...that stuff was all second-nature to me; But ORGANICS!...Now that was a whole new ball game. One thing I knew...I had to do something. My regular chemical program was just not giving me the same results anymore. My customers were complaining and I was starting to lose accounts. That's when I heard about **VITA-BUILD™**, the natural organic. I started out slow using the product once to twice a year along with my regular program. The first thing I noticed was that I could cut my Nitrogen applications in half. By the end of the first year, my lawns went from a 2" root system to a 6". Also, disease problems and the need to dethatch and aerate were all but eliminated. Now I'm running about a 70% organic program and my lawns have never looked better. Costs are down, profits are up and my pesticide usage is way down. And you can bet that my customers are happy about that!



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# DROUGHT REPERCUSSIONS

*With last season's dry spell behind them,  
lawn care operators talk about the  
drought's impact on business.*

**M**other Nature dealt a bad hand to lawn care operators in the South and Southeast last year. Turf professionals from Alabama to the Carolinas experienced what some call the worst drought of the century. Coupled with high daytime temperatures of 100-degrees plus, the lack of rain killed a lot of southern turf and ornamentals and caused many homeowners to cancel their regular lawn care service.

While the severity of the drought varied from city to city and state to state, most southeastern lawn care businessmen did see an increase in customer cancellations. The immediate effect hurt bottom-line profits, but most lawn care businessmen survived. Many even found a silver lining in the dark cloud that hovered over them.

In North Carolina — one of the states hit hardest by last year's drought — Lawn Medic of the Triad suffered a 30 percent increase in cancellations. An increase attributed directly to the drought, according to P.J. Lenihan, President of the Kernerville-based branch. At the same time, however, the company tripled its overseeding business last fall over the fall of 1985 — another result of the drought.

"The customer list dipped pretty dramatically," Leni-

---

***Coupled with high daytime  
temperatures, the lack of rain killed  
a lot of southern turf and caused  
many homeowners to cancel their  
regular lawn care service.***

---

han recalls. "My heart was pounding. But when all was said and done at the end of the year business was okay."

Many of Lawn Medic's customers began cancelling their service last spring when the drought started. Accounts continued to dwindle throughout the summer and into early fall, notes Lenihan. "Customers felt that lawn care was a waste of money when walking on their lawns was like walking on potato chips."

It was so dry that even weeds couldn't survive, Lenihan explains. "We saw the drought knocking out crabgrass. That was a first in my career."

By fall, rain finally broke the dry spell and Lawn Medic regained customers, reseeding many of their drought-damaged lawns. While a wet winter has replenished the

area's water table and helped nourish those lawns that were reseeded last fall, Lenihan suspects the company will encounter some complaints this spring from those customers who elected not to reseed or renovate their lawns last fall. "Some of the lawns are still thinned out," he says. "So I still think that we could lose customers over that."

Selling lawn care service this spring will be more challenging for southeastern turf professionals since they're on the rebound from the drought. However, Lenihan has already adjusted his company's marketing strategies for those drought-weary homeowners. "We've been hyping the benefits of fertilizer as it relates to making turf more drought-resistant since it's well-fed," he says. "We've also been talking about reseeding lawns with more drought-tolerant tall fescue varieties."

At Lawn Medic's branch in Virginia Beach, Virginia, Manager Wayne Crawford has already alerted employees to the potential for customer complaints this spring. "We're expecting customers to call in and accuse us of killing their dogwoods, shrubs, etc. with pesticides," Crawford says. "It's more likely that the problems are going to be from winter injury."

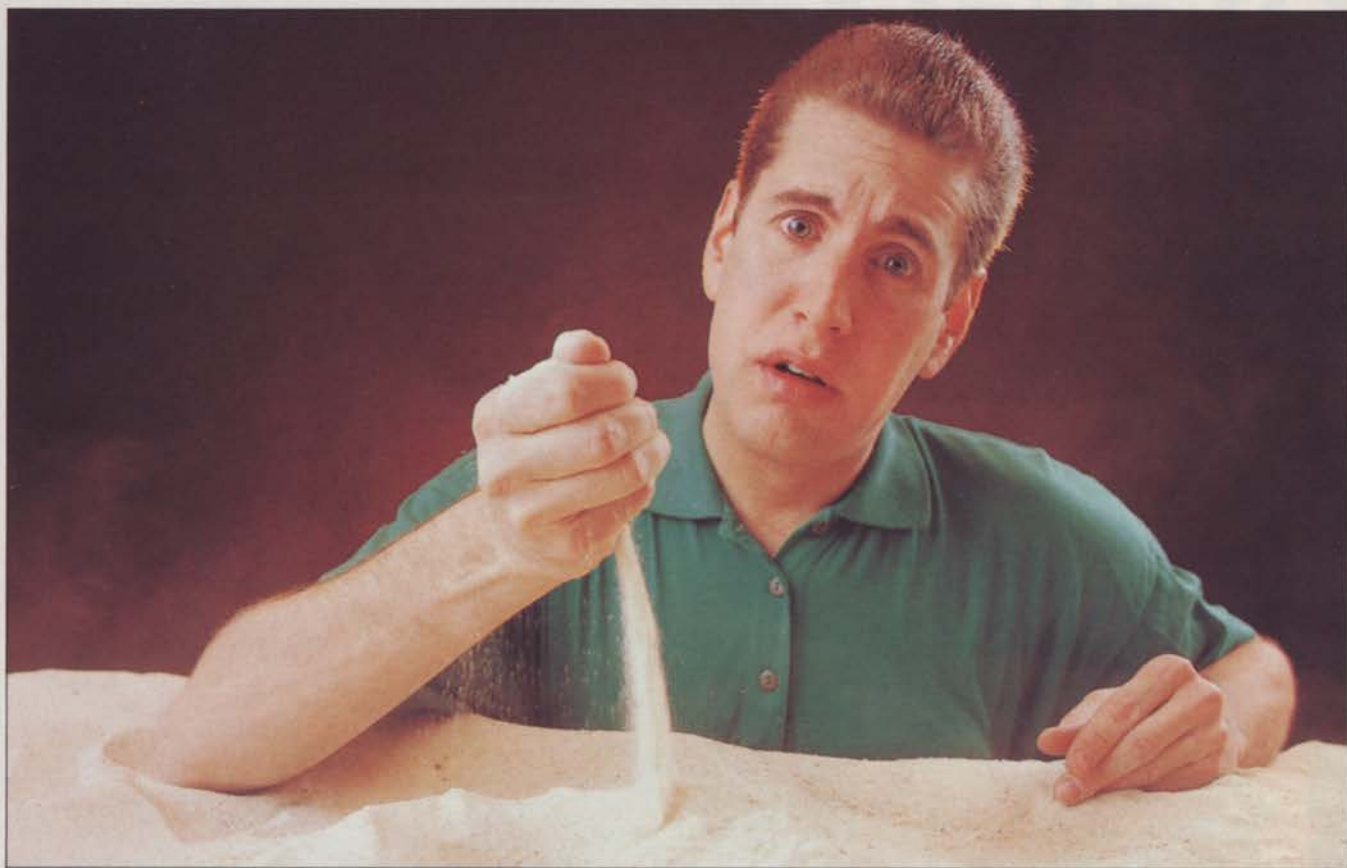
Riding on the coattails of the drought for the Tidewater region of Virginia was an abnormal autumn. "We really didn't have a normal fall transition of 40 to 60 degree weather," explains Crawford. "One day it was 80 degrees, then all of a sudden it was 40 degrees or below. So there was poor response to our seeded lawns, both the ones that we seeded and the ones that customers seeded."

Currently, warm weather is back in the region. However, if another cold spell hits, Crawford notes, winter injury will damage the vegetation, which customers will misinterpret as pesticide damage.

As a result of the drought and fluctuations in temperature, the company has made more service calls and developed a greater need for good public relations. Customers have been discouraged, according to Crawford. "We've had to explain to them that *all* lawns are going through the same thing and that this year will be better."

In Atlanta, business is back to normal, according to Dick Bare, President of Arbor-Nomics. While his company only lost a handful of customers to the drought, last summer's dry weather has led him to make some changes in his company's lawn care program. "We're going to treat this year as a normal year again, but we will make





provisions for switching over to a dry fertilizer program."

In the past, the company primarily applied liquid fertilizer, reserving a dry program only for bermudagrass, which seems to respond better to dry nitrogen rather than liquid nitrogen, notes Bare. The drought caused the company to shift gears in order to lessen turf burn, which is greater on liquid-fertilized lawns when there is no rain, according to Bare.

The change to a dry program, which Arbor-Nomics began during last summer's drought, has increased the company's costs. When Bare could apply fertilizer last year, he switched from ammonia nitrate to slow-release fertilizers like sulfur-coated urea. While more costly, these compounds were the only ones he could use to avoid burn.

Atlanta's burn problems were not as severe as those in cities where water rationing laws were enforced. Most homeowners in the "Peach City" could irrigate their lawns. Nonetheless, Bare noticed that the area's turf and shrubs were not as green as they could have been last fall. "Our turf programs are set up to be in correlation with good rainfall. Irrigation systems do not green up like a good thunderstorm does," he says. "There's a lot of nitrogen in rainfall."

Of course, given last summer's weather conditions in the South, any water — regardless of its source — provided some kind of relief for lawn care professionals. In fact, because more homeowners in areas like Atlanta were irrigating their lawns to compensate for the lack of rain, it provided lawn care businessmen with an opportunity to educate their customers on proper watering techniques. Hence, many scored public relations points.

Homeowners had a tendency to run their sprinkler system for 10 or 15 minutes twice a day," Bare explains. "We had our customers set their systems up so they would let them run all night maybe once a week and get a really good, deep watering."

"I think we built up some respect from some of our customers, because when they changed their watering methods they found that their turf stood up better to the drought," he says.

Bare believes weather-related crises like droughts and freezes adversely affect lawn care business about as much as they help it. When lawns started to decline because of the drought, he received phone calls for service from homeowners who previously were not interested. "They'd call in and say, 'Remember when you were out here a long time ago doing a survey? I think I'll have you go ahead and treat my lawn.'"

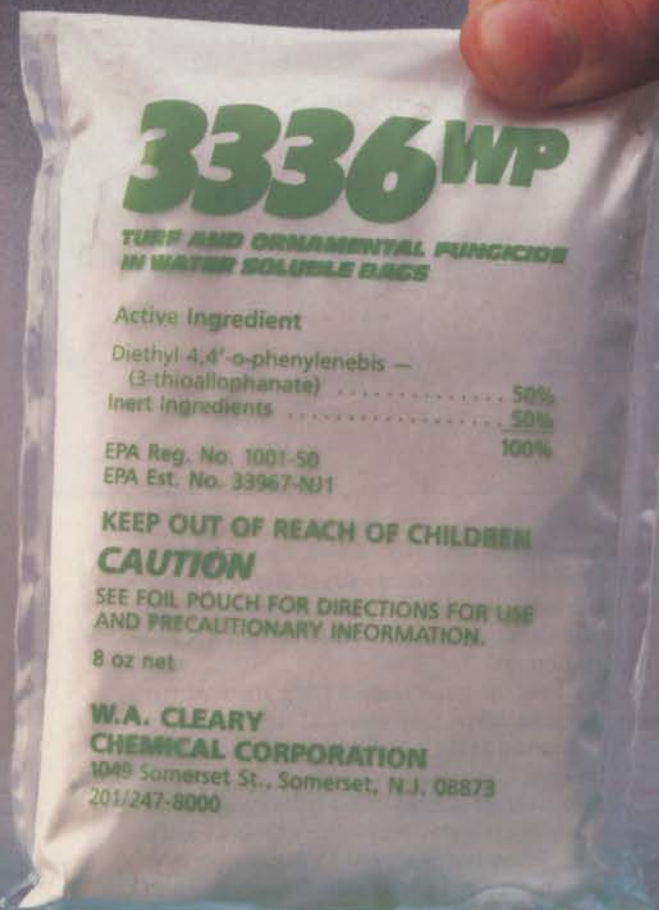
While Bare gained and lost customers due to the drought, he says the key to surviving such occupational hazards lies in good communication. "We're fanatics about trying to adjust our customers' expectations to what's going to happen before it happens." For example, he says, "In the summertime when we sign up customers, we try to make a point of telling them that we're heading into the drought season and that their turf is probably going to be brown. People are really thankful when you go over that with them."

According to several lawn care businessmen affected by the drought, most homeowners did not blame their lawn care firms for their turf's poor response to treatment. They understood it was a result of the drought. And

*(continued on page 35)*



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## DROUGHT

(continued from page 33)

because the drought prevented turf benefits, why should they pay for them? That was the problem Chemgro, Inc. faced in Montgomery, Alabama. According to Manager James Bartley, "People did not want to continue investing money into a lawn that was not going to respond anyway because of the drought. It's like getting your car washed when you live on a muddy road and you drive down it everyday," he analogizes.

Bartley estimates the company lost about one to two percent

(continued on page 58)

## WHAT ABOUT SOD AND SEED?

**W**e know last year's drought had a devastating impact on lawn care businesses in the South and Southeast, but how did sod farms and seed acreages fare during Mother Nature's wrath? What effect did the drought have on the availability of these commodities for lawn care operators?

According to Dr. Tim Bowyer, President of Southern Turf Nurseries in Atlanta, Georgia, lawn service, lawn maintenance, and landscaping firms will pay a higher price for sod this year because of the 1986 drought. While sod will be available, the cost will be up 1 to 3 cents a square foot.

While the drought did hurt sod production, enough rainfall occurred late in the year to recoup any significant damage, according to Bowyer. "The real hurt," he says, "was in the expense of irrigation and not in loss of growth. Very few sod farmers are dry land farmers. They're all irrigation farmers."

Under normal conditions, however, sod farmers use their irrigation systems less and rely on natural rainfall to water their crops, Bowyer explains. Given the drought, they were forced to increase the use of their irrigation systems, which became costly.

As for turfgrass seed, lawn care operators in the Southeast may encounter some problems with availability. While the most common turfgrass species used by lawn care operators — the new turf-type tall fescues — are grown in the Pacific Northwest and were not affected by the Southeastern drought, they are in short supply this spring because of last fall's increase in demand, according to Joe O'Donnell, General Manager of Sunbelt Seeds, Inc.

The demand for turf-type tall fescue seed was up substantially last fall, O'Donnell says. Partly because of the drought and partly because lawn care companies are incorporating more and more seeding into their programs. While supply of tall fescue seed is short this spring, there should be an adequate supply this fall when most lawn care companies do their seeding, O'Donnell says. However, there is no guarantee that the supply will be abundant. Lawn care companies should still make their seed orders in advance.

The drought did affect centipedegrass seed which is grown in south Georgia. But as O'Donnell points out, centipedegrass is a less common choice for use in the lawn care industry. Nonetheless, those lawn care operators looking for centipedegrass seed will find it in short supply and when they do find it, it will cost 10 percent more than last year. — Vivian F. Rose

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# RAINFALL RESIDUAL EFFECTS

*Much of the Midwest was deluged last fall by record rainfall. This spring, lawn care operators should be on the lookout for the kinds of problems caused by excessive moisture going into the winter.*

**M**uch of the region where cool-season turfgrass grows in the eastern and midwestern United States was subjected to heavy rains last fall. This excessive moisture has the potential to cause many problems this spring.

Heavy rains, like heavy irrigation, tend to push the oxygen out of the soil. Oxygen is necessary for proper root growth, and without adequate oxygen, poor root development will occur. Roots that develop when oxygen is limited tend to be shallow and near the surface. Mature roots that are already present begin to deteriorate. Roots that do survive may have a difficult time in obtaining nutrients and water from the soil, since the uptake of water and nutrients is an active process which requires oxygen.

Wet wilt can also occur under saturated soil conditions. Even though adequate moisture is present, the plants cannot take it up because oxygen is lacking. This phenomenon occurs most often on warm, bright, sunny days with low relative humidity. Winds over 20 miles per hour will also make the situation worse. Fortunately, those conditions did not occur this fall during or following the period of excessive rains.

**POTENTIAL PROBLEMS.** Due to the fact that most of the lawns subjected to the heavy rains have short and poorly developed root systems, they could be subjected to winter desiccation. This normally occurs in the late winter or early spring. Desiccation normally occurs under conditions of high winds and low soil moisture. However, there is a possibility desiccation could occur this year, even though soil moisture levels are adequate. Desiccation could occur because the poorly-developed root systems may not be able to take up moisture fast enough to replace



*Fusarium blight along a sidewalk where heat accumulates and drying occurs. (Courtesy of NYSTA.)*



*Fusarium blight leaf lesions on Kentucky bluegrass. (Courtesy of NYSTA)*

what is being lost. High areas or exposed slopes are most susceptible to desiccation injury. You may wish to try and protect such areas with desiccation covers.

Turfgrass plants normally store carbohydrates during the fall to help them survive the dormant period. They



may not have stored as much carbohydrates as usual because of the effects of the excessive rain on the root systems. This may interfere with the plant's ability to survive the dormant period or inhibit its ability to become properly established this spring.

**CORRECTING THE PROBLEM.** Proper fertility is the first step toward warding off any potential problems this spring. If a late season application of nitrogen was applied, this is probably the best treatment of all. This application should have been made after top growth stopped. Even though top growth has subsided, root growth remains active for a three- to four-week period. Nitrogen added after the top growth stops encourages root development. When nitrogen is applied during the active growing season, it normally goes into the production of top growth.

However, once the mechanism for top growth is shut down, the nitrogen goes into the production of roots, rhizomes, and stolons. Turfgrass plants that received this late season nitrogen application should have developed healthy roots, rhizomes, and/or stolons with adequate carbohydrate reserves and should be in good condition for spring growth.

Those lawns that did not receive the late fall nitrogen application need to be fertilized as soon as possible in the late winter or early spring. These lawns should receive a complete fertilizer (nitrogen-phosphorus-potassium) to encourage proper growth this spring and develop a healthy root system so as many carbohydrates as possible can be stored before the summer stress period.

Another process which will aid in root production is coring or aerification. The process of removing cores of soil and leaving the holes open creates an ideal area for root growth development because of the adequate oxygen that is present. There is usually enough root growth in coring holes to support a 3- to 6-inch diameter area of top growth. The soil cores that are removed should be allowed to dry and then be reincorporated back into the thatch. This will help manage the thatch.

**STRIPE SMUT.** Older Kentucky bluegrass lawns that contain the cultivars Merion or Windsor are most likely infected by stripe smut. Stripe smut is a systemic perennial disease, and once a grass plant is infected, it is usually infected for life. Any daughter plant arising out of the stripe smut-infected mother plant will also be infected. These plants normally survive in a weakened condition unless they are subjected to stress, in which case they usually die. This normally occurs in the summer when the lawns are not adequately irrigated.

However, stripe smut-infected lawns which are in a weakened condition from the excessive rain last fall will also die if subjected to drought stress this spring. Lawns infected with stripe smut should be irrigated as soon as possible and protected from desiccation with covers whenever possible. In addition, just before the turf begins to break from winter dormancy, they should receive an application of Bayleton® or Rubigan® to reduce the severity of stripe smut and allow the turf to become better established this spring.

**NECROTIC RING SPOT.** Necrotic ring spot (NRS), formerly called Fusarium blight, can infect Kentucky blue-



*Fusarium blight characteristic frog eye pattern. (Courtesy of NYSTA)*

grass lawns under stress throughout the growing season. Kentucky bluegrass plants with extensive root systems can often avoid severe damage. However, Kentucky bluegrass plants with limited root systems can suffer severe damage and even death from NRS infections. The actual death often does not manifest itself until drought stress occurs in the warm weather of summer.

Lawns with a history of NRS or lawns suspected of having NRS should be treated with a fungicide shortly after they begin to break winter dormancy. Appropriate fungicides for control of NRS include, Rubigan, Chipco 26019®, Vorlan®, Tersan 1991®, Fungo 50®, or Cleary's 3336®. Another alternative is to treat them with some of the products that have been shown to biologically manage the disease like Ringer's Lawn Restore® or Agro Chem's Green Magic® and Strengthen and Renew® programs.

The key thing to remember is you are dealing with lawns that went into winter dormancy in a weakened condition with limited carbohydrate reserves. You need to try and protect these lawns from winter stresses and then try to develop good root growth and healthy plants as soon as possible in the spring. This will ensure their survival in the spring and allow them to better endure the summer stress period.

— Dr. Joe M. Vargas, Jr.

*The author is Professor of Botany and Plant Pathology at Michigan State University, East Lansing, Michigan*



*Stripe smut fungal spore masses "striping" leaf. (Courtesy of NYSTA)*



# TESTING BEFORE INVESTING

*Never underestimate the importance of soil, water, and plant testing as a feature of a complete lawn care program.*

Several years ago, the phone rang with the almost unintelligible, irate voice of a lawn care customer on the other end, threatening everything from legal action to bodily harm for the alleged damage to her turf, trees, and ornamentals. This was a new account and the customer had just moved into the home. An early lawn fertilization was the only treatment the account had received. No herbicide had been used, nor had any other nearby accounts complained of problems.

"What's going on here?" That's what we were asking ourselves. Since there was no apparent reason for the obvious plant disorders, soil samples were collected and analyzed to further the investigation.

The soil analysis turned up an almost 10-fold excess of the sodium salts required to inhibit the growth of most plants. After some head scratching and subsequent detective work, the material was identified as the sodium-rich discharge from the home's zeolite water softener. A hose bib outside the home which the customer was using as the main source of irrigation was also connected to the water softener's discharge line. Apologies were made and everyone lived happily ever after.

Case in point: Don't wait for an accident, especially when it can easily be predicted and prevented.

The technology now exists to permit plant care specialists to evaluate lawn and ornamental programs on the most basic of levels — chemistry. Testing soil, water,

and plant chemistry is no longer restricted to the research lab thanks to some equipment now on the market.

When coupled with the basic knowledge of plant and soil requirements, the easily obtained test data becomes the building blocks for advancing the efficiency of our industry. Even in view of the numerous benefits possible from soil, water, or plant tissue testing, there seems to be a considerable amount of apprehension, even apathy, toward utilizing this technology in everyday plant care operations.

It would appear that either a general lack of awareness or the failure to recognize the benefits, is responsible for the limited use of testing technology. This is unfortunate since any apprehension that may exist can easily be dismissed once professionals realize how accessible the testing equipment is and how practical the results are.

**GENERAL CONSIDERATIONS.** A lawn care company may wish to utilize testing in a variety of ways. It may be beneficial to use tests only for diagnostic procedures or as an integral part of all service programs. With only a modest investment in equipment and training, professionals could benefit from the addition of test equipment as standard equipment aboard all service and sales vehicles.

Operators could, for example, spot check and record the soil and plant conditions as a part of regular route visits. Besides providing management with a continuous evaluation of products and procedures, these same routine tests could help spot impending problems that could warrant an adjustment to any forthcoming applications. If mobile communications with management is possible, instantaneous consultation about a problem could provide an on-the-spot adjustment to best accommodate the situation.

By using preliminary testing for prospective accounts, salespersons could more accurately identify specific customer needs and more effectively demonstrate the benefits of a program to customers. A firm willing and able to substantiate a sales claim through tests, can more readily earn the respect of a potential client, as well as obtain technical data useful in a program design.

**SOIL TESTING.** Plants basically exist in two biospheres of growth, above ground and underground. While most above-ground conditions can be visually monitored, the equally important soil environment is often just the subject of assumption and speculation. When you consider



Testing soil moisture content and retention with tension equipment.





*Besides on-the-spot testing, samples can be collected and identified for testing later, at a more convenient time.*

the investments made to amend or supplement the soil, a way to gauge the feasibility of these efforts can be useful.

Too many applicators incorrectly assume that a one-to-one relationship exists between the amount and type of fertilizer applied and the benefits the plant derives. While soil chemistry is indeed complicated with respect to the complimentary or detrimental reactions it can have with applied products, many basic dos and don'ts have evolved from years of research and practical experience in this field. This information is readily available to applicators through numerous soil science books and literature found through libraries, local extension services, and from trade handbooks.

Once the characteristics of the soil in question is known, program and product selection can be adjusted to provide plant care companies with a better cost to benefit ratio for fertility programs, and the subsequent improvement of bottom line figures.

Although fertilizer formulators, through their diversity of products, offer the industry the vehicles for accomplishing more efficient fertilizer usage, many companies fail to invest the time and energy required to explore these possibilities. Even if current fertility programs are considered adequate, there may yet be considerable room for improvement.

Luxury consumption is defined as nutrients in excess of the amount considered optimal for the plant's needs. Applicators do, and should, maintain an excess of certain nutrients so there are no growth-limiting factors. But without knowing what that exact level is, serious problems can occur from too much of a good thing.

An obvious use of soil testing is to determine when soil nutrient levels are low and in need of replenishment.



*Irrigation water quality is evaluated for possible salt or sodium excess.*

However, even this requires some time and experience to associate actual fertilizer effects with the various plant species. Buying and using the equipment is the only way to gain this essential experience. This will provide you with an index of nutrient conditions and the changes that occur in response to applications.

Aside from the biological problems associated with impromptu fertilization, consider the savings possible from more efficient selection and use of fertilizer products. For example, if a fertilizer formulation costing 12 cents less per pound than the product you are using was found by soil analysis to adequately provide the turf's nutritional needs, a savings of \$2,400 per every 10 tons used would be realized.

Or consider the case of many western soils, where a

*(continued on page 42)*





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## TESTING

(continued from page 39)

soil test might indicate the most appropriate fertilizer for increasing the availability of applied iron, by providing a more favorable pH reaction in the alkaline soil. A change of fertilizer type would thereby be an economic improvement over one that merely adds readily complexed iron, without any provision

for improving its retention or availability. Discrepancies in fertilizer costs can vary, but the cost-to-benefit ratio of a relatively expensive product could produce a considerable overall cost reduction.

As a diagnostic aid, soil tests used alone, or in conjunction with tests on irrigation water or plant tissue, can eliminate much of the guesswork and time normally involved in ascertaining plant

problems. The trial-and-error approach to correcting plant problems is totally unacceptable in today's plant care profession. Besides excessive service costs, hit-or-miss plant care is an irresponsible use of products.

Visually distinguishing the deficiency symptoms of various plant nutrients can be a difficult, if not impossible task for applicators not familiar with the many manifestations of plant distress. A zinc-

## TESTING PRODUCTS

**A** new single range conductivity meter is now available from **Engineered Systems and Designs**. The model 70 COND/TDS measures in either parts per million or micromhos. This model also comes with an analog or digital readout. Each meter comes with electrode, calibration solution, two sample bottles, rugged foam-lined carrying case, and instructions. It is also fully guaranteed for one year. The meter is powered by a single 9-volt battery, so it can be used anywhere.

Also available from Engineered Systems and Designs are two portable, digital pH meters, models 57 and 59.



The model 57 reads to an accuracy of .05 pH and displays to .1 pH. The model 59 reads to an accuracy of .01 pH and displays the same. Both meters read the entire pH range of 0 to 14. They also feature manual temperature compensation from 0 to 100 degrees centigrade, a standardize control, an externally accessible slope control, a BNC connector, and an on/off battery check switch. Both instruments have all solid-state circuitry and are powered by a single 9-volt battery. Both models come in a foam-lined carrying case.

**Circle 101 on reader card**

**Minolta Corporation** has introduced the Chlorophyll Meter SPAD-501, a hand-held meter for measuring the chlorophyll content in plant leaves. Featuring one-button operation, the compact and lightweight SPAD-501 can be used in the laboratory or outdoors. In one second, the meter can measure the effects of different nutrients and fertilizers on plant growth. No other method of chlorophyll measurement is as fast.

Totally electronic, the meter provides accurate and repeatable measurements of even small changes in chlorophyll content. The large LCD digital display is easy to read, greatly reducing the chance of measurement error.

The unit measures without damaging the plant leaves. The user simply places the leaf in the measurement area of the meter and presses the operating button. Light from the meter's xenon flash tube passes through the leaf and the intensity of the light striking the sensors is measured. By calculating the difference in light intensity between the two sensors, the amount of light absorbed by the chlorophyll is determined. This information is displayed as the weight of chlorophyll per unit area.

The meter is powered by a rechargeable Ni-Cd battery pack and is supplied with a spare battery pack. Other accessories included are a battery charger and carrying case.

**Circle 102 on reader card**

The new model TL-2 Deluxe Turf Lab from **LaMotte Chemical** offers a full soil analysis laboratory in a portable carrying case. The model TL-2 Turf Lab features colorimetric tests for pH, nitrogen, phosphorus, and iron using a new Octa-Slide comparator system. Potassium readings are obtained by means of a turbidity tube test. AS direct-reading titrator system is used to achieve results for calcium and magnesium. For evaluation of clay, silt, and sand fractions, a soil texture unit is supplied as well as a bi-metallic thermometer for



measuring soil temperature.

Each kit includes reagents sufficient for 50 tests per factor and up to 100 tests for pH. All components are furnished in a foam-lined ABS carrying case with a pad of soil report forms, sampling bags, soil handbook, and a 6-inch brass soil sampler.

**LaMotte** also offers a dissolved salts meter model DA-1 which measures conductivity, which is directly related to the total ionic concentration of dissolved salts in the sample. The meter reading is converted by a simple calculation to parts per million total dissolved salts. Simply place the probe in an easy-to-prepare soil extract, or directly in irrigation water, and switch the meter on for an instantaneous reading.

**Circle 103 on reader card**

**LESCO, Inc.** introduces a convenient, accurate pH meter that can fit in your pocket. Using the **LESCO** pH Pen, applicators can take field pH measurements with the accuracy of laboratory measurements.

Utilizing advanced solid-state circuitry, and powered by conventional wristwatch batteries, the unit features a gel-filled electrode which measures pH ranges from 2 to 12 with 0.1 unit resolution. Readings are displayed in large, liquid crystal characters that are easy to read, even in direct sunlight.

The new **LESCO** pH Pen is available now either separately or as a complete kit, containing all the supplies necessary to take accurate readings, including calibration buffers and sample cups.

**Circle 104 on reader card**



deficient plant will not respond to iron treatments. Likewise, iron has no effect on a nitrogen-deficient plant.

Adding to the difficulty in distinguishing between the individual deficiency symptoms, is the ability of certain types of herbicide damage, plant pest damage, or even natural pigmentations, to resemble nutritional deficiencies. This is even more reason to consider diagnostic testing.

Besides the inefficient use of fertilizer, antagonistic soil reaction from an excess of one or more nutrients can severely limit the availability of other vital nutrients, even though they may be present in sufficient quantity. It is common to find a nutrient deficiency become more pronounced after the application of an inappropriate fertilizer.

When plant desiccation occurs, a test for soil salinity can be invaluable for quickly determining if accumulated salts are to blame or if other causes of the damage should be investigated. Although these tests can be direct indicators of fertility-based disorders, they can also point to other types of disorders by eliminating the soil as the site of the problem.

**PLANT TISSUE TEST.** Lawn care professionals should also consider plant tissue

testing as a natural complement to soil and water testing. Tissue tests can easily measure the plant's ability to assimilate nutrients and measure the actual levels of various nutrients within the plant itself. After all, the ultimate success of fertilization is the presence of adequate nutrient levels in the plant tissue.

By ascertaining the true cause of a deficiency, time, labor, and material are not consumed pursuing the wrong cause. If soil tests indicate an adequate amount of available nutrients in the soil, but tissue tests indicate low levels, a physiological disorder in the plant itself can be assumed. Plant tissue testing is also valuable for determining the effects and longevity of foliar-applied nutrient sprays, and the variation in nutrient levels during different times of the year.

Empirical guides that list the sufficient and deficient nutrient margins for various plant species are readily available. These levels, compared with the test levels, allow the determination of the type and amount of amendments necessary for proper plant maintenance. Most plant tissue tests are extremely simple to use and can be performed on-site, literally within minutes.

**WATER ANALYSIS.** Water is often overlooked as a factor of both plant pro-

blem diagnosis and fertility planning. Water used for irrigating plants can be a major source of plant disorders. Contaminated irrigation water can raise the level of dissolved salts or sodium in the soil, both of which are capable of rendering soil incapable of supporting plant life. Water can also be a source of certain plant nutrients, and if levels are relatively high, it can be a consideration in fertility management.

Water analysis in plant care programs can become more important in areas where individual water sources, such as wells or reservoirs, exist. The variation in water quality between accounts can be substantial enough to justify custom programs on the basis of water quality alone. In addition to soil testing, water testing procedures are relatively simple and can also be performed quickly, making their addition to a service program very practical.

**EQUIPMENT.** The technology of testing equipment has evolved from large, bulky units to sleek, portable units designed specifically to accommodate professionals in specific markets, such as the lawn and tree care industries. There is a widespread misconception that accurate test equipment must take the form of

(continued on page 56)



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# COSTING MOWING JOBS

*How did you develop the pricing schedule for your mowing services? If your pricing schedule is still developing, don't feel bad, you're not alone.*



*When costing mowing jobs you have to consider all the obstacles in a residential lawn.*

**C**alculating the price you should charge for your mowing services is probably one of your most crucial business considerations and yet it is generally one of the most poorly understood aspects of the mowing/maintenance business. Part of the problem is the lack of information sharing within the industry on this topic. Businessmen who have developed an effective pricing formula are generally reluctant to share that information with their competitors.

Although time-tested pricing formulas may be hard to come by, the ingredients of an effective

formula are not hard to come by. The cost of operating a mower is an important factor in any pricing calculation. The Minnesota Professional Lawn Care Association recently published some cost-per-hour estimates for various grounds maintenance equipment in its newsletter. A 20-inch rotary mower costs 85 cents to operate per hour, while a 72-inch riding rotary mower costs \$4.65 to operate per hour. The Association notes that these figures are national averages and actual costs will vary from company to company.

These mower costs do not take into consideration the expenses incurred from taxes, insurance, and other peripheral factors. But consideration of such peripheral factors is necessary to develop an accurate picture of the total costs involved in a mowing operation. At Perfection Grounds Maintenance, Dan Pohja, Owner of the Colorado Springs, Colorado company considers his complete overhead costs, including office staff and computer costs. Office staff costs include the salaries of two managers. Pohja also includes the cost of renting his office in his mowing cost calculations.

There are also in-house shop costs because Pohja employs a full-time mechanic. He says his largest cost by far is labor, followed by the cost of purchasing, operating, and maintaining the equipment.

Pohja's "formula" for costing mowing jobs is not calculated on a square-foot basis. After figuring out the costs

involved in the job, Pohja then adds three things: profit, overhead, and labor. He estimates overhead at between 38 and 41 percent of the actual cost of the job. "Then we have a variable figure in there that we call an 'adjusted figure' to negotiate," says Pohja.

Obviously, every job can't be measured against some prototypical model job because every job site has its own set of obstacles. To take this into consideration, Pohja assigns each job a rating based on three degrees of difficulty and factors this aspect into the costing procedure. "We have three degrees of difficulty: easy flat mowing, moderate or average mowing, and steep terrain or difficult mowing," says Pohja. Mowing, trimming, and edging prices are all calculated with this system. Flower beds and other types of ornamental work are estimated on a linear foot or square foot basis.

The degree of difficulty relates directly to the man-hours spent on each job, according to Pohja. "We have it set up so moderate mowing with a particular mower takes a certain length of time. Each of the degrees are set at different rates per 1,000 square feet of mowing."

Accurate job costing requires extensive recordkeeping. "From previous manual tracking, we have recorded square footage and then visually determined our degree of difficulty and then averaged it out over one full season per job," says Pohja. He then streamlined his system by inputting that data on a special software package.

Pohja just recently got his computer up and running with a mowing/maintenance software package called Slice III from Thorton Computer Management Systems in Cincinnati, Ohio. Each individual piece of equipment is entered into the system under a specific code number. Then there are three codes for each piece of equipment under each degree of difficulty and each piece of equipment is rated at a certain number of square feet per hour. In Pohja's case, there are five size classifications: 21-inch mowers, 32-inch walk-behinds, 36-inch walk-behinds, 50-inch walk-behinds, and 54-inch riders, so there is a total of 15 different codes.

Based upon calculations facilitated by the Slice III software, Pohja charges \$18 per hour for work with a 21-inch mower and \$36.50 per hour for work with a 54-inch riding mower.

Items such as taxes, markup on the materials, profit markup, and an adjustable overhead rate are all variable on the software. "We set in what we feel will be our base, but it can be changed for each particular job," says Pohja. The separate items can be changed throughout the bidding package, automatically on jobs bid, jobs not bid, and jobs pending. If prices change, the variables can be changed on an individual job basis.



Accurate manual recordkeeping was the key to Pohja's success in switching over to the Slice III software package. "It takes the 'guesstimating' out of estimating," says Pohja. The actual degree of difficulty is the only factor that Pohja has to guess at before entering the square footage of the property to get a price.

"Degree of difficulty in mowing is something we have set up with our own mowing company here," says Alan Garten, Sales Representative, Thorton Computer Management Systems. The software has a "factors file" which pens the amount of labor hours, equipment hours, and

materials required, if there are materials involved. Although Garten says most mowing/maintenance companies probably wouldn't need more than about three, an operator could actually set up countless degrees of difficulty for a particular job.

"You could have a specific job, like mowing 100,000 square feet with a 72-inch mower," says Garten. "To that you can assign different factors for labor and equipment time. If it was a very difficult or obstructed area, you could have a much higher labor requirement and equipment hour requirement than you would need if it

## MOWING MAINTENANCE

**W**hen 200 mowing/maintenance professionals were surveyed by the Toro Company about maintaining turf equipment, a surprising 17 percent reported having no preventive maintenance program at all. Responses to the survey showed that the remaining 34 percent have daily programs; 31 percent, weekly programs; and 18 percent, monthly programs.

Richard Smith, Manager of Commercial Service Training for the Toro Company, related this information to attendees at the recent Professional Lawn Care Association of America conference in Baltimore in a seminar titled "Mowing Equipment Maintenance: Three Case Histories for Success." Taken aback by the fact that some operators don't perform maintenance tasks at the required intervals, Smith asked, "Are they too busy to work on this piece of equipment? Don't they know or understand the requirements?"

"It was kind of hard to believe when we read those figures, but it was the truth," he said. "I don't know of any air-cooled engine that should run more than 25 hours without an oil change. Or any equipment that shouldn't be greased every 10-20 hours."

"A piece of commercial mowing equipment usually operates eight to nine hours a day, five or six days a week, at 3600 RPMs. Running a piece of commercial mowing equipment for six months is the equivalent of driving your automobile 90,000 miles."

One important part of any program is employees, said Smith. "The operator plays a significant role in determining the quality of the cut, the downtime, and life of the mowing equipment. He or she should understand the equipment components and function, and be qualified to operate the equipment efficiently. Attempts should be made to hire

people who can be trained to become good, conscientious operators."

Performance and overall life of the product is affected by the mechanic's attitude and abilities as well, he adds. "If you perform much of your own service, you should understand your limitations with the equipment. Get the equipment repaired at a qualified or trained dealership or distributorship when necessary. This can only help extend the life of your product."

Finally, it is the supervisor's responsibility to portray a positive attitude about mowing equipment, says Smith. "This is done by having on-going communication between the mechanic and the operator. The most important part of the supervisor's job is to be a good listener. Many good ideas will come from your mechanics and your operators, if they feel their input is accepted. A supervisor should make people accountable for their jobs and their performance. His people should be confronted if the job is not being performed in the manner which it should."

Without an informed operator and competent mechanic, the supervisor is not going to be able to perform his responsibilities, adds Smith.

Smith also noted the importance of upkeep from a safety standpoint. "Equipment today is designed with specific safety features. To not use them and have someone injured because of lack of safety features is just not right." Consider the expenses involved as well, he says. "How much is it going to cost to defend yourself in a court case? How much is it going to cost for the rehabilitation of an operator?"

Some manufacturers offer operator's and owner's manuals, Smith says. "There are also historical record forms to help maintain the service activities on your pieces of equipment." Be well-

stocked with parts so that you can stay up and running if you should have a component failure. "Some larger operations carry a large parts supply. The type of parts they carry are selected from experience and knowing their machines and the type of environment that they're in."

Toro's survey also indicated that the following machine parts are commonly repaired.

**Belts.** "This could be engine dry belts, but in most cases it was the cutter head belts. There is nothing that can put a machine down quicker than not being able to replace a belt to either the traction unit or to the cutting unit."

**Blades.** "If the blades are dull or damaged it can seriously effect the quality of the cut and performance your customers have come to expect." Be cautious about trying to bend a blade back into place, warns Smith. "These blades are usually heat-treated and rebending can stress and give it a weaker point. If it strikes another object, it could send a piece flying off."

**Tires.** This could mean a pneumatic tire which could require a tool, but also semi-pneumatic tires with rims and hard rubber or plastic type tires that could get thrown off and put a unit down.

**Pulleys.** "An engine pulley, dry pulley, cutting deck pulley, or any piece of pulley equipment can also put a piece of equipment down."

"I suggest you take a look at your equipment and the environment you put it in," Smith says. "Make yourself a parts inventory. Remember that not thinking ahead and having a unit go down can seriously affect the productivity of your operation." — Julie November

*The author is Assistant Editor of ALA magazine.*

were an open field where you could go 7 or 8 miles an hour."

Proper manual recordkeeping will give the operator a starting point with the system. "Once you start doing jobs on the system, the system itself will keep all the histories on the jobs and will give you a lot of feedback as far as equipment hours and material requirements for different jobs," says Garten.

Even without a computer system to expedite the job costing procedure, Gary Carstens, President of World of Green, Inc. in Lincoln, Nebraska notes that establishing a job history through good recordkeeping is important. "Now you can base your price on history," says Carstens. "A lot of times people give an estimate and get the job and never really

know if they made money on that job."

Breaking down the variables into unit cost and unit pricing is at the core of Robert Sarver's job costing system. Sarver looks at each individual function provided by his company, Sarver Landscape Maintenance of Wexford, Pennsylvania. "There might be 28 or 30 different services that we provide on any given contract," says Sarver. "When we bid a job, we break the job down into 28 or 30 different functions. Each one will be an assigned unit."

Much of the costs are broken down into an estimate of time and materials. "Materials are quite easy to determine because you have something concrete to work with," notes Sarver. "You can take measurements and determine exactly what

you need. Labor is simply a projection."

Sarver estimates his jobs against an "average" job and factors in a simple plus or minus degree of difficulty which is assigned a percentage. The "average" job is the baseline of zero, while a subjective degree of difficulty rating of 10 percent might be assigned to a particular job that is somewhat more demanding than the "average" job. That rating of 10 percent is used as a multiplier.

Sarver has also assigned a unit-per-hour charge to all of the different pieces of equipment he uses. "Say you are going to mow an acre with a 21-inch mower, we have a rate that we charge for a 21-inch lawn mower per hour," explains Sarver. "We multiply that over the

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## TIPS FROM BRIGGS & STRATTON

**T**he Engine Maintenance Guide, an 8-page booklet produced by Briggs & Stratton in cooperation with the Professional Lawn Care Association of America, provides mowing/maintenance operators with some key tips for the upkeep of their small engines. The following information has been excerpted from the guide.

•**Air Cleaner.** Wash and re-oil this element regularly; every 25 hours or about once each week. It should be cleaned more frequently under extremely dusty conditions.

When servicing an *oil foam* type, remove the wing nut and cover. Lift off the foam element from the base, compress it, and pull out the air cleaner cup. The foam should be washed in kerosene or liquid detergent and water, wrapped in cloth, and squeezed dry. It should then be saturated with engine oil and the excess oil squeezed out.

The cartridge of a *dry element* type should be tapped gently on a flat surface. If especially dirty, it should be replaced or washed in a low or non-sudsing detergent and warm water solution. Petroleum solvents such as kerosene should not be used for cleaning as they can cause deterioration. In addition, cartridges should not be oiled or cleaned or dried with pressurized air.

Optional on most models, the *dual element* type should be cleaned by first removing the knob or wing nut and cover. Next slide the foam pre-cleaner off the paper cartridge and wash it in kerosene or liquid detergent and water. The foam should then be wrapped in cloth, squeezed dry, and saturated in engine oil with the excess oil squeezed out.

A dual element's paper cartridge should be removed about every 100 hours. Clean this element by gently tapping it on a flat surface. If very dirty, replace the cartridge or wash it in a low or non-sudsing detergent and warm water solution. Rinse thoroughly with flowing water from inside out until water is clear. The cartridge must stand and air-dry *thoroughly* before use. Do not oil the cartridge, clean or dry it with pressurized air, or apply petroleum solvents such as kerosene.

•**Crankcase.** When filling the crankcase, use a high quality detergent oil classified "For Service SF, SE, SD or SC." Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits. Do not add anything else.

•**Fuel Tank.** Briggs & Stratton engines operate well on any gasoline intended for automotive use. Fresh lead-free gasoline is recommended as it results in fewer combustion deposits and longer valve life, though leaded may be used if lead-free is unavailable. A minimum of 77 octane is also suggested. *Do not mix oil with gasoline.*

•**Oil Level.** Oil should be checked after each five hours of operation and maintained at the proper level. It should be changed after the first five hours of operation and every 25 hours thereafter. When changing oil, remove the drain plug and drain oil while the engine is warm; replace plug and tighten. Next remove the oil filler plug or cap and refill with new oil of proper grade. Replace plug or cap.

•**Change Oil.** (Gear Reduction Optional) Remove the oil level plug and the drain plug from the bottom of the gear case cover. Drain oil every 100 hours

of operation. Next replace the drain plug and tighten. To refill, remove oil check plug and oil filler plug and pour oil (same grade as used in crankcase) into fillerhole until it runs out oil level hole. Replace both plugs. The oil filler plug has a vent hole and must be installed on top of gear case cover. If the gear case is not equipped with an oil filler plug, the reduction gears are lubricated by engine crankcase oil.

•**Cooling System.** Dirt and debris can enter the blower housing with the cooling air and clog the cooling fins. Continued operation with a clogged system will cause severe overheating and engine damage.

•**Combustion Chamber.** During normal engine operation, deposits accumulate within the combustion chamber and build up in the cylinder head, the top of the piston, and around the valves. An excessive amount of combustion deposit will result in a loss of power and short valve life. Remove the cylinder head and clean out combustion deposits after each 150 hours of operation.

•**Spark Plugs.** Clean and reset gap at .003 inches every 100 hours of operation. Plugs should be cleaned with solvent or gasoline. *Caution: Sparking can occur if wire terminal does not fit firmly on spark plug.* Reform terminal or repair switch if necessary.

The Briggs & Stratton booklet also contains facts about oil and gasoline, a troubleshooting guide, and a weekly maintenance schedule. Operators who would like a copy should write to the Professional Lawn Care Association of America, 1225 Johnson Ferry Road, Northeast, Suite B-220, Marietta, Georgia 30068.



# POSTING PROBLEMS

*Lawn care businessmen used to wonder if posting would ever affect their businesses. Now posting threatens to become an industry-wide reality.*

**T**he posting of signs on residential lawns to notify the public that a lawn care treatment has been made could soon become as much a standard business practice for lawn care operators as writing out an invoice. Posting has become a reality in several communities across the country with the passage of local posting ordinances, but it's most ominous embodiment has come in the form of a Massachusetts posting/prenotification law that was passed last November 5. This state law will take effect on April 1.

Massachusetts seems to have set a precedent that Connecticut and Rhode Island may soon follow with posting/prenotification laws of their own. In the case of Connecticut, the proposed posting of signs on treated properties three days before treatment to remain in place until three days after treatment, would be the toughest posting law in existence. Connecticut and Rhode Island laws are eminent and lawn care operators around the country are bracing themselves for similar laws whose rumored details are being worked out in a few states.

Tim Dopple, President of Atwood Lawn Spray in Sterling Heights, Michigan is convinced that the State of Michigan will soon propose its own posting/prenotification regulation. It was with that belief in mind that Dopple made plans to voluntarily post signs on his customers' lawns with the first round of applications this spring. But he ran into some unforeseen difficulties.

"We called the communities where we do the majority of our business to see if there would be any problem and if they had a 'post-no-bill' type of ordinance," recalls Dopple. The first two calls were to the two cities which encompass half of his customer base: Sterling Heights and Warren. "Sterling Heights said that because it was a form of advertising, it was not permissible, whether our name was on it or not," says Dopple. "Then we called the city of Warren and told them what we wanted to do and they said it would

be fine as long as we got a permit for each time we put a sign in the ground!"

The other cities in Dopple's marketplace were much more receptive to his offer to post signs. Many city fathers even praised his spirit of volunteerism.

Dopple has decided that he will now treat lawns in Sterling Heights and Warren without posting. "I have to change my advertising and the contact letters we will be sending out in a couple weeks," says Dopple. "We had planned on really pumping the fact that we were going to



*This is a full-scale representation of the prescribed Massachusetts sign.*

be posting. We were really excited about doing the posting and were committed to the whole idea of it."

Dopple says lawn care operators who are considering voluntary posting, or are anticipating mandatory posting laws in certain states, should get in touch with the city governments in their markets now. If operators post without checking on possible ordinances restricting posting, Dopple says they could get themselves in some hot water. He says he knows of one anti-posting regulation that calls for fines of \$500 *per occurrence*!

The only other option that Dopple can think of is to either wait for or push for a state law that would mandate posting, since such a state law would supercede a local ordinance restricting posting. Ron Miller, President of Super Lawns, Inc. of Bethesda, Maryland is convinced that the best way to deal with local sign posting restrictions is to get a preemptive state law that lawn care operators can live with. For instance, Miller says there is an ordinance restricting sign posting in Chevy Chase. He says that since the State of Maryland is also contemplating the drafting of a posting law, applicators should lobby for equitable terms that would preempt local ordinances.

But when it comes down to county laws that conflict with city ordinances, which government body controls the posting of signs? "You could get fined for doing it or you could get fined for not doing it," says Miller. "The operator should go to the major jurisdiction and the minor jurisdiction and say, 'Hey, you resolve this issue before we have to comply.' Do it by registered or certified mail." Miller says operators should force municipality and county officials to resolve the jurisdiction problem between themselves.

Since he services the Anaheim, California area, George Meeley, owner of Chem Turf, suspects that there could be quite a few communities in his market that have ordinances which restrict sign posting. "We probably service about 30 cities," says Meeley. "I drive through five or six just coming to work. There are cities within cities here. For instance, Beverly Hills is completely surrounded by the city of Los Angeles and yet it is a separate city. Some of these cities are really strict. They don't allow TV antennas on the roof. Other ones don't care — you could take the wheels off your old Chevrolet and park it on the front lawn if you want."

Steve Hardyman, Manager of Legislative Affairs at ChemLawn Services Corporation in Columbus, Ohio does not expect the problem of dealing with anti-posting ordinances to be too widespread. Since all ChemLawn branches will be posting this spring, Hardyman says branch managers have been



*A generic posting sign available from Sign 'N Post of Cincinnati, Ohio.*

instructed to contact city officials in their markets to determine if any anti-posting ordinances are on the books.

"In certain communities, many times ordinances are the result of political signs," says Hardyman. "The ones I have looked into, the majority of them talk specifically about political signs as opposed to posting signs."

Of course, as noted earlier, posting laws legislated by the state would force applicators to begin posting and protect them from conflicting municipal ordinances at the same time. For many applicators, it is bad enough to comply with a state posting law that is reasonable, but when the state proposes extreme regulatory terms, it is easy to understand why applicators become upset. Proposed Connecticut Bill Number 5521 has not yet been slated for public hearing, but already Connecticut applicators suspect that the bill will pass with little or no changes.

The first part of the bill concerns posting. Chapter 441 of the General Statute would be amended to require commercial pesticide applicators to post a notice of the application of pesticides at the boundary of the property to be treated for a period of three days before and three days after the application.

The second part of the bill concerns notification. Current legislation requires that pesticide labels be presented to all oc-

cupants of buildings as well as the owner and manager. "The 1986 legislative session required that we submit to the owners and managers of properties the copies of specific parts of labels," says Frank Reynolds, Jr., President of Reynolds Lawn Care, Inc. in North Haven, Connecticut. "Now they are saying that if you have a condominium for instance, and there are 250 residents in that condominium, you paper not only the manager and the owner, but every single resident in that condominium."

The last section of the proposed bill requires reporting of records to state officials. "We are to submit annually, to the Commissioner of Environmental Protection, our records on the application of general use pesticides, we are not even talking about restricted use pesticides," notes Reynolds.

Of immediate interest to applicators servicing accounts in Rhode Island is a proposed bill which is scheduled to become effective on May 15, 1987, although a public hearing has been scheduled on February 18. First, this legislation has provisions for providing the homeowner with a list of the pesticides which may be used. This list shall include the common and the most likely trade name of each pesticide and any post-application safety, environmental, or health instructions specified on the labels



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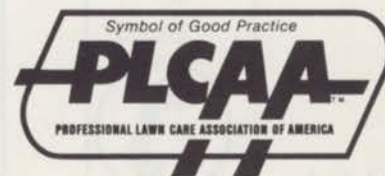
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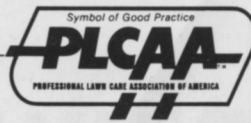
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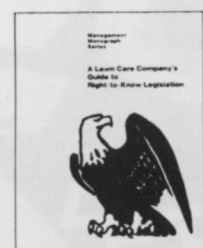
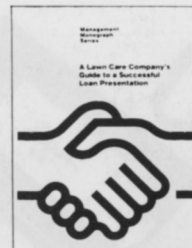
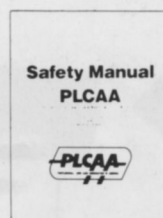
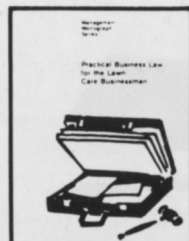
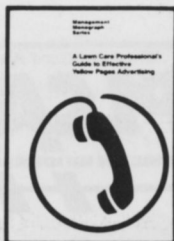
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for the end-use product.

In addition to this list, the applicator must inform the homeowner in writing that they may request a copy of the label and/or the Material Safety Data Sheet and/or the EPA Fact Sheet available on any pesticide which may be used.

Contiguous neighbors of homeowners who have retained the services of a lawn care operator may request that the applicator provide notice 48 hours in advance of each application. If notice by telephone, mail or in person cannot be given 48 hours before the application of pesticides, the applicator shall leave written notice at the house following the application. This advance notice shall not be required for immediate service calls.

Upon completion of each application, the proposed legislation requires that the applicator leave written notice containing the following information: the common names of the pesticides applied, the telephone number of the applicator, and the telephone number of the Department of Environmental Management.

Before making an application, each applicator must post signs in "conspicuous" points of access to the property. The applicator must instruct the customer as to their appropriate removal. Conspicuous points of access shall include, but not be limited to, unobstructed abutting yards, walkways, etc.

The signs themselves shall be no less than 4 inches by 5 inches in size. The following information must be printed on waterproof stock in dark letters on a white field: "Lawn Chemicals Applied" — in letters at least 1/2-inch high. Under that, the applicator's name, the phone number of applicator, and the words "Keep Posted For 72 Hours." All of this information must be printed in letters no smaller than 1/4-inch.

Although one public hearing has been scheduled before passage of the regulation, Joe Merlino, Regional Technical Director, ChemLawn's New York Region, believes it will be enacted with few changes since the current wording was agreed upon by a working committee of lawn care and state and environmental groups. This regulation was precipitated by a posting ordinance in the town of Cumberland which was preempted by the state.

The ink is still drying on the signs in Massachusetts where applicators are preparing to comply with that state law on April 1. The Massachusetts law will be enforced by the Department of Food and Agriculture. Legislation 333 CMR 10.033 and 333 CMR 10.031 first of all, requires the applicator to provide the homeowner with a written pesticide safety and environmental statement approved by the Department. If this written statement is not available from the Department, the

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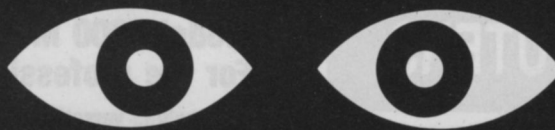
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applicator must then provide the contracting entity with a copy of the pesticide labels, the Material Safety Data Sheet, the EPA Fact Sheet for the product intended for use, if available, and a copy of this law.

Under the terms of the law, homeowners must also be given the opportunity to request prior notification from the applicator or their employer. Upon completion of each application, the applicator should leave at the residence, a written statement containing the following: The name, license, and certification number of the applicator; The names of the pesticides that were applied to the property and why they were applied; Any precautions indicated on the label relative to any post application requirements.

Signs will be posted with the date and time of application and will remain posted for a minimum of 24 hours. As in the case of the Rhode Island law, the signs will be posted in conspicuous points of access to the property. The applicator must leave the signs posted on the property and shall instruct the customer as to their appropriate removal.

The second part of the regulation concerns public or private nonresidential properties and delineates the same rules for notifying superintendents and managers

of commercial buildings.

As in the case of the Rhode Island regulations, the Massachusetts law was hammered out by a group of lawn care applicators and regulatory officials. The applicators did it to avoid being stuck with unworkable regulations. "It was quite obvious that it was going to happen, so then it just became a question of how we are going to administer it and what type of flag we are going to post," says Bill Sherman, Operations Manager of New England Green Lawn Care in Springfield, Massachusetts.

As Vice President of the Professional Pesticide Users of Connecticut, Sherman is quite active in New England lawn care regulatory concerns. He says his company has already begun to look for a source of signs. "We have looked into some companies that probably want to bid on the production of the flag," says Sherman. "When you are dealing with that many flags, you probably have to look to one of the bigger vendors because he can mass produce them at a cost to you that is affordable."

He looks for the law to stand uncontested for about 12 months and then Massachusetts municipalities will begin to take note of the signs and ask the state to return control to them. "This year it

is in place and nothing is going to change it," says Sherman. "The environmentalists are standing behind the sign issue, but once it catches the attention of a lot of communities, we may have some support on behalf of getting the law itself appealed."

However, Sherman bemoans the apathy of Massachusetts pesticide applicators who let this regulation get by them. He claims the Massachusetts user group RAP (Rational Approach to Pesticides) "just rolled over and played dead too long and really is not the voice of the applicators." To remedy this problem, Sherman plans to form a user group modeled after the Professional Pesticide Users of Connecticut which will tentatively be titled, the Professional Pesticide Users of Massachusetts. He says this group will help control the environment in which Massachusetts pesticide applicators work.

"I gave a speech at a LESCO seminar the other day and there were 196 commercial applicators in the room, four of which were associated with a professional organization in the state," says Sherman. "That is quite unfortunate." — *Tim Weidner* ■

*The author is Managing Editor of ALA magazine.*

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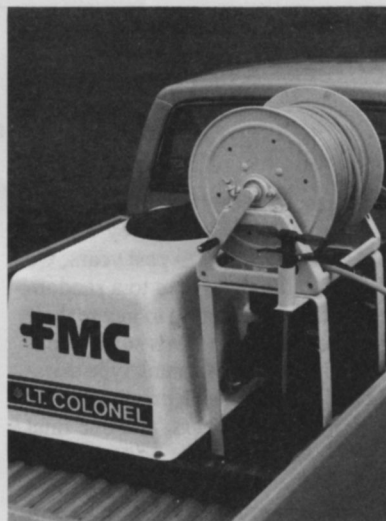


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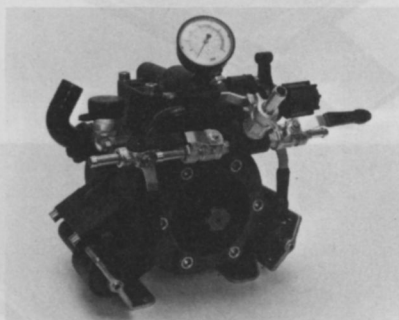
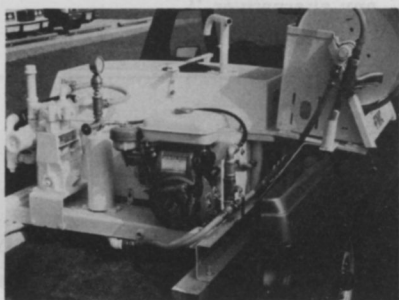
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# CHEMICAL BUYING SURVEY

*Every year we conduct our chemical buying survey and every year we get some interesting results.*

**T**he results of our Fourth Annual Chemical Buying Survey are in! As we have done in past years, we sent out 300 surveys to a random sampling of our readership to gauge their chemical buying habits. This survey consisted of eight fill-in-the-blank type questions, two of which had provisions for elaboration on the answers, and one final essay type question.

In light of the recent 2,4-D controversy, this year we opted to remove two of the questions we had included in the survey in the past so that we could add two new questions concerning the 2,4-D situation. The first question on the survey asked, "Will you continue to use a 2,4-D

herbicide in 1987?" Our readership demonstrated unflinching support of 2,4-D since 98 percent of the respondents answered "Yes" to this question. Only 2 percent indicated that they would not use 2,4-D this year.

In the second question, we asked, "Has the 2,4-D situation affected your buying habits and major purchase decisions for 1987?" To this question, only 22 percent indicated that the 2,4-D situation had affected their 1987 buying habits, while 78 percent indicated that the situation had no effect. This question had a second part to it in which we asked the respondents to describe the effect the 2,4-D situation has had on their businesses. The responses we

got were interesting.

One person indicated that he was concerned about exposure risks in applying 2,4-D and feared future liability problems. Several respondents wrote that they are looking for 2,4-D replacement herbicides. One individual said, "I am worried about ChemLawn using the 2,4-D issue as a selling point." Another said, "I now plan to use it until it is taken off the market or something much more effective is developed." One respondent has tried to cover all the bases: "I made sure that I know where I can get alternatives and at what cost. But I did not buy any alternatives."

In the third question, we asked our

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readers, "About what percentage of your gross annual revenues are spent on fertilizer, insecticide, fungicide, and herbicide?" According to the averaged responses, 16.13 percent of their gross revenues are spent on fertilizer, 8.06 percent on insecticide, 1.6 percent on fungicide, and 4.5 percent on herbicide.

In conjunction with this question, we asked them approximately how much they spend annually on granular and liquid lawn care products. The responses showed an average expenditure of \$30,698 on granular products and \$33,442 on liquid products. These two figures were much closer than we might have expected.

Next we asked them to list their primary source of lawn care chemicals. Not surprisingly, 81 percent listed distributors/suppliers specializing in lawn care products. However, it is interesting that 17 percent responded that product manufacturers are their primary source for lawn care chemicals. Unless they misunderstood the question, this would suggest that a growing number of professionals are buying direct from the manufacturer.

In question seven, we asked our readers

## TOTAL EXPENDITURES

	JAN-MAR	APR-JUN	JUL-SEPT	OCT-DEC
<b>Fertilizers</b>	33.26%	27.49%	24.88%	14.37%
<b>Insecticides</b>	17.46%	51.07%	28.92%	2.55%
<b>Fungicides</b>	22.62%	45.87%	27.37%	4.13%
<b>Herbicides</b>	39.98%	26.21%	16.48%	17.33%

*Please report, according to the months the products are ordered, your percentage of total annual expenditures made in each of the above areas.*

approximately how much they spent on chemical supplies during the 1985 and 1986 seasons. During the 1985 season, the respondents spent an average of \$57,580 on chemical supplies, while last year they spent \$62,733 on chemical supplies. In conjunction with that question, we asked them approximately how much they *intend* to spend during 1987. Their response of \$63,515 indicates guarded optimism for the prospect of the coming year.

Finally, we gave our readers an open-ended question to which they could give a more detailed response. They were ask-

ed, "What improvements would you like to see made in currently available lawn care chemicals?" Many respondents asked for longer residual activity and better performance in preemergence herbicides. There were also many calls for safer products with more health and safety information on the label. A few were disenchanted with the service rendered by their distributors. And as always, a few malcontents think the prices should be reduced. — *Tim Weidner* ■

*The author is Managing Editor of ALA magazine.*

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# HOW PREEMERGENCE HERBICIDES WORK

*Sometimes they work and sometimes they don't, but every lawn care operator has to work with pre-emergence herbicides and get to know their quirks.*

**H**erbicides which control germinating annual grasses (e.g., crabgrass) are called preemergence herbicides when the application occurs prior to weed seed germination. Many lawn care applicators and others responsible for commercial turf care have complained of failures with preemergence herbicides this past year. This article will attempt to explain how preemergence herbicides work and why they may occasionally fail to give season-long control.

A preemergence herbicide, as stated above, is applied to the soil before weed seed germination occurs. When weed seed germination occurs, the herbicide must be present in sufficient quantity to kill the germinating weed. For example, Dacthal® is a commonly-used preemergence herbicide for turf. The manufacturer states in their literature that the threshold concentration for Dacthal is 5 to 5-1/2 pounds of active ingredient per acre (AI/A). Once the soil concentration falls below this level, germinating crabgrass plants will no longer be killed. Dacthal is applied, according to the label, at 10-1/2 pounds AI/A. Thus, Dacthal is applied at about twice the level needed for crabgrass control.

Once a herbicide is applied to the soil, a variety of physical, chemical, and biological processes begin to reduce the concentration of the herbicide at the soil surface. It is necessary to apply preemergence herbicide at

rates well above their threshold concentration to ensure season-long crabgrass control. Or in other words, to prevent the concentration of the herbicide from falling below the threshold concentration for crabgrass control. These processes that reduce herbicide concentration are volatilization, photodecomposition, microbial decomposition, and leaching.

Leaching is a process that really does not affect pre-emergence herbicides. Because preemergence herbicides are applied one to three months before weed seeds germinate, a prerequisite for an effective preemergence herbicide is that it must be immobile in the soil. Consequently, a preemergence herbicide that is susceptible to leaching would never be brought to the marketplace because in many cases it would fail to work. All preemergence herbicides used today are relatively immobile in the soil.

Why then do very wet years seem to have more pre-emergence herbicide failures? The answer lies in two processes mentioned earlier, microbial decomposition and volatilization. Microbial decomposition is the most critical factor in herbicide decomposition. Most herbicides are ultimately degraded by soil microorganisms. However, because preemergence herbicides are immobile in the soil, they are confined to the top 1/2-inch of the soil and thatch with most of the herbicide on the soil or thatch surface.

Under non-irrigated conditions, the soil surface would be expected to be relatively dry. The dry conditions reduce microbial activity at the soil surface and thus prolong the lifetime of the herbicide. In very wet years, the soil surface remains at a higher moisture level which leads to a higher level of microbial activity. The higher level of microbial activity results in a faster rate of herbicide breakdown and thus a shorter-than-expected period of control.

Another factor which may be important is volatility. Herbicides differ in their volatility. Some herbicides such as Dacthal (DCPA) and bensulide (Betasan®) are not very volatile. Other herbicides such as benefin (Balan®), trifluralin (Team® is a 2:1 mix of benefin to trifluralin), and pendimethalin are slightly volatile. An absolute measure of volatility is vapor pressure. Vapor pressure is defined as the pressure exerted from the vapor of a solid or liquid at equilibrium in a closed vessel. In other words, if you placed pure benefin in closed vessel and allowed it to reach equilibrium, the partial pressure exerted by the volatilized benefin is its vapor pressure.

Thus, vapor pressure is an accurate measure of potential volatility. The most commonly-used preemergence

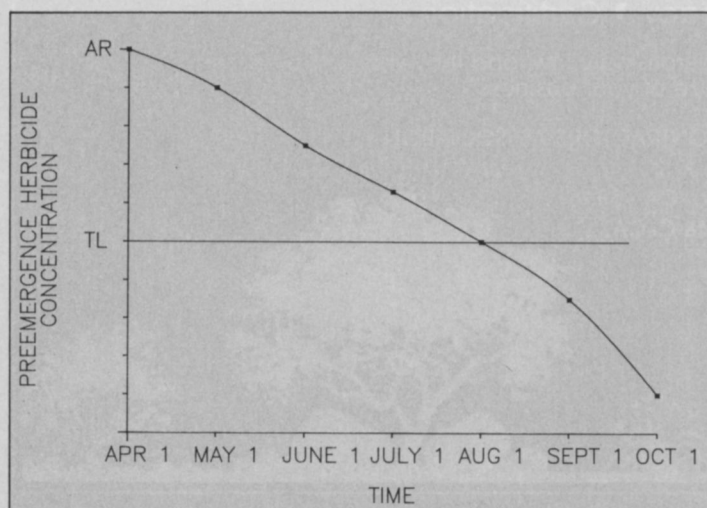


Figure 1. Hypothetical herbicide curve under cool, dry conditions. AR and TL are application rate and threshold level, respectively.



turf herbicides, ranked in order from highest to lowest vapor pressure, are benefin, trifluralin, pendimethalin, DCPA and bensulide, and oxadiazon (Ronstar®). As vapor pressures become smaller, they are more difficult to measure so there is some uncertainty associated with this ranking. In addition, much more is known about benefin, trifluralin, and pendimethalin since they have been intensively studied because of their use in major agricultural crops, whereas DCPA, bensulide, and oxadiazon are used in specialty crops and have not been as intensively studied.

Vapor pressures are measures of potential volatility. The larger the vapor pressure, the more volatile the herbicide. However, once the herbicide is applied to the soil, the situation becomes less clear-cut. A herbicide which is strongly adsorbed to the soil would not be available for volatilization to occur because it is bound to the soil. Thus, strength of adsorption is an important factor in actual volatilization. Many herbicides are not strongly adsorbed by soils and can be displaced by water. If a soil surface is moist, the water may displace the herbicide from an adsorptive site on the soil and make the herbicide available for volatilization. Again, a wet year could lead to more herbicide loss through volatilization.

Finally, the herbicides benefin, trifluralin, and pendimethalin degrade very rapidly under anaerobic conditions. Research by Golab et al. (1) showed only 4.6 percent benefin remaining after 16 days under anaerobic conditions. Savage (2) calculated a half-life of seven days for pendimethalin under flooded (anaerobic) conditions. With heavy rainfall, some sites will probably experience short-term flooding.

Another important factor in herbicide degradation is temperature. Herbicide half-life will be strongly dependent on temperature because increased temperatures lead to increased microbial activity. The warm spring that occurred in 1986 should result in a faster rate of herbicide breakdown. The rate of herbicide breakdown is dependent on many factors including, soil type, soil moisture level, and the nature of the herbicide itself. The breakdown of some herbicides is very temperature-dependent.

A study by Walker (3) on the effect of temperature on the rate of breakdown of eight herbicides found that Dacthal was the most temperature-dependent. Dacthal half-life decreased from 295 to 40 days when soil temperature increased from 5 to 25 degrees Celsius, respectively. One of the least temperature-dependent herbicides was trifluralin, which had a decrease in half-life from 453 to 101 days when soil temperature increased from 5 to 25 degrees, respectively. Unfortunately, of the eight herbicides tested, only the two mentioned above were turf preemergence herbicides. Moisture and temperature are very much interrelated, so that one can't look at one factor without considering the other. Because Dacthal degradation is fairly dependent on temperature, one might expect a hot spring and summer to cause Dacthal to fail. However, this may not be true if it is extremely dry as well.

The above factors will determine how long preemergence crabgrass control will last. What can be done to prevent herbicides from failing? The best way to prevent loss of crabgrass control would be to make a supplemental application 45 to 60 days after your initial application. Usually, the follow up application should be one-half to three-quarters of the normal rate. If you make a

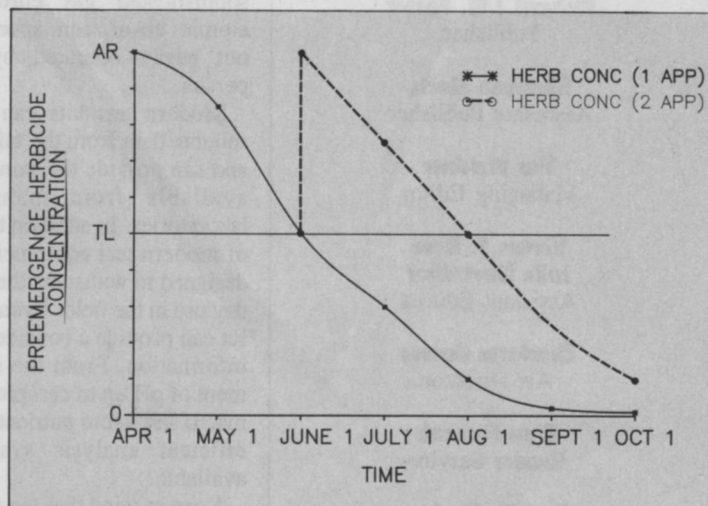


Figure 2. Hypothetical herbicide breakdown curve under warm, moist conditions. AR and TL are application rate and threshold level, respectively.

preemergence application in mid-April, coming back with an additional one-half-times rate in late May to early June should boost your level of control. The hypothetical herbicide breakdown curves in Figures 1 and 2 should help explain preemergence herbicide performance.

Figure 1 is a hypothetical breakdown curve for a preemergence herbicide applied during a year that could be characterized as cool and dry. Notice that herbicide concentration does not drop below the threshold level until August, which is past the time for normal crabgrass germination. This type of herbicide degradation curve would give season-long control.

Figure 2 displays the type of degradation pattern that may be seen during a year characterized as warm and moist. In Figure 2, the herbicide concentration drops below the threshold level around June 1, which is a time when crabgrass would be germinating. The loss of control can be avoided with a second application (bold line in Figure 2) at one-half the rate of the initial application. The supplemental application boosts the soil concentration of the herbicide well above the threshold level and provides season-long control.

Clearly, conditions from year to year will affect herbicide performance and not all herbicides will respond in the same manner to the changing conditions. However, correlating weather patterns with the performance of the herbicide you use, should, over time, lead to a better understanding of the conditions likely to result in poor control. — Dr. Bruce Branham ■

The author is Assistant Professor of Crop and Soil Sciences, Michigan State University, East Lansing, Michigan.

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## TESTING

(continued from page 43)

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catalogs or even consultation, to assure the proper selection of equipment.

**CONCLUSION.** As public concern increases over the use of lawn chemicals, so too should the industry's efforts to more precisely use chemicals with the aid of testing technology. By taking the initiative to improve efficiency, professionals can further the growth and pro-

*Any kit can provide a considerable amount of information.*

sperity of the industry and diminish concerns of indiscriminate product usage.

Being able to chemically visualize plant nutrient needs can add a new dimension to a service that would not be possible using general assumptions. There is no reason to reject this technology, especially in light of the excellent support industry that now exists. — *Jim Ware* ■

*The author is a consultant and former lawn care operator and United States Department of the Interior official now living in Hobbs, New Mexico.*

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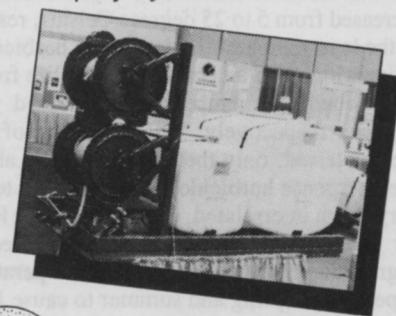
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## COSTING

(continued from page 46)

number of hours per year and determine our costs based on that. Then we do the same with all the equipment."

Sarver has set up a check and balance on his costs by costing a job on a unit basis and then costing the same job by the time and material spent. "We compare the two to see if they are staying in line," says Sarver. "If there is a large discrepancy, then we have to review it. Usually if there is a discrepancy, there is a degree of difficulty."

Sarver has recently come upon a pricing scheme that has intrigued him. "Some of the properties we maintain, the management companies base grounds maintenance on a price per square foot and they break that down into actual pennies," explains Sarver. "That is an interesting approach and something that we are trying to do. If we eliminate the paved surfaces and look at things on an overall site size, we break things into pennies per square foot based on degrees of difficulty. I think that might have potential. It is one of the directions that we are considering."

There are very few givens in any job costing system and Sarver points to that



fact as the major difficulty in setting up an effective system. "In our market, whenever we go to a competitive bid situation, competitive pricing can vary as much as 100 percent simply because of the different ways in which people interpret the workload," notes Sarver. "That is a good indication that there is a need for some sort of standardization from

which people can bid."

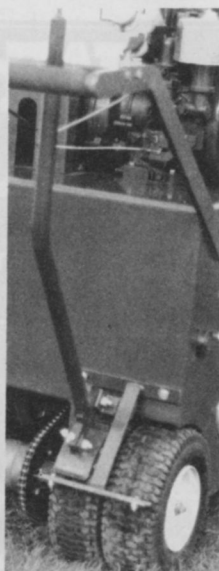
Standardization of the job costing procedure requires communication between mowing/maintenance professionals. Unfortunately, that kind of communication could be interpreted as price fixing or other related illegal activities. But aside from discussing the subject in groups, Sarver finds that the subject is much easier to broach away from home at national conferences than at local professional meetings with competitors. At national meetings, professionals from all over the country feel they can brainstorm without fear of having competitors eavesdrop.

"They are more free to talk and share experiences," says Sarver. "I have had a lot of competitors even ask me about bidding and how to structure their bidding process. We have a sheet that I can give them as a format that breaks everything down as closely as I can for them, but as far as plugging in their unit costs and their hourly charges, that is something they have to create on their own."

"There is need for discussion and it is hard to find people to talk about it." — Tim Weidner

The author is Managing Editor of ALA magazine.

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## DROUGHT

(continued from page 35)

of its customer base because of the drought, but he is confident that Chemgro will regain those customers this spring, especially when those customers are confronted with the heavy weeds that survived the drought.

The weeds were not as sensitive to the drought as the grass was, Bartley explains. Those customers who cancelled their lawn care service last year and did not receive treatments will not be used to seeing so many weeds, he says.

In addition, Bartley says, Alabama received so much rain in November, December, and January that it brought the area's average rainfall back to normal. "It made up for all that deficit during the summer," he says, "so I think folks have kind of put the drought behind them. They'll go into the spring not thinking about that too much. And if we continue to have adequate rainfall, the lawns will repair themselves with correct fertilization."

Increased weed problems were the worst byproduct of the drought for Ray Comer, Manager of Turf Service, Inc. in Greensboro, North Carolina. According to Comer, the company did a lot more

post-emergence crabgrass control with little results. "We did a lot of repeat visits," he says. "People would call and say, 'Hey, the crabgrass is just not down.' We went back, sprayed it, and it still didn't die. We did a lot of that, too, but it did little or no good just due to the dry weather."

Fortunately for Comer, most of his customers weathered the drought with him. "We had very little turnover, if any," he says. In fact, the same foe that disgruntled customers brought Comer new ones. "A lot of new customers called in and said, 'My yard's overrun with crabgrass. Something needs to be done this fall.' So we did a lot of renovation work — probably 50 percent more than we normally do. And hand in hand with that went aerating, dethatching, and that type of thing," he reports.

Comer doubts he'll face any drought-related problems this spring since Greensboro had a very wet winter. It rained 22 days out of November and snowed about 12 inches in January. "All the reports coming out now indicate that the water table has been replenished," Comer observes. The only repercussions may be reseeding some of the lawns that the company seeded in September and October, when it was still rather dry.

As the snow begins to melt, Comer can see the positive effect that the moisture has had on turf, especially on those lawns that were fertilized with sulfur-coated products last fall. "It's getting everybody pumped up about their lawns, because they're greener than they have been in a long time," he explains. "Most of the lawns that have been taken care of are really coming out with a nice emerald green color as the snow melts. I think we're going to see people even more interested in their lawns," he adds. "And if they didn't put any fertilizer on last year, they may see their neighbor's lawn and it may be a good draw for us."

The only problem that the moisture brings right now is mushy ground. If it continues to be as wet as it is, Comer says, it may be difficult to get on the lawns to begin applying pre-emergence crabgrass control. He doesn't foresee any big fungus problems because of the extra water, primarily since the temperatures are still mild. However, he is thankful that the snow came in January and not later. That much snow in February would have kept the lawns covered up and it would have been hard to drum up a lot of new business, notes Comer.

Generating new customers was Jimmy Allgood's biggest complaint about the

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drought. As a 13-year veteran of the structural pest control industry, Allgood began his lawn care venture in 1985. As a new member of the lawn care industry, the Georgia businessman had expected to increase his current customer base by 30 percent last year. Instead, Allgood Services realized only half that amount. However, his business did grow.

And so did Terry Baughman's, even though it was at the expense of losing established customers. According to the Vice President of Turf Tech Inc., Raleigh, North Carolina, his company lost about 10 percent more customers than average because of the drought. However, like several other lawn care operators, he ended up with a plus figure at the end of the year, because of the number of customers who wanted seeding services performed.

One-year customers were the first to cancel, according to Baughman. "We told them that we were going to control their crabgrass — because this is the crabgrass belt in North Carolina — but some of the lawns looked like nothing happened," he explains. And that was because of the drought. "If you put a post-emergent on turf under drought conditions, you're going to take a chance of doing more damage to the good grass, like burning it." Turf Tech did not want to take that chance.

Instead, the company used its customer newsletter to educate people on the effects of the drought. "We told customers that the grass was going to go into dormancy and that some of it may die," Baughman explains. "Fortunately, the drought hap-

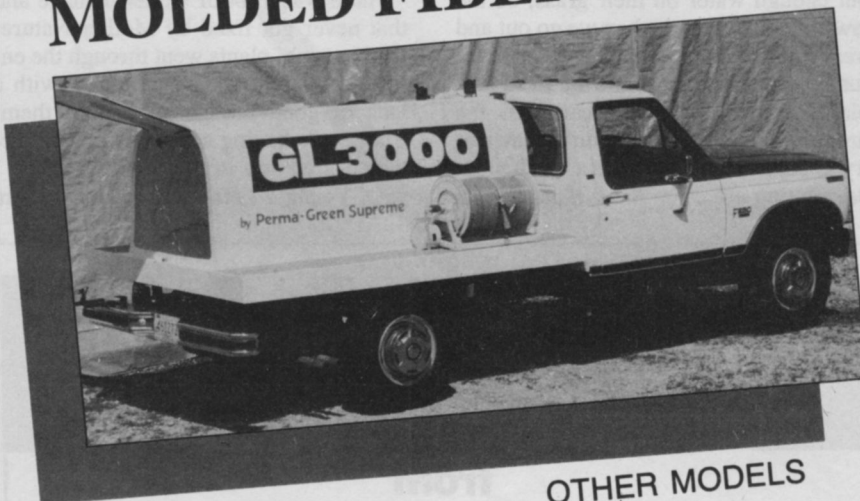
*Like several other lawn care operators, Terry Baughman ended up with a plus figure at the end of the year, because of the number of customers who wanted seeding services performed.*

pened in the summertime and the lawns go off color in the South in the summer anyhow. So we encouraged customers to make arrangements for seeding. Most of them did, others gave up."

Those lawns that were reseeded in the fall are looking nice, Baughman says. "Of course, the drought-damaged lawns from last year that had nothing done to them aren't going to look any better this year. And a lot of ornamentals are on their way out. It may take some of these trees a year to die, but I think some of them are going to die because of the drought."

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In South Carolina, lawn care operators have experienced a drought condition for several years, and it's very frustrating for business, according to Roger Young, President of Lawn-O-Green in Charleston. "Our water table has dropped so low that it's very difficult for homeowners to put enough water on their grass, so the lawns don't respond when we go out and treat them," he explains. "Insects are running rampant, and while the weed problems aren't real bad because of the drought, anything you put on the lawn to try to control the weeds has a much more devastating effect on the turf itself than

it would under normal conditions."

South Carolina's drought began in the winter of 1985 and continued throughout the spring and summer of 1986. "Many of the plants didn't put on any of the spring growth that they're normally accustomed to putting on," Young explains. "There was a lot of winter damage and that never got fixed by Mother Nature. And as such, plants went through the entire summer in a stress situation with a lack of good foliage growth on them. They were having a hard time manufacturing food and using nutrients."

Of Young's 4,500 customers, 500 were

lost because of last year's drought. He thinks a lot of them will come back, but he's aware that most customers have a wait-and-see attitude right now. Fortunately, South Carolina hasn't had a lot of cold weather this winter and it did experience normal rainfall.

"The lawns look to be in fairly good shape this year," Young says, "but it's always the month of March that tells the tale. If we get that late hard freeze like we've had four years in a row, a lot of vegetation will be lost."

Because of the drought and fluctuating temperatures, Young says that it's been difficult to sell lawn care service to customers. "We haven't been able to really show good results with the turf," he explains. Consequently, the company is trying to take a better visible approach through a change in its weed control program.

The company's new strategy is to utilize more pre-emergents and apply

*"We haven't been able to really show good results with the turf," explains Roger Young of Lawn-O-Green in Charleston. Consequently, the company is trying to take a better visible approach through a change in its weed control program.*

them in smaller doses to prevent as much turf damage as possible, while applying them more frequently to gain any control lost to the lower rates.

"We're not charging the customer for more applications, but simply providing them as a part of our service," Young explains. The program costs more for Lawn-O-Green, but it's something the company must do.

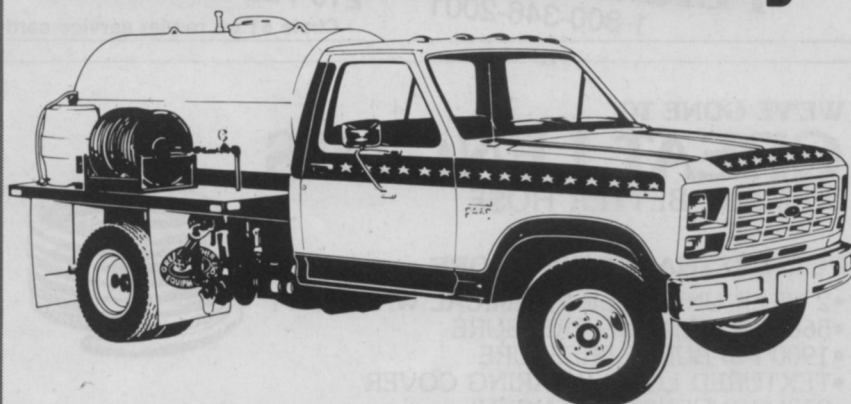
"The nature of this business is such that everything is subject to change daily," Young explains. "To be successful in lawn care you have to be willing to make the necessary changes and adjust. And if it requires that you put more into the business," he says, "then you have to be willing to do that if you want to survive."

Young is rolling with Mother Nature's punches, because he knows he cannot control the weather. As all turf professionals know — there's no fooling Mother Nature...but she sure can fool you. — *Vivian F. Rose*

*The author is Assistant Editor of ALA magazine.*



from  
**Precision Tank & Equipment Co.**  
for the  
**Lawn Care Industry**



Great Northern equipment, a leader in agricultural fertilizer application equipment for over 30 years — now brings the lawn care professional the NEW GN600.

**Just look at these impressive GN600 features:**

- 600 gal. stainless steel tank for 200,000 sq. ft. coverage.
- One ton Ford truck with 6.9 liter IH diesel engine.
- PTO driven with 2C95 Myers Pump.
- Stainless steel plumbing, sparge line and full sump.
- American Nordic reel with 500 ft. of 1/2" hose.
- Industry proven Chem-lawn Spray Gun with extra nozzles.

Other models - the GN1000, GN1200 and GN1600 offer the same top-of-the-line components with larger chassis and payloads. All the Great Northern systems are available for mounting on customer-owned chassis.

**NEW** — a Portable Slide-in Skid Unit.

HOME OFFICE  
P.O. BOX D  
VIRGINIA, IL 62691  
217/452-7228



**PRECISION**  
**TANK & EQUIPMENT CO.**

ATHENS LOCATION  
R.R. 2 • BOX 42  
ATHENS, IL 62613  
217/636-7023





# The Fusarium Blight Complex...



Researchers have shown the Fusarium Blight Complex is comprised of three pathogens: necrotic ring spot, summer patch and fusarium blight. Identification of these pathogens is difficult, even with microscopic examination.

Rubigan eliminates the need to identify these pathogens. University researchers have documented Rubigan's effectiveness on all three of the pathogens which make up the Fusarium Blight Complex. In fact, Rubigan is the *only* product labeled for their control. Take the mystery out of the Fusarium Blight Complex... use Rubigan.

Rubigan is also the best value for the

control of dollar spot, and effectively controls snow mold, copper spot, red thread and stripe smut. For large brown patch, Rubigan is recommended in tank mix with Daconil 2787®.

Rubigan... the best value your money can buy.

For more information, call your distributor or write:

Elanco Products Company  
A Division of Eli Lilly and Company  
Lilly Corporate Center  
Dept. E-455, Indianapolis, IN 46285, U.S.A.  
Rubigan®—(fenarimol, Elanco Products Company)  
Daconil 2787®—(chlorothalonil, SDS Biotech Corporation)



# Controlled ...By Rubigan®

**Necrotic ring spot.**



**Fusarium leaf spot.**



**Summer patch.**



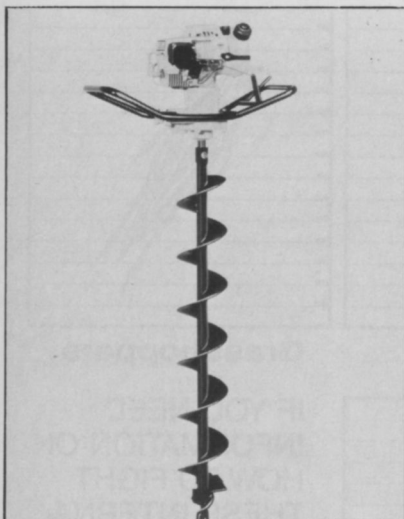


# PRODUCTS

**G**et more use out of your Toro midsize tractor with the model 204 Blade from **Olathe Manufacturing**; a dozer blade designed for use with the Toro mid-size tractor unit. The blade is 48 inches wide with three settings for angle plowing. The unique UHMW wear blade helps prevent damage to sidewalks. The model 205 Blade is designed for use with the Toro 117 unit and is 54 inches wide with five settings for angle plowing.

**Circle 105 on reader card**

For quality at every turn, use this hard-working powerhead from **Feldmann Engineering and Manufacturing Company, Inc.** to drill post holes for fencing and soil testing. Customers demand value and the model 2070 powerhead is a high value, easy-to-handle, lightweight power drill. It is the state-of-the-art for portable drilling and designed for single operator comfort, efficiency, high productivity,



and bottom line profits.

The powerful Tecumseh 33 cc gasoline engine with solid state ignition, load sensitive governor, and automatic rewind starter, plus centrifugal clutch, low gear ratio, and sturdy construction, provides a powerful, durable drill. Prices from \$325.

**Circle 106 on reader card**

For today's smaller mid-sized and mini pickup trucks, **Tuflex Manufacturing** introduces a seamless fiberglass tank design, the 0150PC 140-gallon tank. Dimensions of 52 inches long, 20 inches wide, and 34 inches high allow this tank to tuck neatly behind the cab and forward of the wheelwells, maximizing that important usable bed space.

Tank features include high gloss molded exterior, two 12-inch fillwells with vented covers, retainer wires, calibrated sight tube gallonage indicator, and outlet fitting. This unit is also available as a two-compartment tank model, 0150BU, or incorporated into a complete sprayer utilizing roller piston, diaphragm, or centrifugal pumps.

**Circle 107 on reader card**

**Westheffer Company, Inc.** introduces the 300-003 Deep Root Feeder for professional shrub and tree feeding. Built with stainless steel components, the DRF is designed for precision application with a stainless steel rounded spray tip, a stainless steel squeeze trigger valve, and comes provided with a calibration chart. Write to Westheffer Company, Inc., Box 363, Lawrence, Kansas 66044, or call toll free in Kansas 1/800/332-0003, all other states 1/800/362-3110.

**Circle 108 on reader card**

**LESCO, Inc.** announces the introduction of the new LESCO Pendulum Spreader available for immediate delivery. The new spreader is designed to apply a variety of fertilizers, grass seed, and combination products to large areas where time and efficiency are important. It can be adjusted to spread from 20 to 45 feet without changing the spout. This is accomplished by increasing or decreasing the arc of the spreading spout with a wrench called a spreading width key. Setting adjustments can be made in seconds.

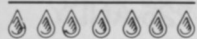


The spreader features rectangular and symmetrical spreading pattern for complete overlapping. The stroke of the spreading spout is adjustable for accurate distribution of fertilizer. The LESCO Pendulum Spreader can be used with tractor-type three-point hitches, truckster-mount or trailer-mount power take-off drive. The models, in addition to various drives, also feature a variety of hopper capacities from 400 to 2,400 pounds.

The patented polyester-reinforced fiberglass hopper of the spreader has

*(continued on page 64)*

## LIQUI


REGISTERED SERVICE MARK OF LIQUI-LAWN INC.

## LAND

CORPORATION

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NILES, MI 49120

## Low Volume Injection Spray Unit



SLIDE-OUT UNIT  
MAY BE SHIPPED

**(616) 684-8400**

# WANTED. DEAD.

By U.S. Home Owners

**Attempted Murder of Yards.  
Conspiracy to Create Brown Spots.  
Robbery of Time and Money from Lawn  
Care Operators and Home Owners.**



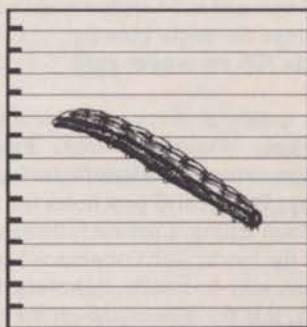
Billbugs



Chinch Bugs



Grubs



Army-Worms



Sod Webworms



Turf-Grass Weevils



Ants



Grasshoppers



Mosquitoes



Clover Mites



Chiggers

IF YOU NEED  
INFORMATION ON  
HOW TO FIGHT  
THESE INTERNA-  
TIONALLY KNOWN  
FORCES OF  
DESTRUCTION,  
CALL  
1-800-225-ANDY.

Description—Ugly, furtive creatures that slink around some of the world's most beautiful turf, eating food that does not belong to them and making otherwise reasonable home owners very angry at their lawn services. They can jeopardize your business without provocation.

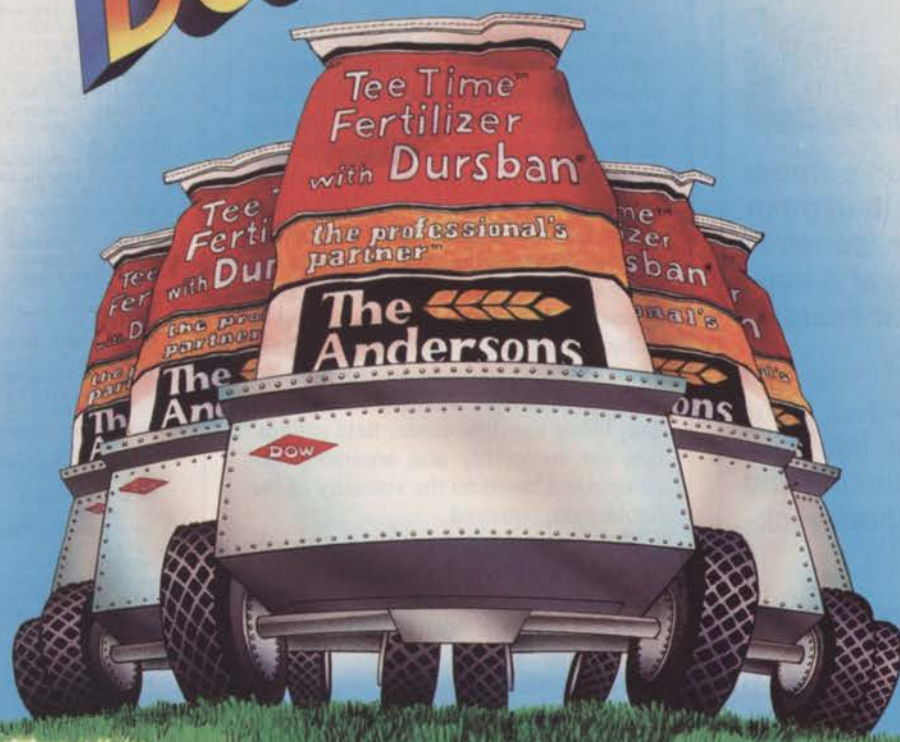
CAUTION: These international criminals are not easy to annihilate. Generally, an insecticide must be purchased separately and spread—an additional step that can waste valuable resources—specifically, time, labor and equipment. *The alternative: Call in The Double Agent from The Andersons.*



# TEE TIME™ with DURSBAN®

**The Double Agent. With the two-tiered strength you need to protect our nation's lawns.**

## the DOUBLE-AGENT



Simply fertilizing isn't enough to protect your customer's turf from pesky insects. That takes a fertilizer/insecticide combination like The Double Agent: Tee Time™ and Dursban® from The Andersons.

The Double Agent lets you take on both missions at once. Saving time, labor and equipment.

And the Double Agent gives you the flexibility you're looking for, no matter how tough your insect adversaries. The Double Agent's arsenal includes:

Tee Time 30-3-5 with Dursban. Tee Time 38-0-0 and 18-3-5 with Dursban. Tee Time triple action 20-4-10 with Dursban and Balan® for feeding,

weeding and insect control. And Tee Time Dursban 2.5G. You can even specify your own custom mix Double Agent with Dursban.

Each is an expert bugbuster, field proven to handle even the nastiest turf assignments. At remarkably affordable prices.

**The Double Agent, TEE TIME with DURSBAN. Saving the world from the evil network of yard bugs.**

**Find out more. Contact your TEE TIME distributor today. Or call The Andersons Product Information Center toll-free.**

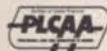
**Call 1-800-225-ANDY.**

**the professional's  
partner**

**The Andersons**

Lawn Fertilizer Division  
P.O. Box 119  
Maumee, Ohio 43537

**1-800-225-ANDY**



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Circle 32 on reader service card



# CORE AERATOR

(CLOSED SPOONS)



The **Westmac**® cores more lawns each day than other aerators. Better penetration of 2 spoons at a time, leaves cores your *customers* like to see.

No trailer is needed. Your **Westmac**® plugs into your bumper for fast trailing and backing up *without* jack-knifing.

More durable and maneuverable, your **Westmac**® is a big profit maker, aerating 5,000 sq. ft. lawns in only 15 minutes.

Converts to a roto-tiller and back again in a minute. Saves cost of 2 machines.

**Westmacs**® are used by hundreds of landscapers and lawn care companies in U.S. and Canada.

VISA — MASTERCARD  
\$26-\$54 per month

**Lawn masters INC.**  
6527-39th Ave. • P.O. Box 636  
Kenosha, WI 53141  
(414) 552-8911

Call or write for information

## PRODUCTS

(continued from page 61)

stainless steel working parts for longer life. The hopper is designed so that it can be easily filled by hand or from a high-tip trailer.

Many accessories are available for the spreader. An agitator extension keeps powders and certain liquids flowing freely. A top dressing and a sand spout are also available. An elasticized, vinyl hopper cover may be purchased to protect material during foul weather and in transport.

Also available from LESCO are two electronic digital meters for flow volume measurement of liquid products. Besides providing flow regulation, the meters are an increasingly important tool to help chemical applicators meet documentation requirements of state and local governments.

The LESCO Digital Flow Meters are capable of measuring flow rates from 1/2 to 5 gallons per minute. The large, easy-to-read digital display provides readout to within one-half percent of gallonage flow. The meters can measure gallons used per job and can tabulate total gallons used per day. Using the flow meter, field calibration can be swiftly and accurately accomplished based on the viscosity of the liquid being sprayed.

The meters are designed to be installed in two ways — in the hose between the pump and the reel or at the gun. One-inch threads make the meters adaptable to various hose sizes.

Circle 109 on reader card



Rhone-Poulenc, Inc. announces that Chipco® 26019 FLO fungicide has been registered by the EPA for the control of the major diseases of turfgrasses. Dan Stahl, Rhone-Poulenc's Chipco Business Manager, says, "Although Chipco 26019 continues to maintain its leadership position in the turfgrass fungicide market, we are introducing the Chipco 26019 FLO formulation for turf managers who prefer the convenience of flowables."

(continued on page 68)

## Agri-Plex Distributors:

**ALABAMA** — Birmingham, Tieco, Inc. (205) 328-6464; Montgomery, Tieco, Inc. (205) 834-3705  
**ARIZONA** — Phoenix, Capital Nursery Supply (602) 272-5508; Target Specialty Products (602) 269-6427  
**ARKANSAS** — Searcy, Agra-Turf (501) 268-7036  
**CALIFORNIA** — Cerritos, Target Specialty Products (714) 821-9020; Fresno, Target Specialty Products (209) 291-7740; Oxnard, Southwest Growers Supply (800) 826-6830; San Jose, Target Specialty Products (408) 731-8565; San Marcos, Southwest Growers Supply (800) 874-1548; San Ramon, Protech (415) 829-3103  
**COLORADO** — Federal Heights, S.A.J. Turf Products (303) 430-1343; Paoli, Protech Associated Co. (303) 774-7644  
**CONNECTICUT** — Wethersfield, Hart Seed Co. (203) 529-2537  
**FLORIDA** — Ft. Myers, Hi-Tech Chemical, Inc. (813) 433-5084; Jacksonville, Southeastern Turf Grass Supply, Inc. (904) 731-8565; Jupiter, South Florida Turf Products (305) 746-0667; Pensacola, Tieco, Inc. (904) 434-5475  
**GEORGIA** — Decatur, Georgia Golf & Garden (404) 292-9968 or (800) 282-3682  
**ILLINOIS** — Palatine, Lake Cook Farm Supply (312) 991-4800; West Chicago, Turf Products, Ltd. (312) 668-5537  
**INDIANA** — Ft. Wayne, Turf Specialties (219) 484-6338; Schneider, Huber Ranch Sod Nursery (219) 552-0552  
**IOWA** — Des Moines, Grass Roots Turf Supply (515) 285-7620  
**KANSAS** — Wichita, Robison's Lawn & Golf (316) 942-2224; Olathe, Grass Pad (913) 764-4100  
**KENTUCKY** — Louisville, Tieco, Inc. (502) 499-9300  
**MICHIGAN** — South Lyon, Turfgrass, Inc. (313) 437-1427  
**MINNESOTA** — St. Paul, Turf Supply Co. (612) 454-3106  
**MISSOURI** — Grandview, Robison's Lawn & Golf (816) 765-3333; Kansas City, UAP Special Products (816) 842-8211  
**NEBRASKA** — Omaha, Greenkeeper, Inc. (402) 592-4800  
**NEVADA** — N. Las Vegas, Las Vegas Fertilizer (702) 649-1551  
**NEW HAMPSHIRE** — Hooksett, Turf Specialty (603) 485-7866  
**NEW JERSEY** — Clifton, Terre & Co. (201) 473-3393  
**NEW MEXICO** — Amarillo, TX Chemical & Turf Specialty (806) 354-2680  
**NEW YORK** — Cicero, Northern Nurseries (315) 699-3999; Schenectady, Northern Nurseries (518) 382-1600; Victor, Northern Nurseries (716) 924-9520; Long Island, Agway, Inc. (516) 931-0342  
**NORTH CAROLINA** — Shelby, Porter Bros. (704) 482-3424  
**NORTH DAKOTA** — Fargo, Tessman Chemical, N.W. (701) 232-7238  
**OHIO** — Columbus, C.O. Lowe Sales (614) 771-0486  
**OKLAHOMA** — Oklahoma City, Chemical & Turf Specialty (405) 677-0132; Tulsa, Nick Knott (918) 251-4868  
**PENNSYLVANIA** — Harrisburg, Fisher & Son, Inc. (717) 426-1857; Malvern, Fisher & Son, Inc. (215) 644-3300; Pittsburgh, E.H. Griffith, Inc. (412) 271-3365  
**SOUTH CAROLINA** — Hilton Head, Porter Bros. (803) 757-3900  
**TENNESSEE** — Nashville, Tieco, Inc. (615) 244-9871; Memphis, January Co. (901) 345-1800  
**TEXAS** — Austin, Chemical & Turf Specialty (512) 447-7944; Garland, Chemical & Turf Specialty (214) 271-4549 or (800) 442-4015; Houston, Chemical & Turf Specialty (713) 353-0333; Amarillo, Chemical & Turf Specialty (806) 354-2680  
**UTAH** — W. Jordan, Farm & Turf Supply (801) 255-3939  
**VERMONT** — White River, Northern Nurseries (802) 295-2117  
**VIRGINIA** — Richmond, Wilson Feed & Seed (804) 232-6791; Roanoke, Landscape Supply (703) 344-2699  
**WASHINGTON** — Kirkland, Turfco Northwest (206) 821-9867  
**WISCONSIN** — Elm Grove, Reinders Bros. (414) 786-3300; Milwaukee, Happy Lawn Products (414) 444-6600  
**WASHINGTON, D.C.** — Lea's Green Meadows (202) 488-1818

**RGB**  
LABORATORIES INC.

(816) 474-3342



# All Irons Are Not Created Equal!

How come you guys look so good this morning?

## COMPARISON

Other Brands  
4-6%

Lawn-Plex™  
8% Fe

We've just been sprayed with R.G.B.'s Lawn-Plex!



## Lawn-Plex™ 8% Fe Plus 8% Sulfur Provides The Following:

- The most highly concentrated chelated (phosphate-citrate) iron available in liquid form.
- Fully compatible with virtually all (NPK) formulations and pesticide tank mixes.
- Will not stain your customers' sidewalks or your equipment.
- Extremely low phytotoxicity. Ideal for spray application even during the heat of the day.
- Buffers pH to prevent alkaline destruction of pesticides.
- Maximizes green-up without excessive nitrogen.

U.S. Patent Nos: 4,214,996 & 4,351,735

**RGB**  
LABORATORIES INC.

1531 Charlotte Street, Kansas City, Missouri 64108

Circle 22 on reader service card

**(816) 474-3342**





# NO CRABGRASS. NO KIDDING.

This coming season Fermenta Plant Protection is going to make sure you beat crabgrass.

And here's how. We will guarantee the performance of Dacthal W-75 and Dacthal Flowable Herbicide for full-season preemergence control of crabgrass in turf. This guarantee applies to the geographical areas indicated on the map.

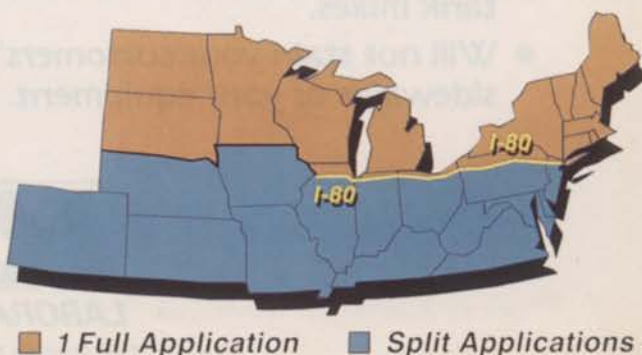
The guarantee: In the event that crabgrass problems do develop, you will be provided Daconate® 6 postemergence herbicide **FREE OF CHARGE** to control escaped crabgrass.

All you have to do as a lawn care professional is apply Dacthal properly.

If you are located in the brown area on the map, north of I-80 (excluding Nebraska and Iowa), make

one full application of Dacthal at 10.5 lbs. a.i. / A in the spring prior to weed seed germination.

South of I-80 and the entire states of Nebraska and Iowa (blue area), Dacthal must be applied on







# ONLY DACTHAL® GUARANTEES IT.

a split application program. Make the first Dacthal application at 10.5 lbs. a.i./A in the spring prior to weed seed germination. Make the second Dacthal application at 5¼ lbs. a.i./A, 45 to 60 days later.

Naturally, applications must be made by professional applicators.

So this season, don't kid around with crabgrass. Make your preemergence herbicide Dacthal W-75 or Dacthal Flowable and get guaranteed crabgrass control.

For more information about the Dacthal Crabgrass Guarantee, contact your Dacthal Sales Representative or the Dacthal Distributor nearest you.

Fermenta Plant Protection Company,  
7528 Auburn Road, P.O. Box 348, Painesville,  
Ohio 44077.



*Always follow label directions carefully when using turf chemicals.*

Circle 91 on reader service card



## PRODUCTS

(continued from page 64)

Chipco 26019 FLO is registered to control the major turf diseases, such as dollar spot, brown patch, helminthosporium leaf spot and melting out, corticum red thread, and fusarium blight at rates of 2 to 8 fluid ounces per 1,000 square feet, depending on the disease and the level of infection present.

**Circle 110 on reader card**

The Folding Measuring Wheel from **Imler Industries, Inc.** was developed in response to customer requests nationwide. The new measuring wheel is designed for more convenient handling, transporting, and storing. This product continues to maintain the high standards of quality you have come to expect from the Imler Measuring Wheel line.

The Imler Folding Measuring Wheel is made with the same quality materials and construction as the original model. The new wheel folds to half the size and takes up half the space. It is perfect for those traveling in small vehicles. The wheel comes with a one-year guarantee on all parts.

**Circle 111 on reader card**

Hustler Range Wing™ mower attachments manufactured by **Excel Industries, Inc.** provide a low-cost and efficient alternative for cutting large areas of turf. With up to three hydraulically raised and lowered heavy-duty decks spreading more than 12 feet wide, 60 acres of turf can be cut in an eight-hour day.

The main deck of the Range Wing mower attachment is an upfront, 72-inch dual trim deck with 9-3/4-inch offset trim capability on both sides. Each side wing is 48 inches wide with rear discharge and can be raised or lowered separately to easily maneuver around obstacles. When



either or both side wing decks are raised, a clutch automatically disengages the cutting action of the respective wings. Each deck floats independently up to 20 degrees above and below the terrain, resulting in a smooth, even cut and virtually eliminating scalping.

Also from Excel, is a new 16-page brochure that tells the story of its productive innovation in the full line of professional-quality Hustler rotary mowers, attachments, and accessories. Included in the literature is the complete line of Hustler mowers, ranging from 18 horsepower to 34 horsepower with deck widths from 51 inches to over 12 feet. Hustler models 251, 262, 275, 320, 340, 400, and the self-leveling 602D hillside mower are shown in action in the four-color literature. All models have independent direct-drive wheel steering for true zero-degree turning radius.

**Circle 112 on reader card**

The Ev-N-Spred Model 2400 Commercial Spreader from **EarthWay Products,**

**Inc.** has a 100-pound capacity hopper complete with rain hat, a side deflector, and partial flow shut off for directional flow control. The spreader also features a five-inch diameter main drive gear totally enclosed in a sealed gear case, large pneumatic tires, stainless steel axle mounted in four bearings, and choice of either a stainless steel or painted steel frame.

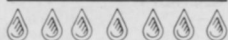
**Circle 113 on reader card**

**Middlesworth Engineering and Manufacturing, Inc.** announces the introduction of their Model CGC grass catcher for the Model C40R, 11-horsepower, hydrostatic, zero-turning-radius, rotary lawn mower. The catcher is a standard 30-gallon container which may be used with or without a garbage bag. It is fully mounted with a support which folds up when not in use and does not hinder the maneuverability of the compact, low-profile mower.

**Circle 114 on reader card**

(continued on page 74)

# LIQUI



## LAND CORPORATION

(616) 684-8400



COMPLETE BLENDS FOR HIGH & LOW VOLUME SPRAYING

123 MARMONT

## LIQUID FERTILIZER

### N-SURE



### FORMOLENE

P.O. BOX 547

NILES, MI 49120



"Someone put a cart in the 7th fairway pond. My next-door neighbor bought his kid a set of drums. And I just found out my mother-in-law is moving in. But what really concerns me is Pythium."



There's one sure way to avoid worrying about Pythium. Use Subdue® fungicide. Subdue stops Pythium on contact. Once absorbed by grass roots, Subdue protects your turf against further attack for up to three weeks. So don't let Pythium get you down. Get Subdue. Because you've got other things to worry about. **CIBA-GEIGY**

© 1987 CIBA-GEIGY Corporation, Ag Division, Box 18300, Greensboro, NC 27419 Always read and follow label directions.

Circle 25 on reader service card

# For the long run.



## **Introducing a powerful new force in riding rotary mowers.**

Now there's more to Cushman Front Line® Mowers than top cutting performance. More power. More operator comfort. More endurance.

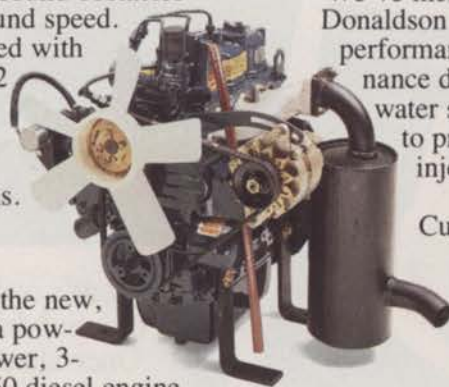
Now there's the new diesel-powered Cushman model 807.

Its totally integrated power train and new hydraulically-powered steering gives you unmatched performance over the long run. The 807 dispatches thick, wet grass on

tricky maneuvers around obstacles without losing ground speed. It's factory-equipped with wide 23 x 10.50-12 tires to accommodate any accessory without major modifications.

## **Precision Performance.**

At the heart of the new, four-wheel 807 is a powerful 21.5 horsepower, 3-cylinder Kubota 950 diesel engine.



We've included a heavy-duty Donaldson air cleaner to keep performance up and maintenance down. A Stanadyne water separator fuel filter to protect injectors and injection pumps. And a new heavy-duty Cushman PTO clutch to keep your new Cushman Front Line running longer.





As with all Cushman Gas and Diesel Front Line Mowers, the 807 features a durable 60- or 72-inch side or rear discharge mower deck that leaves no grass uncut. The under-deck baffle design produces a positive lift and free flow of air for the industry's most uniform discharge of clippings.

No other rotary mower gives you a cleaner cut.

A complete family of Cushman Front Lines and a wide range of accessories are available to meet all your needs. Choose a 3 or 4 wheel design. Add the exclusive Cushman Grass Caddy™ system, which lets you cut, catch, and hydraulically dump 16 bushels of clippings without leaving the seat. Shut out the

elements with a weather-tight cab.

Or keep your Front Line working all year with a Snow Thrower, Snow Blade, Tine Rake, Flail Mower, Leaf Blower, or Rotary Broom.

In the long run the Cushman Front Line is a cut above the rest. For a convincing demonstration contact your Cushman dealer today. Or call toll-free: 1-800-228-4444.

**CUSHMAN®**  
**BUILT TO LAST**

3281 Cushman, OMC-Lincoln, P.O. Box 82409, Lincoln, NE 68501



## PRODUCTS

(continued from page 68)

The Triflex® 88-inch cutting unit, Model 30715, is designed to fit Toro Company's Groundsmaster 322-D and Groundsmaster 327. The three-blade center section makes a 54-inch cut, while two 17-inch width-of-cut wings take up the remaining 88 inches. The mower is rear-discharge from three chutes — right, left, and center.

With the Triflex unit attached, the Groundsmasters can mow up to 4.7 acres

per hour at 5.5 miles per hour. This means up to 23 percent more productivity than current 72-inch cutting units.

The deck is offset 1-1/2 inches to the right of centerline, trimming on both sides, leaving zero uncut circle turning to the right, and a 19-inch uncut circle turning to the left. The height of cut is 1 to 4 inches adjustable in 1/2-inch increments with spacers on the channel. The deck is constructed of 11-gauge steel, 5 inches deep, with welded construction and reinforced with a 10-gauge channel.

Circle 115 on reader card

## CLASSIFIED

**Rates:** All classified advertising is 35 cents per word. For box numbers, add \$1 plus six words. All classified ads must be received by the publisher before the 10th of the month preceding publication and be accompanied by cash or money order covering full payment. Submit ads to: ALA Magazine, 4012 Bridge Avenue, Cleveland, Ohio 44113.

### COMPUTER SERVICES

#### LAWN CARE INDUSTRY SOFTWARE

Fortunate Enterprises, Inc.  
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904/596-6347 or 596-0863

Nationwide network of service.

### ACQUISITIONS

#### Wanted To Buy—

Evergreen Lawns, a Division of The Hawley Group, Ltd., an international service company doing in excess of a billion dollars in sales annually, wants to acquire lawn care companies of all sizes. All inquiries strictly confidential. Please contact: Steve Hirshmugl, Director of Finance and Acquisitions, Evergreen Lawns Corporation, 1390 Charlestown Industrial Drive, St. Charles, Missouri 63303; 314/946-9700.

#### Business For Sale—

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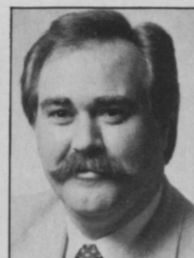
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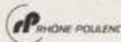
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