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APRIL 1987 • \$2.00

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ALA

APRIL 1987
VOLUME 8 NUMBER 4

BPA MEMBERSHIP APPLIED FOR 10/85

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COVER

Tim Doppel (center, standing) and his employees exemplify professionalism (clockwise, Sheila McGinnis, Scott Brunais, Bill Sunday, and Jerry Drouillard).
(Photo by Curt Drogmiller)

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VIEWS ACROSS THE TURF INDUSTRY

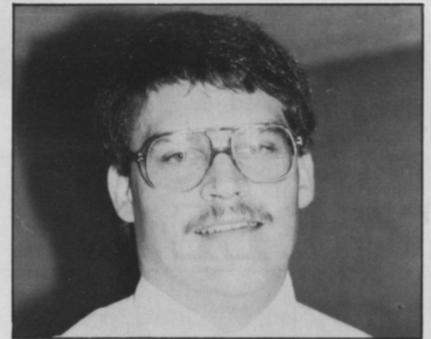
HAS PUBLIC CONCERN AFFECTED YOUR APPLICATION METHODS?



"No, the only thing I've been using that I was concerned about was the 2,4-D product. But from what I've been reading about it, there's really not enough information yet to prove there's a problem. The only tests that have been made are agricultural and that's a different type of work than I do. Another thing is that the suppliers I'm buying from are not stocking other products right now. When I was in Baltimore at a turfgrass show, I talked to several people, but they're not delivering products this far South yet, not in the small quantities that I use." — *Lewis Simpson, Simpson's Landscaping, Burlington, North Carolina*



"Yes, this year we're going to use an injection gun. We're going to be using it to calm the fears of people. Instead of blanket applying, like we have in the past, we'll use the setup where the material will be in a canister on our belts. We'll turn a switch on and spray the insecticide or weed control selectively. It's very similar to what ChemLawn does. That's the primary thing we've done. We're going to stay with 2,4-D right now. If we really had a major public controversy, we would yank it. We're going to keep a sort of wait-and-see attitude." — *Steve Kankiewicz, Perma Lawn, Youngstown, Ohio*



"We've changed how we communicate. We don't talk to clients about sprays or chemicals too much. We talk more in terms of applications. We do primarily tree and shrub spraying, and have incorporated IPM techniques. We're inspecting, monitoring, and only spraying as needed. We also have spraying equipment that allows us to mix upon demand, rather than use a big tank of solution that's all mixed up. This allows us to use a greater variety of chemicals so that it's possible to pick and choose what's needed for a specific problem. — *Lauren Lanphear, Lanphear Supply Division, Cleveland, Ohio.*

CALENDAR

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 Rohlfs, 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.

Carolina 27695-7620; 919/737-2657.

Jun. 21-24

OPEI Annual Meeting, Monterey, California. Contact: Outdoor Power Equipment Institute, 1901 L Street, NW, 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

Oct. 24-29

ALCA Interior Plantscape Division Conference, Hyatt Regency Crystal City Hotel, Arlington, Virginia. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Nov. 7-11

ALCA Landscape Management Division Conference, Hyatt Regency Crystal City Hotel, Arlington, Virginia. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

Nov. 17-19

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

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INSIDE STORY



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From the turf care group at Union Carbide.



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INSIDE STORY

The choice was a difficult one to make, but we have finally selected the winner of our Award for Professionalism. The recipient of this year's award is Atwood LawnCare of Sterling Heights, Michigan. The first annual presentation of the award was made to Atwood's President Tim Doppel at the Lawnsprayers Association of Michigan meeting on March 10.

In accepting the award, Doppel was quick to acknowledge the contribution made by his staff. "First, I'd like to recognize my team," says Doppel. "I am really excited because it gives me and other small operators like me recognition for doing a good job."

No doubt, two of the most important events of 1987 are also reported on in this issue. First is the hostile tender offer made by Waste Management, Inc. of Oak Brook, Illinois to seize control of ChemLawn Services Corporation on February 26. Who would have thought that the Wall Street drama of corporate raiders and their victims would be played



out on the relatively tranquil lawn care stage? *Dallas* and *Falcon Crest* could hardly offer more intrigue: law suits and countersuits, secret boardroom meetings, and even mention of a little insider trading.

Will ChemLawn become the property of Waste Management? Wall Street analysts say the acquisition is certain. At press time, the experts were speculating on how much money would be involved and how soon the buy-out would occur. Needless to say, we will keep you abreast of the situation in coming issues.

Another lawn care issue making headlines is the implication of Milorganite in some recent Lou Gehrig's disease deaths. Milwaukee Metropolitan Sewerage District's waste treatment byproduct was initially fingered by media reports as the cause of the deaths, but later reports were much less accusatory. The experts tell us that Milorganite may soon be exonerated.

Finally, we have a story about the value of targeting pesticide treatments over the traditional blanket treatment method. And, as always, we have some informative technical articles. Read on!

Tim Weidner

olathe AERATORS/SEEDERS

A photograph of a golf course with several pieces of lawn care equipment. In the center, a large green tractor is pulling a white aerator. To its right is a red tractor pulling a red aerator. In the foreground, there are several smaller white aerators and seeders. The background shows a green lawn and trees.

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NEWS IN BRIEF

PROPOSITION 65's POLITICAL BACKLASH

California's Proposition 65 may have passed, but the regulators and legislators who have to deal with this ponderous law have already begun to develop counter-legislation that would take the teeth out of Proposition 65. When Proposition 65 passed last November, pesticide applicators feared the worst from the so-called toxics initiative. The biggest concern was over the "bounty hunter" provision in the law which would allow law firms to collect 25 percent of the fines levied against companies they catch in the act of polluting. A deluge of calls from citizens has caused legislators to rethink the wisdom of enacting Proposition 65.

A piece of proposed legislation would change the definition of significant amounts of pollutants from "detectable" amounts to any amount which exceeds 1/100th of the concentration demonstrated to cause cancer. Landscape-Horticultural Consultant Cynthia R. Drake of San Diego has been operating under the existing law and says a reassessment is much-needed. The proposed legislation would also require the discharge or release of pollutants to be "knowing and willful," says Drake.

Also, Governor George Deukmejian, who opposed Proposition 65 from the start, has issued a list of chemicals that includes only known carcinogens rather than known and suspected carcinogens, as was first proposed. "That has got a lot of the environmentalists upset," says Drake.

There are other assembly and senate bills in the works, according to Drake, that will in effect water down Proposition 65. Assembly Bill 8260 would provide an exemption under Proposition 65 for chemicals that do not exceed tolerance standards or permit levels. "Current law states that every chemical on the list issued by the Governor can't be discharged," explains Drake. "We will be allowed to use certain chemicals as long as certain levels or tolerance standards can be met for discharge."

State officials that Drake has been in contact with have indicated a great deal of confusion over the whole issue. "They are all saying 'We've created a monster,'" says Drake. She notes that there have already been some very poorly constructed cases against companies suspected of pollutant discharges that were shown to be false. The Department

of Health and Safety in San Diego, which has inherited the job of investigating pollutant discharge reports, has already seen a 20-fold increase in calls. "They are getting 80 calls a day, where they only used to get eight a week," says Drake.

Although Proposition 65 is now considered by many to be an over-reaction to the problem of toxic materials in the environment, the fact that the law passed by a margin of two to one has caused pesticide applicators to sit up and take note of the public's concerns. Drake says lawn and tree care professionals have become reluctant to take on pesticide application work. Ironically, the law has been a boon to applicators like Drake who are still willing to apply pesticides. "Here in San Diego, my business has picked up almost double since January because of gardeners who have given me spray business," says Drake. "The insurance companies are coming down really hard on them if they spray."

DANDL PURCHASES MIGHTY MAX FROM VRISIMO

Dandl Manufacturing Company, Inc. announced that it has purchased the Mighty Max Turf Division from Vrisimo Manufacturing, Inc. With the acquisition of the Mighty Max front-mounted flail, Dandl now offers its dealers a new line of flail mowers. Dandl has been in the flail mower business for 19 years. In addition to the line of turf mowers, Dandl produces industrial and agricultural flail mowers and shredders from 4 feet to a

19-foot cutting width. Dandl is headquartered in Chico, California.

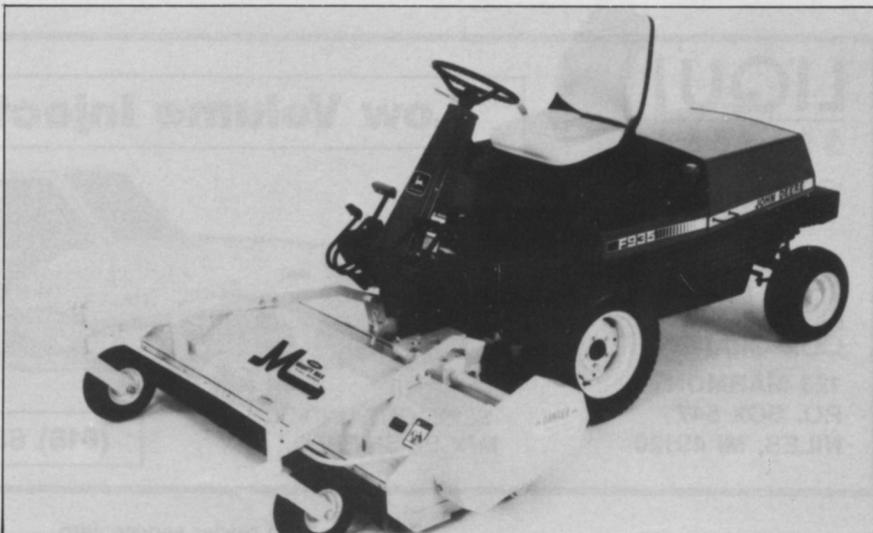
BASF BUYS BLAZER FROM ROHM AND HAAS

BASF Corporation has agreed to purchase the Blazer® herbicide business from Rohm and Haas Company. Blazer is a broadleaf herbicide approved for use in lawn maintenance. Ingo Kroeger, Group Vice President, BASF Corporation, Chemicals Division, said, "Blazer gives us a broader position in agricultural chemical products." The product has been sold commercially since 1980.

SANDOZ FORMS SPECIALTY NON-EDIBLE CROP GROUP

Sandoz Crop Protection Corporation, formed by the recent merger of VS Crop Protection Corporation and Zoecon, has formed a specialty agrichemical product group to service non-edible crop markets. The Sandoz non-edible crop product line includes Banvel® herbicide, Mavrik Aquaflow® insecticide, Ditek™ fungicide, Pentac® miticide, and Bonzi® plant growth regulator. Several additional products, including Blockade® herbicide, are currently being evaluated under Experimental Use Permits on turf.

According to Dale Miller, Sandoz Chief Executive Officer, the company's primary mission is to be market-driven and remain close to the customer. "The



formation of the specialty group derives from Sandoz' strategy to fully understand and be dedicated to the markets we serve," says Miller. "The turf, landscape, and horticulture industries have unique needs, distinct from others in ag, with unique crop protection and service requirements."

LEBANON HOLDS ANNUAL TURF CLINICS

As part of its ongoing educational program for turf professionals, Lebanon Chemical Corporation's Total Turf Care Division recently sponsored lawn care clinics in Pennsylvania, New Jersey, and New York. The programs provided technical information on both existing and new lawn care products.

This year's clinics were held in Hershey, Pennsylvania; New Brunswick, New Jersey; and Hauppauge, New York. Over 600 lawn care, golf course, and grounds maintenance personnel attended the three turf programs. Each of the lawn care clinics provided turf professionals with information on the proper handling, storage, application, and clean-up procedures for a variety of today's most widely used fertilizers and pesticides.

Representatives from the following companies gave in-depth presentations on their products: Elanco Products Company, Dow Chemical, Mobay Chemical Corporation, Chevron Chemical Corporation, Rhone-Poulenc, PBI Gordon, and Monsanto Chemical Corporation. Staff members from Lebanon's Total Turf Care Division spoke on the company's homogenous and SCU blend fertilizers, combination products, control products, and its new line of liquid fertilizers.

"The Lebanon lawn care clinics pro-

vide a valuable service to the industry by giving professional, reliable information on products and issues," says Paul Mengle, Lebanon's Marketing and Sales Manager. "Each year's registration figures increase because we have many repeat attendees as well as new faces. As long as the demand for this type of turf education exists, our company is committed to meeting the needs of the industry. It is our hope to expand the lawn care clinic program next year to reach even more turf professionals."

Those interested in receiving materials from this year's program or attending a future Lebanon Chemical Corporation lawn care clinic should contact Lori Noll at 717/273-1687.

N.C. TURFGRASS CONFERENCE CELEBRATES SILVER ANNIVERSARY

More than 1,000 individuals from the turfgrass industry attended the 1987 North Carolina Turfgrass Conference which was held January 7-9 at the Benton Convention Center in Winston-Salem. The conference, begun in 1962, celebrated its silver anniversary by attracting a record attendance of 1,100. The trade show, consisting of 235 booths and 90 exhibitors, was twice the size of last year's show.

Those in attendance included golf course superintendents; lawn care personnel; sod producers; parks and recreation personnel; educators; landscape contractors; and athletic field personnel.

Donations totaling approximately \$18,000 were given to the North Carolina State University Turfgrass Research and Extension Fund from the Turfgrass Council of North Carolina, Eastern Turfgrass Association, North-South Turfgrass Association, Triangle Turfgrass Associa-



Charles Tomlinson (right), newly elected President of the Turfgrass Council of North Carolina presents outgoing President Les Kuykendall with a plaque for outstanding service as president.

tion, Western Turfgrass Association, Kidwell Turf Farms, and Ciba-Geigy Corporation.

Other presentations included the donation of \$1,000 to Catawba Valley Technical College by the North-South Turfgrass Association, as well as \$250 to the Robert N. Wood Memorial Fund by the Turfgrass Council of North Carolina.

The Turfgrass Council of North Carolina presented Robert Hamrick, from Porter Brothers, Inc. in Shelby, North Carolina, its highest honor, a Honorary Lifetime Membership Award for his significant contribution to the growth and development of the North Carolina Turfgrass Industry.

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QUESTIONS & ANSWERS

Q. Are lawn applications of insecticides contaminating the groundwater? — *Joan Arnold, Cleveland, Ohio*

A. This question is impossible to address directly, because virtually no field samples have been analyzed to trace the movement of turf insecticides. Movement of any pesticide into groundwater will depend partly on the soil type and the amount of rainfall the area receives.

However, preliminary studies at Ohio State University suggest that much of the active ingredient (or by-product) of several common turf insecticides typically remains in the thatch, or perhaps the top inch of the soil, for several weeks after application.

Groundwater samples collected under golf courses on Cape Cod (very sandy soils) revealed little or no insecticide residue. While herbicides and fertilizers may move more rapidly into groundwater, it appears that the thatch-soil interface may be playing a significant role

in slowing the movement of insecticides into groundwater. — *Dr. Patricia Vittum, University of Massachusetts, Waltham, Massachusetts.*

Q. My customer has fairy rings in her yard. Is there a fungicide I can use to get rid of them? — *Rick Hargus, Columbus, Ohio*

A. Fairy rings are difficult to control. For one thing, there are over 100 different species of fungi that cause them. What may control a fairy ring produced by one fungal species may not work on another. In my experience, digging them out is the best solution. Remove all the sod in the ring and a foot beyond. Then remove the infested soil to a depth of one foot. Replace it with healthy soil and new sod or re-seed the area.

If your customer does not wish to go to this trouble, aerifying or punching holes in the ring with a garden fork and adding a wetting agent may help to reduce turf loss in the ring during the summer

stress period. — *Dr. J.M. Vargas, Jr., Department of Botany and Plant Pathology, Michigan State University, East Lansing, Michigan.*

WRITE TO US!

Do you have a burning lawn care question for a member of our Advisory Board? Address your question to **Gordon LaFontaine**, President of Lawn Equipment Corporation; **Dr. William Meyer**, Vice President, Research, Turf-Seed, Inc.; **Des Rice**, President of Turf Management Systems, Inc.; **Dr. Al Turgeon**, Professor and Head of Agronomy, Pennsylvania State University; **Dr. Joseph Vargas**, Professor of Botany and Plant Pathology, Michigan State University; or **Dr. Patricia Vittum**, Associate Professor of Entomology, University of Massachusetts. Submit your question to **Questions and Answers, ALA, 4012 Bridge Avenue, Cleveland, Ohio 44113; 216/961-4130.** ■

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With TURFLON II you can stop those early-emerging, hard-to-control

weeds in their tracks and significantly reduce the need for spot treating later. TURFLON II does so much more than other broadcast herbicides because it contains triclopyr, the first new turf herbicide chemistry in 16 years.

Safety tested

The low volatility of the TURFLON II activated amine formulation gives you less odor to worry about. It has a proven safety record and won't migrate in the soil to the roots of ornamental plants.

So if you're tired of being let down in the broadcast round by your old standby, turn to TURFLON II this year.



TURFLON II
It's your new old standby.



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6006

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TURF**

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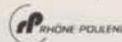
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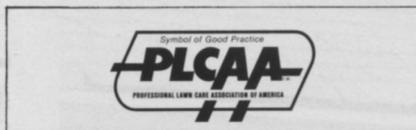
Circle 4 on reader service card

PLCAA UPDATE

Lawn maintenance and gardening tips are featured in a new series of "Yardening" videotapes endorsed by the National Gardening Association. Time-saving techniques in a dozen areas of lawn and garden care are featured in the tape, and the Professional Lawn Care Association of America is now offering its members the series at a discount rate.

The narrator of the tapes, popular author and gardener Jeff Ball, explains each topic in simple, easy-to-follow terms with visual demonstrations. The series includes such topics as methods for designing a lush flower garden and tips for getting top-notch results in a greenhouse environment.

Each video is packed with information, calendars, charts, and colorful graphics. All are time-coded so that viewers can quickly refer to a specific segment again and again. Running time varies from 45 to 60 minutes. Tapes are VHS format. They can be sold to accounts at a discount or marketed as an incentive for new



customers.

As spring draws nearer, PLCAA offers a variety of new ways to train operators and help inform your customers about the services you provide. Offerings include customer mailings, training videos, and management monographs. The recently established "Defense Fund" has enabled the Association to finance these special projects.

New titles from the Management Monograph series include "Guide to Understanding the Media," "Choosing a Certified Public Accountant," "Developing a Marketing Plan," and "Planning for the Closely Held Business."

Staff training programs are available in a slide format complete with slides, tape, and script, and in videocassette — VHS format. Topics include destructive turf in-

sects, weed identification and control, diseases of turfgrass, and pesticide handling for lawn care.

In addition, two specially-priced videocassettes, "Common Sense Answers to Turf Care Questions" from the Ciba-Geigy Corporation and "Maximizing Engine Life Through Preventative Maintenance," are available from the Association at \$20 each. Another excellent video, "Pesticide Handling for the Turf Industry," produced by American Cyanamid, explains toxicity ratings, safety precautions, and protective gear.

As an added benefit, the safety piece "A Reassuring Word" and customer mailings, "The Media's Lawn Care Scare" and "What You Should Know About Professional Lawn Care," are now being offered with custom imprinting of your company logo.

For more information about any of the above items, contact PLCAA, 1225 Johnson Ferry Road, Suite B-220, Marietta, Georgia, 30068, (404)977-5222. ■

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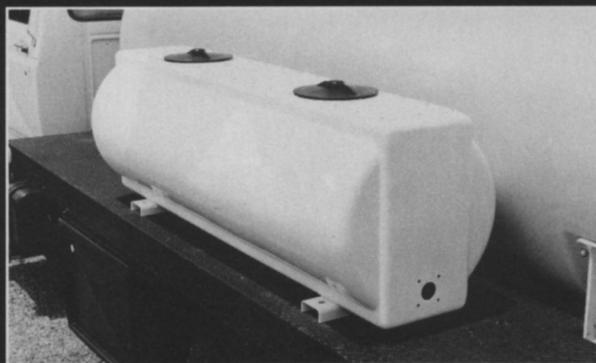


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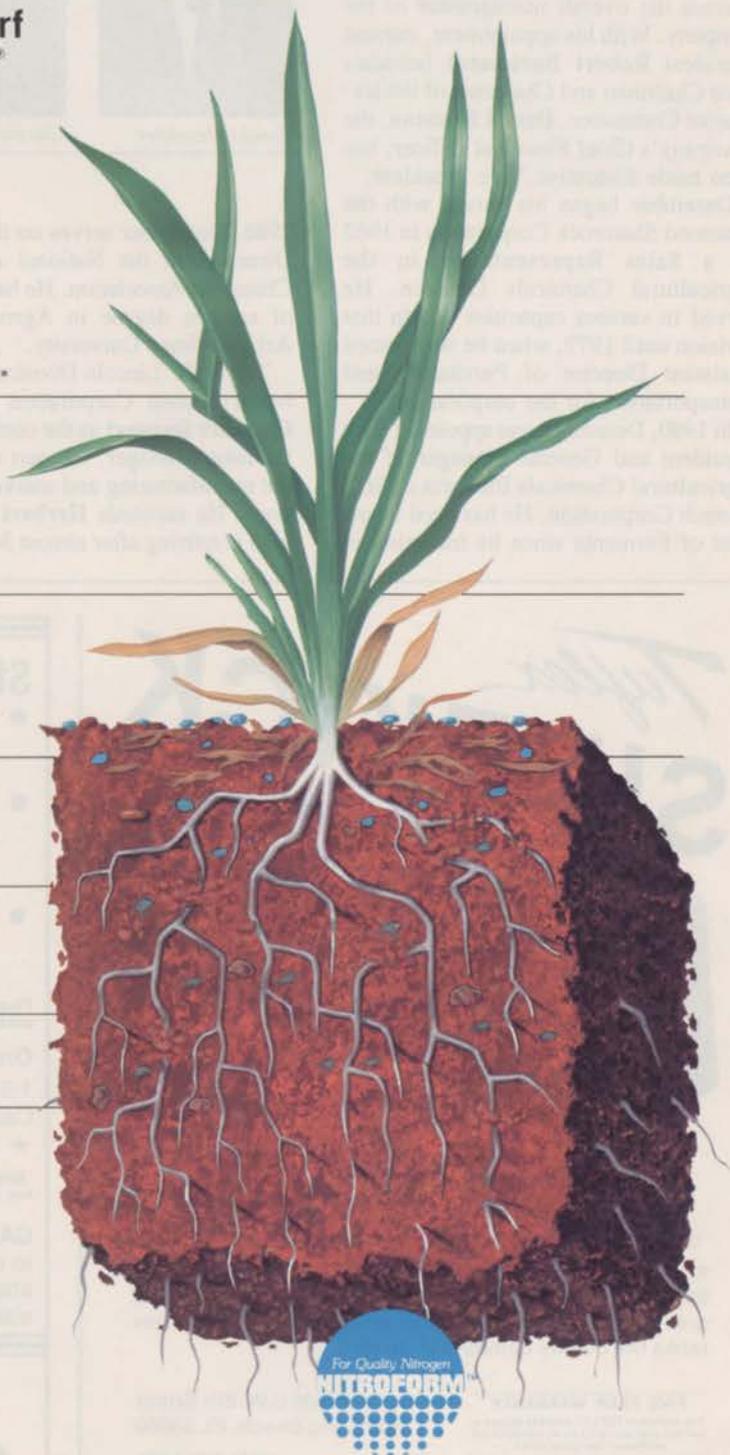
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PEOPLE

Ronald Dezember has been named President of LESCO, Inc. Dezember previously served as President and Chief Operating Officer of the Fermenta Plant Protection Company. At LESCO, Dezember will oversee the overall management of the company. With his appointment, current President **Robert Burkhardt** becomes Vice Chairman and Chairman of the Executive Committee. **Daniel Dunstan**, the Company's Chief Financial Officer, has been made Executive Vice President.

Dezember began his career with the Diamond Shamrock Corporation in 1962 as a Sales Representative in the Agricultural Chemicals Division. He served in various capacities within that division until 1979, when he was named Assistant Director of Purchasing and Transportation for the corporation.

In 1980, Dezember was appointed Vice President and General Manager of the Agricultural Chemicals Business of SDS Biotech Corporation. He has been President of Fermenta since its inception in



Ronald Dezember



Clarence Bangert

1986. Dezember serves on the Board of Directors of the National Agricultural Chemicals Association. He has a bachelor of science degree in Agronomy from Arizona State University.

The OMC Lincoln Division of the Outboard Marine Corporation has chosen **Clarence Bangert** as the company's new Division Manager. Bangert will oversee the manufacturing and marketing operations. He succeeds **Herbert Jespersen**, who is retiring after almost 36 years with

the company.

In 1947, Bangert joined OMC Lincoln (then Cushman Motor Works) as a cost clerk. He later served as Manager of Cost Accounting, Assistant Director of Accounting, and in 1978, was appointed Director of Accounting, a position he held until named Division Manager.

Bangert holds a bachelor of science degree in Business Administration and a masters of Business Administration degree from the University of Nebraska. He served as a bomber pilot with the U.S. Army Air Force in World War II.

Joseph A. Ignatoski, Ph.D. has been appointed Northern Area Manager of Fermenta. In his new position, he will have overall responsibility for the company's business activities in the Northern U.S. and Canada.

Prior to being named Northern Area Manager, Ignatoski served in various technical and sales management positions. He received a Ph.D. in Plant Pathology in 1967 from Michigan State University.

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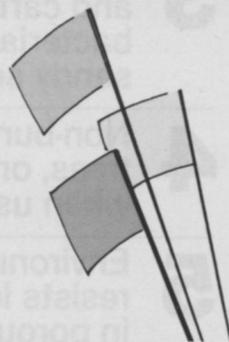
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AWARD FOR PROFESSIONALISM

The envelope please! All the nominations are in and we have picked the winner of our 1986 Award for Professionalism.

When we published a nomination form calling for entries in our first annual Award for Professionalism contest in the October, 1986 issue of *ALA* magazine, we had meager expectations for the success of this new venture. New things tend to take a while to catch on, but our readers wasted no time in submitting dozens of nominations for our consideration. Although we were surprised by the quantity of the nominations, we were even more surprised by the quality of the nominations.

We would like to thank everyone who took the time to nominate a company for our award and we are pleased to report that all of the nominations are quite worthy of recognition. The level of professionalism exhibited in the company profiles submitted to us made our job of selecting a single winner very difficult. In selecting our winner, we weren't looking for the fastest growing company, the highest grossing company, or the longest established company. And we certainly weren't staging a popularity contest.

While our award was intended to recognize a company that we felt embodied the spirit of professionalism, by association we must also recognize the individual who

While our award was intended to recognize a company that embodied the spirit of professionalism, we must also recognize the individual who made that possible.

is responsible for the winning company's excellent track record. So, without further ado, we would like to present our 1986 Award for Professionalism to Atwood LawnCare of Sterling Heights, Michigan and its President Tim Doppel.

In nominating Atwood LawnCare, Gordon LaFontaine, President of Lawn Equipment Corporation in Novi, Michigan (and a member of our Advisory Board), noted that smaller companies like Atwood need the kind of recognition and encouragement inherent in our award. LaFontaine says, "I lean toward the smaller companies because I believe that's where we need encouragement. Small companies throughout the United States need to see they also can make a difference."

When asked to comment on our award winner, Dr. Paul Rieke of the Department of Crop and Soil Science, Michigan State University, East Lansing, Michigan, characterized Tim Doppel as someone willing to provide leadership. Rieke notes that there has been a great deal of local outcry against the use of lawn pesticides in the Detroit area in the last year and Doppel has been very active in speaking on behalf of the lawn care industry. "He has been a voice of reason," says Rieke. "That is the kind of people we want out there; those who will do their homework, check things out, and get involved. Let's face it, the lawn care industry doesn't have enough leadership."

Rieke is also impressed with the creative ideas Doppel has contributed to the various pesticide user support groups he is involved with. "He is very careful to check out the details in making sure all he is doing is right for the company and I really get the impression he is trying to be careful about the environment too," says Rieke. But perhaps most importantly, Rieke can say he knows Doppel well enough to say that he is a very honest businessman. Rieke's association with Doppel began when Doppel was his student at Michigan State University. "He will not play games or pull dirty tricks," says Rieke. "Obviously, I am not out there competing with him, but everything I have seen would tell me he is a very up-front guy."

Doppel's lawn care career developed from his six years of experience in directing maintenance at a public golf course in Fraser, Michigan. He even spent a year as Assistant Superintendent at Hillcrest Country Club in Mount Clemens, Michigan, but he says his interest began to lean toward lawn turf maintenance rather than golf turf maintenance. Doppel didn't really care for the golf course environment, but he did manage to strike up a relationship with the course handyman who operated a lawn care company on the side. The handyman introduced Doppel to lawn care, but between his stint at golf course maintenance and the lawn care career he has settled into, Doppel pursued a college education at Michigan State University.

He went to MSU for two years after graduating from high school in 1976, but then he left college for a couple years to reexamine his career path before going back in January of 1980. He went back to MSU because he says MSU has the best ornamental horticulture program for someone who wants to specialize in turf maintenance. Yet, at the time the concentration was on golf course

maintenance. "I was sort of a salmon swimming up stream at MSU," says Doppel. "The program at that time was so geared toward golf course management. I came in not wanting to have anything to do with golf courses, and they really didn't know quite what to do with me."

He found himself converting the golf course sequence into a lawn care sequence. So he substituted courses in golf green design, for business courses in accounting and marketing. Since he graduated in March of 1982, Michigan State University has tailored course work for those pursuing careers in other turf areas, such as lawn care and landscaping.

When Doppel made the commitment to go back to MSU in January, 1980, he also made a promise to himself that he would introduce himself to at least one lawn care businessman at the Michigan Turfgrass Conference that year. At that conference he met Tom Bruny, who was in the process of getting Atwood LawnCare off the ground. "During spring break I talked to him and he said he had a spot for me as a service technician taking care of problems and answering questions on weekends," recalls Doppel. Doppel started working at Atwood in 1980. In late 1983, Bruny decided he wanted to retire to South Carolina and sell the business to Doppel. So Doppel became the owner of Atwood LawnCare in 1984.

His association with professional lawn care support groups also began in 1980. Last year he was elected to the Board of Directors of the Michigan Turfgrass Foundation. For the last two years, Doppel has been President of the Lawnsprayers Association of Michigan. On March 10, he became managing director of that group. "That's where I spent most of my time — with that association making sure that the lawn sprayers voice and concerns are being heard in the state legislature," says Doppel. He has been active in working on committees and presenting testimony at hearings on regulatory matters. "When there was an issue that concerned our industry, I was the one who put together our position paper and presented it."

Doppel recently presented testimony arguing the validity of a state bill that would have set limits on the wind speed in which a lawn care applicator can legally apply pesticides. "They wanted to establish a 12 mile-an-hour wind speed limit," says Doppel. "We all banded together to show them how that was quite ridiculous." He says safe wind speed depends on the type of equipment being used and it can vary widely.

The list of industry support groups that Doppel belongs to seems endless. He is Regional Seminar Chairman for



Tim Doppel (seated) and his employees represent the level of professionalism we were looking for in a winner of our award. (Left to right, Scott Brunais, Bill Sunday, and Jerry Drouillard.)

the Professional Lawn Care Association of America. He is the Michigan contact person for the Pesticide Public Policy Foundation (3PF). He also represents the Lawnsprayers Association of Michigan on the Detroit Area Green Industry Council. The Detroit Area Green Industry Council is coordinated by the Cooperative Extension Service and helps the extension service develop educational programs for the green industry.

With all the organizations Doppel is involved in, one

might wonder how he finds time to run his business. Actually, he has big plans for expanding his business this year. He plans to develop in-house management to run the day-to-day lawn spraying operation so he can concentrate on gearing up to offer other services, like mowing/maintenance. He doesn't want to get into snow plowing, but he does want to develop some type of year-round income source.

At peak season, Doppel employs 15 people, but he says that number will grow dramatically when he starts up his new auxiliary services. He says this fall he will offer a lawn clean-up service and tree care services.

Doppel believes that the presentation of this award is particularly timely because

he perceives professionalism and projection of a professional image as the most important issue facing the lawn care industry. "That encompasses all the named issues of pesticides, insurance, training, etc.," says Doppel. "All companies have to decide that they are going to do a professional job or get out of the business. They are going to have to have clean trucks, clean uniforms, and well-trained applicators."

He says too many operators are ill-informed about the threat of over-regulation of lawn pesticides and are apathetic about defending their use of lawn pesticides. "On a lot of these legislative committees I have been involved with, by about 20 years, I am the youngest person involved," says Doppel.

"And that concerns me. The older guys who are practically retired are afraid of change and that is why they are getting involved. But the younger guys who are supposedly in this for a longer haul have no desire to get involved."

Short-sighted concern with bottom-line profits has to be replaced with a concern for the long-term prosperity of the lawn care industry. That means getting involved with pesticide user groups and helping to influence legislation that is favorable to lawn care businessmen. That means behaving like a professional, a professional like Tim Doppel! — *Tim Weidner* ■

The author is Managing Editor of ALA magazine.

THE RUNNERS-UP

After we had narrowed the field of finalists down to four, we did a background search on the four to determine if there was any reason why we should *not* present the award to any of the four. After checking with state departments of agriculture; state, local, and regional Environmental Protection Agency offices; and Better Business Bureau offices in each of the finalist's areas, we decided there was no dirt to dig up. Our snooping revealed that all four of our finalists had a "satisfactory business performance record to date," according to the Better Business Bureaus we contacted and had no substantiated complaints filed against them, according to the various regulatory bodies we questioned.

Since we found no reason to disqualify any of the four, we relied on the recommendations of peers and industry observers to select the one company that garnered more rave reviews than the other three. But after we had settled upon the winner of our award, we still had the difficult task of recognizing the three excellent finalists that were not chosen to receive the award this year. We decided to rank them in second, third, and fourth place behind Atwood LawnCare. So, first, second, and third runners-up in the 1986 Award for Professionalism are, respectively, the Davey Tree Expert Company/Landscape Division, Lancaster, New York; B.D. Wilhelm Company, Denver, Colorado; and Lawn People, Inc., Wallingford, Connecticut.

First runner-up James M. Foote, District Manager of the Davey facility in the Buffalo, New York area could have won our award based on his sheer tenacity in staying in the lawn care busi-

ness. Last year was a very rough year for lawn care businessmen in western New York State. Even before the national media picked up on the lawn pesticide controversy last summer, activist groups had already formed in western New York whose ultimate purpose was the banning of all lawn pesticides. One group in particular, H.E.L.P. (Help Eliminate Lawn Pesticides), was particularly vocal.

Foote and his colleagues weathered an unprecedented storm of adverse publicity that took the form of scathing editorials and cartoons in local newspapers and hostile news reports in all forms of local news media. Foote helped form and is on the board of advisors of the Western New York Lawn Care Association that was created specifically for the task of combating the adverse publicity the industry was receiving.

He personally served as industry spokesperson on local radio and television programs addressing the lawn pesticide controversy. He also testified at New York Department of Environmental Conservation hearings and H.E.L.P. meetings. Foote is also involved with other industry support groups that are broader in geographic scope.

Our second runner-up, Bruce G. Wilhelm, President of the B.D. Wilhelm Company, Denver, Colorado, was nominated by C. Diane Matt, Executive Director of the Associated Landscape Contractors of Colorado. Wilhelm has been active in numerous community projects, including the restoration of the Denver Junior Symphony Guild Showhome landscape and the Children's Hospital Christmas tree project.

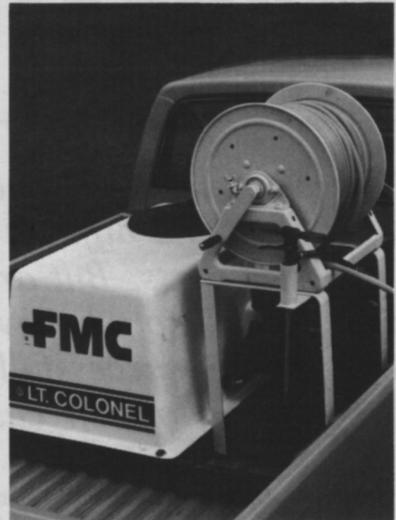
He is also involved in numerous professional trade organizations. He belongs to the Colorado Association of Lawn Care Professionals, the Associated Landscape Contractors of Colorado, the National Arborists Association (of which he is Chairman of the Public Relations Committee), and the Professional Lawn Care Association of America. In addition, he is associated with the International Society of Arboriculture, the Society of Commercial Arboriculture, the Colorado State Pesticide Advisory Council, and the Colorado Pesticide Applicators for Responsible Regulation. Matt describes this last organization as "a coalition of people interested in providing a balance in proper pesticide use."

Finally, our third runner-up, James Guimond, President of Lawn People, Inc., Wallingford, Connecticut, also is involved with several professional groups, including the PLCAA and the Professional Pesticide Users of Connecticut. He conducts free educational seminars for the public, but what is perhaps most noteworthy of his recent accomplishments is his donation of a flowering dogwood to a garden constructed as a memorial to a child who was murdered in Wallingford. Jim Christenson, a Lawn People employee who nominated his company, said the tree planting ceremony at the murdered child's school and the talk Guimond gave to the child's classmates helped the children deal with the tragedy.

Once again we would like to thank everyone who submitted nominations and we look forward to receiving nominations for our second annual Award for Professionalism next year! — *Tim Weidner*

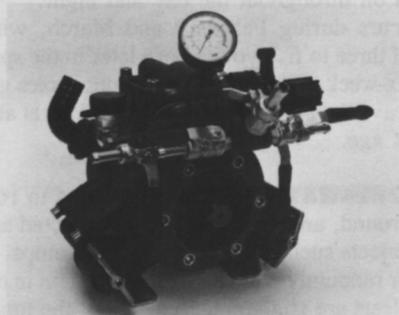
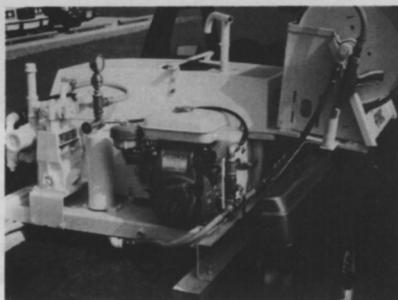
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MOLE CONTROL MARKETING?

The eastern mole is one of the most destructive and difficult to control of all lawn pests. But armed with a knowledge of mole behavior, lawn care operators can successfully market mole control to their customers.

The Eastern, or common mole, (*Scalopus aquaticus*) has the widest range of all the North American moles. It occurs in most states east of Colorado, but is scarce or non-existent in the Dakotas and a large part of the New England area. Eastern moles can be a destructive pest in lawns, gardens, nurseries, parks, golf courses, and cemeteries. During their burrowing activities, they produce mounds and ridges that disfigure lawns and sometimes dislodge plants or injure plant roots.

Despite the damage done by moles around yards and gardens, however, there are aspects of this unique mammal which are very beneficial. Moles make soils healthier because their tunnels permit air and water to penetrate deeper soil levels. Moles feed voraciously on all types of insects found in the soil — some of which are serious pests of lawns, gardens, and horticultural plants. They are also part of the food chain in the wildlife community, providing food for some hawks, owls, and snakes. And finally, the mole's unusual subterranean life provides one of the most fascinating studies found among wildlife. Thus, moles should be regarded with interest and respect and should be controlled only when they are causing damage.

IDENTIFICATION. Moles are not rodents; they belong to the group of mammals known as insectivores, and thus, are related to the shrew. Eastern moles have pointed snouts, greatly enlarged rounded front feet with stout claws, and a short, nearly naked tail. They are 6 to 8 inches long with short, velvety fur that is usually gray to silver-gray in color. The eyes and ears of moles are very small and are concealed in the fur (Figure 1).

BIOLOGY AND BEHAVIOR. Moles feed primarily on earthworms, beetle grubs, ants, and various other animals found in the soil (Figure 2). A smaller part of their diet consists of various seeds and vegetable matter. But they usually do not eat bulbs or the roots of garden plants. Several species of mice also use mole runways; often these are the culprits responsible for the occasional damage to roots and tubers in flower and vegetable gardens (Scheffer and Henderson 1982).

Moles are active day and night throughout the year,



but they are most active during the spring and fall on damp days or following rain showers. When the ground surface becomes frozen in the winter, or dry during the summer, moles use mostly the deeper burrows. Daily activity periods are during the morning hours, although they may work off and on throughout the day and night.

Mating occurs during February and March, with a single litter of three to five young born later in the spring following a six-week gestation period. Young moles grow rapidly and leave the nest to fend for themselves at about one month of age.

NESTS AND RUNWAYS. The nests, usually 4 to 16 inches below ground, are located either in protected areas underneath objects such as boulders, trees, stumps, and fence rows, or randomly within the tunnel system in open field areas. Nests are slight enlargements of the tunnels and are lined with bits of leaves or grass.

Two types of runways (tunnels) are produced by moles — surface runways and deep runways. Certain tunnels of both types are used as major lanes of travel (called main runways) and may be used by several moles in the area.

Surface runways are commonly seen as the raised ridges running through lawn areas. The mole is capable of extending surface runways at the rate of 100 feet per day. Surface runs may be used daily, may be revisited at irregular intervals, or may be used only once and then abandoned. They connect with the deep runways, which are located between 3 and 12 inches below the surface. Generally, few or no mounds are produced as a result of the production of surface tunnels.

Deep runways are usually main runways, since they



Earthworms and various insects make up the bulk of a mole's diet. Moles are capable of consuming 30 to 65 percent of their body weight in food per day.

are used daily as the mole travels to and from surface runways or the nest. The soil excavated from the deep tunnels is deposited on the surface through short vertical tunnels in volcano-like mounds. Eastern mole mounds should not be confused with the mounds of pocket gophers which are horse-shoe shaped.

When fence rows, concrete paths, or other

man-made borders are within mole-active areas, the moles tend to construct their main runways following along the edge of these artificial borders. It is also common for the main runways to follow a woody perimeter of a field or yard. Surface runways that are not used as main runways commonly branch off from these border runs toward the center of a field or yard. The number of mounds or surface ridges seen in a yard is no indication of how many moles may be present. Generally, one acre of land will support no more than two or three moles at one time. However, yards surrounded by or adjacent to large tracts of forested areas or weedy fields may be subject to continual invasion by moles because such areas may support many moles.

Discussion of mole control for professionals can be categorized into four approaches: 1)trapping; 2)indirect control via grub control; 3)poison gases; and 4)poison baits. Let's review each of these control techniques:

TRAPPING. Trapping is regarded by most vertebrate pest specialists in the United States as the *most* reliable method of mole control (Marsh and Howard 1978, Henderson 1983, Salmon and Lickliter 1984, Corrigan 1987). Many structural pest control and lawn maintenance companies avoid offering a mole trapping service because either they feel trapping isn't a "professional" approach, or because they lack the necessary expertise.

But I believe lawn care operators *can* provide many of their customers with effective mole control via trapping, and make a profit from the service as well — which, of course, is the objective. Therefore, the following is a lawn care operator's "how-to" approach to mole trapping

programs.

Generally, trapping is easiest and most effective during the spring and fall, when mole activity is at a peak. Once mole activity is noticed, control efforts should begin as quickly as possible to keep damage to a minimum. Also, trapping in the early spring can eliminate pregnant or nursing females, thereby reducing the likelihood of your customers having to contend with a family of moles. During the dry, hot periods of summer, most mole damage subsides because moles retreat to the deeper, cooler runways. Therefore, unless there is constant surface activity, trapping is usually not productive during mid-summer.

For successful trapping, it is essential to locate and place traps only in the main runways. To identify main runways in a yard or area, look for runways which:

- follow more or less a straight course for some distance;
- appear to connect two mounds or two runway systems;
- follow fence rows, concrete paths, or other man-made border, or;
- follow a woody perimeter of a field or yard.

Active surface main runways also can be determined by poking small holes with your finger into the runways at several locations throughout the system. Moles will repair these holes in their main runways within a day or two. Runways unrepaired over a longer period of time are not worth trapping.

Also, because nests are commonly located at protected spots along the edge of such areas as hedge rows or fence rows, border trapping at the places where runways enter

Unless the mole activity is extremely light, more than one trap should be used. Use between three and five traps per acre for quick results. If possible, one trap should be placed in each of the main runways.

the yard, field, or garden often provides good results.

Unless the mole activity is extremely light, more than one trap should be used. Use between three and five traps per acre for quick results. If possible, one trap should be placed in each of the main runway areas discussed previously.

There are several different types of mole traps, but the harpoon trap is probably the easiest to use, and is readily available from most hardware stores. Keep in mind that moles have an uncanny ability to detect and spring improperly set traps, so set traps with patience and care.

To properly set a harpoon trap on a surface run, *carefully* follow these steps:

•Using the side of your hand, lightly press down a narrow section (approximately 1 inch in length) of an active runway so that the runway is collapsed to 1/2 of its original dimension.

•Push the supporting spikes of the trap into the ground, one on either side of the runway, until the trigger pan just barely touches the depressed tunnel. Be sure the trap is centered over the runway and the supporting spikes do not cut into the tunnel below.

•Set the trap and leave it, taking care not to tread on or disturb any other portion of the runway system.

Traps should be checked twice a week. If a trap fails to catch a mole within four or five days, move the trap to another portion of a main runway system.

To prevent children, pets, or wild animals from tampering or accidentally springing the traps, plastic pails or other objects can be placed over the traps, and marked with the appropriate warning signs.

There are several options that professionals might employ when offering a mole trapping service. One option could include offering retail sales or rental of traps with information on moles and instructions as to the proper use of the mole traps. Keep in mind that you would be providing the customer with not only the necessary supplies but also valuable information needed to be successful. Thus, a charge for the transfer of your knowledge and expertise built into the price of the trap rental is appropriate.

Another option, of course, is to provide the mole trapping service itself. This would include an inspection and assessment of the problem, followed by the

same main runway locations as those utilized by the former occupants.

FOLLOW-UPS AND CALLBACKS.

Because of the possibility of reinvasions, the customer must realize that there can be no guarantee of long term, permanent results. And as such, the lawn care operator will have to charge on a per mole trapped basis. Therefore, whenever possible, it makes good business and public relations sense to prove to the customer successful results by showing them the moles caught in your trapping program. It also makes good sense when considering callbacks due to re-invasions. For example, a yard may be located in areas where there are families of moles. As one mole is trapped and removed, new moles may take its place. This may take days, weeks, months, or even years, or re-invasion may never occur — depending upon the population of the moles in any particular area. But should there be a recurrence of activity, you'll be glad you showed the customer the proof, and you're not held accountable for re-invasion. This also becomes important when we consider other approaches to mole control.

INDIRECT CONTROL. It is often suggested that if you eliminate grubs from lawns you will indirectly control the moles by forcing them to seek food elsewhere. This would be true only in those cases where grubs and other arthropods are the mainstay of a mole's diet. If earthworms, slugs, and associated animals are also a substantial part of the mole's diet in addition to grubs — and they often are — then grub control programs are not like-

are not directly eliminated, they may live in nearby areas for several years. As a result, several more mole families may become established in the area. In short, lawn spraying programs for grub control can be an expensive approach to controlling moles, with little guarantee of success.

POISON GASES. Attempting to kill moles with poisonous gases (fumigants) generally is ineffective and/or undependable (Silver and Moore 1941, Marsh and Howard 1978, NPCA 1982, Salmon and Lickliter 1984, Corrigan 1987). Fumigating tunnels of the eastern mole using tablet or pellet-type fumigants containing aluminum phosphide have produced only inconsistent results. And to date, there is no formal efficacy data available for this fumigant against this species of mole.

One company which sells the aluminum phosphide fumigant Phostoxin® as well as offering a mole control service using the product, claims it to be successful (Benjamin 1985). And in field trials conducted by Dudderar (1983b) in Michigan, he reports some success using Phostoxin at *experimental dosage rates* against the eastern and star-nosed mole. Dudderar points out, however, that the recommended label dosage of two to four tablets per burrow is not sufficient to control the eastern mole (Weidner 1985).

Field trials conducted by Corrigan (unpublished data) in Indiana did not produce promising results even when experimentally high dosage rates were administered. It is this author's opinion that unless very large dosages are applied, or applications can be made directly to nesting areas, fumigants in general are not capable of sufficiently penetrating throughout a mole's extensive runway system (which may extend between 300 and 1,200 feet or more in length, and be comprised of several layers), or their killing effects are lost through the top of the surface runways. This is in close agreement to the observations made by Jones (1948) regarding the usefulness of fumigants in general against moles.

He states: "Destroying moles by means of poisonous gases may be practical if used on a small scale. For large areas it is too expensive. Rarely, however, does fumigation prove effective. Limiting factors in effectiveness are: the extent of the burrow system; the amount of (soil) moisture; and the character of the soil. In most cases, it is too difficult to penetrate the entire burrow system. Fumigation operations may give some results in early spring when the young are in the nest. Moles, however, readily detect the presence of most gases and quickly block against them. They have been known to build a separate detour around a pocket

There are several options that professionals might employ when offering a mole trapping service. One option could include offering retail sales or rental of traps with information on moles and instructions as to the proper use of the mole traps.

trapping program. The actual charge for the trapping service could be structured on a man-hour rate. Under average conditions, five traps can be placed in a lawn area of one acre in about 45 minutes. With experience, it will take less time. When inspecting the traps it usually requires about 15 to 30 minutes, depending upon the number of traps tripped. It is wise to maintain on file, a map or sketch of the locations of all the traps for each account, as well as a record as to which traps were successful. In the event of recurrence of activity due to a re-invasion of moles, the new moles can often be captured in the

ly to affect a mole problem. In fact, moles are commonly found in grub-free lawns.

If all the grubs, earthworms, and other soil animals in a lawn are eliminated via repeated applications of different insecticides, the moles would be forced to seek other areas or succumb to hunger. But the results may not be evident for several weeks, and damage would be likely to continue and may even increase during this time (Henderson 1983). Additionally, the moles may not move far from the treated lawn, and they may periodically re-invade the lawn in search of food or the opposite sex. And because the moles

of cyanide. For all these reasons, (mole) control by gas is not generally recommended."

There are several other important limitations to using this fumigant against the eastern mole, and those considering its use are encouraged to review Dudderar's and Corrigan's comments in the Weidner (1985) reference.

POISON BAITS. Like poison gases, poisoned baits (nuts and grain pellets) provide

Unless dead moles are found above ground following a poison gas or bait treatment, how can you assure the customer that recurring activity is from new invading moles, and not from the original mole.

only inconsistent and/or undependable results (Marsh and Howard 1978, Henderson 1983, Salmon and Lickliter 1984, Corrigan 1987). In most cases, baits are ineffective because moles feed primarily on earthworms and insects. In addition, baits pose a hazard to companion animals and wildlife which may dig up and consume them.

From a lawn care operator's point of view, in cases of recurring activity, a professional can find himself in a very uncomfortable position. Unless dead moles are found above ground following a poison gas or bait treatment, how can you assure the customer (and yourself) that recurring activity is from new invading moles, and not from the original mole who may have retreated temporarily to deeper tunnels, or in the case of fumigants, may have been only repelled from the area temporarily?

This becomes important when you realize that moles normally appear to "come and go" irregularly throughout the late spring and summer depending

upon temperature, food sources, and soil moisture conditions (Alton 1936, Harvey 1976). Mole damage often subsides during the hot dry days of summer sometimes for several weeks, and resumes again in the early fall. Should any type of treatment be made just prior to the time the damage would normally subside anyway, the treatment would erroneously be deemed responsible for the reduction in damage and thus, considered "successful." This, in part, explains why grub

control programs, fumigations, baiting programs, and home remedies have compiled a "hit or miss" type of record in controlling the eastern mole. — *Bobby Corrigan* ■

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The advantages of Acclaim use on cool-season grasses, as compared to the methanearsonates such as MSMA and DSMA, are as follows:

- Acclaim can be used much more safely with less risk of discoloration or phytotoxicity.
- A single, well-timed application will completely control existing annual grasses.
- Acclaim efficacy is not reduced by rainfall within a few hours of application, so long as the herbicide has dried



Figure 1A and 1B. A single application of Acclaim (32 fluid ounces per acre) was applied on July 23, 1985, and photos of both Acclaim (above) and the untreated turf (below) were taken on September 11, 1985.



*TYPE OF TURFGRASS	STAGE OF GROWTH OF GRASSY WEED	TYPICAL TIME OF APPLICATION	POUNDS a.i. PER ACRE	FLUID OZ. * OF ACCLAIM PER ACRE	COMMENTS
Kentucky bluegrass (pure stand or mixed species)	3 leaf to 1 tiller	mid-June	0.12	15	Do not apply prior to June 15, and apply to bluegrass in a less vigorous, summer growth pattern
	1 to 4 tillers	early July	0.18	23	
	4 to 6 tillers	mid-July	0.25	32	
Fine fescues, Tall fescue, Perennial ryegrass, and 'Meyer' zoysiagrass	3 leaf to 1 tiller	mid-June	0.18	23	Acclaim effectiveness may be erratic when applied to weeds with more than 5 tillers
	1 to 5 tillers	July	0.25	32	

Table 1. Recommended rates of application and timing of application of Acclaim. *Do not apply to creeping bentgrass, bermudagrass, or any other species not listed above.

RATE OF ACCLAIM	1986 APPLICATION*	CRABGRASS CONTROL 9 SEPT 1986		GREEN TURF COVER 11 NOV 1986	
		PALMER PERENNIAL RYEGRASS	HOUNDOG TALL FESCUE	PALMER PERENNIAL RYEGRASS	HOUNDOG TALL FESCUE
(1b ai/A)	(Date)(%).....	(%).....	
0.08	15 May	72	72	95	96
0.18	15 May	84	64	95	95
0.08	29 May	82	69	97	96
0.12	29 May	81	76	98	96
0.18	29 May	82	73	97	98
0.12	13 June	84	78	96	94
0.18	13 June	92	86	98	98
0.25	13 June	95	96	99	99
Untreated	—	—	—	60	77

Table 2. Smooth crabgrass control in Palmer perennial ryegrass and Houndog tall fescue turfs treated with Acclaim on three dates when plants were immature. Area was seeded March 27, 1986. *On May 15, 1986, Palmer PRG and Houndog TF seedlings were three leaf to one tiller; crabgrass seedlings were one to two leaf. On May 29, 1986, Palmer PRG seedlings were two to three tiller; Houndog TF seedlings were one to two tiller; crabgrass seedlings were three to four leaf (some tillering). On June 13, 1986, Palmer PRG seedlings were four to five tiller; Houndog TF seedlings were two to three tiller; crabgrass seedlings were four leaf to one tiller (some with three to four tillers).

on leaf surfaces.

• Acclaim is safe to use on seedlings of perennial ryegrass and tall fescue (but not on seedlings of any other species). Although Acclaim is safe to apply to mature, 'Meyer' zoysiagrass, it is injurious to most other warm-season grasses (e.g. bermudagrass, St. Augustinegrass, etc.) and it should not be used on bentgrasses.

Acclaim should be applied to young, actively growing weeds. The effectiveness of Acclaim is reduced when applied to drought-hardened or drought-stressed annual grasses. For best results, Acclaim should be applied in early July to crabgrass and other grassy weeds that are above the turfgrass canopy and in the two-leaf to two-tiller stage of growth.

Irrigating drought-stressed areas several days prior to application will be helpful in improving Acclaim effectiveness. This herbicide should be applied in 30 to 60 gallons of water per acre (0.7 to 1.4 gallons per 1,000 square feet) using 30 to 60 psi. Flat-fan or cone-style nozzles are recommended. Thorough coverage of the weed foliage is essential for optimum results. It is very important to insure that maximum leaf area is present at the time of application, therefore, do not mow 24 hours before or after application. A 24-hour no-mow period after application is needed to insure sufficient time for penetration and translocation of herbicide into weedy foliage.

In general, a single application of Acclaim around early to mid July will provide satisfactory results for crabgrass control (Figures 1A and 1B). A second application may be needed when dense populations of weeds prevent thorough spray coverage of the entire leaf surface of target weeds. Species germinating throughout the summer, such as goosegrass, will necessitate that Acclaim be applied on an as-needed basis.

Acclaim should not be tank-mixed with other pesticides (except as noted), particularly broadleaf (e.g. 2,4-D, dicamba, etc.) herbicides. Acclaim/broadleaf herbicide mixtures, will partially or completely negate annual grass control effectiveness. Furthermore, a broadleaf herbicide applied within five days of Acclaim will also reduce annual grass control. This unique antagonism actually oc-



Figure 2. Acclaim may stunt growth and discolor Kentucky bluegrass for two to three weeks when applied during May or June. Stunting and discoloration, however, are not objectionable when Acclaim is applied in July or August when Kentucky bluegrass is in a slower, summer growth pattern.



Figure 3. Light green plots show crabgrass domination of turf in untreated plots in June. Darker green plots of tall fescue are almost crabgrass free following May applications of Acclaim to seedling tall fescue.

curs at the plant level, because weeds treated with a broadleaf herbicide within five days of application will not properly take-up Acclaim.

Although Acclaim is far less injurious to cool-season grasses than the methanearsonates, it can stunt and discolor Kentucky bluegrass and it may badly injure creeping bentgrass (Figure 2). Discoloration of Kentucky bluegrass has been described as ranging from slight to objectionable. Acclaim is most likely to discolor bluegrass when applied during May or June; whereas, July and August applications cause little if any discoloration. Why late spring applications are sometimes harmful to bluegrass is not well understood.

A May or June application of Acclaim to bluegrass may induce leaf tip yellowing, early senescence of treated leaves, foliar growth suppression, and stunting of seedheads. Foliar growth suppression and discoloration may persist for two to four weeks, depending on the dosage applied. New leaves developing after the herbicide is applied are unaffected and generally there is enhanced growth of bluegrass foliage after the effects of the herbicide have dissipated. Most researchers, however, would agree that the level of discoloration caused by Acclaim is not as objectionable as that induced by split applications of methanearsonates. The lack of Acclaim-induced discoloration during July and August is possibly due to less vigorous growth of bluegrass in summer, which thereby reduces uptake or translocation of Acclaim by the leaves.

Normal use rates of Acclaim (Table 1) can be extremely injurious to creeping bentgrass. Researchers are currently studying the safety of very low rates (i.e. 5 to 8 fluid ounces per acre) of Acclaim on bentgrass. At this time, however, it would be premature and unwise to make any recommendations for Acclaim usage on bentgrass.

Although Acclaim may discolor mature stands of Kentucky bluegrass, it is remarkably safe to use on seedlings of perennial ryegrass and tall fescue. Uni-

HERBICIDE	RATE (1b ai/A)	DATE APPLIED* (DAY)	CRABGRASS CONTROL** (%)
Acclaim	0.12	June 13	37
Acclaim	0.18	June 13	62
MSMA	1.0	June 13	18
MSMA	2.0	June 13	7
Acclaim	0.18	July 2	91
Acclaim	0.25	July 2	98
MSMA	2.0	July 2	44
Acclaim	0.25	July 16	99
Acclaim	0.40	July 16	100
MSMA	2.0	July 16	42

Table 3. Effectiveness of Acclaim and MSMA in post-emergence control of crabgrass in a single application. *On June 13, crabgrass was in the one- to three-leaf stage and below the canopy; on July 2, crabgrass was in the two- to four-leaf stage and above the canopy; and on July 16, crabgrass was in the four-leaf to two-tiller stage. **Control was based on crabgrass cover in each treated plot divided by the mean crabgrass cover in untreated plots on September 11, 1984.

versity of Maryland studies have shown that Acclaim can be safely applied to two- to three-leaf stage perennial ryegrass and tall fescue seedlings without any injury (Figure 3). Data collected in November following a spring application of Acclaim to seedlings competing with crabgrass revealed that over 94 percent cover of perennial ryegrass or tall fescue was achieved (Table 2).

Conversely, where perennial ryegrass and tall fescue were allowed to compete with crabgrass in untreated plots, only 60 and 77 percent turf cover had been achieved, respectively. The ability to

Less vigorous growth of bluegrass in summer reduces uptake of Acclaim.

safely use Acclaim on perennial ryegrass and tall fescue seedlings adds a whole new dimension to summer seeding or turf renovation with these two species.

An important attribute of Acclaim is that complete control of tillered crabgrass can be obtained in a single application as long as there is good soil moisture and

weeds are actively growing. The methanearsonates (e.g., DSMA and MSMA) normally control only immature, non-tillering crabgrass in a single application. In most years in the transition zone and northern regions, most crabgrass seed that is going to germinate (in an undisturbed turf) in a given year, has done so by the first week of July or a few weeks earlier in southern regions. It is conceivable that a well-timed herbicide application, after most crabgrass seed has germinated, may eliminate crabgrass as a problem for the remainder of the season. To test this possibility, single applications of MSMA and Acclaim were made on three dates in 1984 (Table 3).

When Acclaim was applied on June 13, the 0.18 pound of active ingredient per acre (ai/A) rate (i.e. 23 fluid ounces per acre) controlled existing crabgrass, but only 62 percent control (determined in September) shows up in Table 3 because more crabgrass seed had germinated after herbicide application. The low rate of Acclaim (0.12 pound ai/A) and both rates of MSMA (1.0 and 2.0 pounds ai/A) were ineffective against young crabgrass because sufficient herbicidal levels failed to contact the crabgrass, which was below the turfgrass canopy (and therefore protected) on June 13.

When Acclaim was applied on July 2 and July 16, excellent crabgrass control was obtained (91 to 100 percent) when plots were rated in September. This showed that no significant levels of crabgrass seed had germinated after July 2 in 1984, despite frequent periods of rain in July and August of that year. MSMA applied only once on July 2 or 16, rather than in multiple applications, did not effectively control crabgrass. This approach to crabgrass management with Acclaim will be most beneficial in more northern regions where crabgrass is not as competitive or as difficult to control as compared to transition and southern regions.

(continued on page 60)

1. Do not apply to Kentucky bluegrass turf less than one year old.
2. Acclaim may temporarily stunt or discolor Kentucky bluegrass.
3. Do not apply when weeds are under drought stress.
4. Do not mow 24 hours before or after application.
5. Rainfall or irrigation within one hour of application may reduce weed control. Delay irrigation until herbicide dries on foliage.
6. Do not tank-mix Acclaim with broadleaf weed herbicides or insecticides.
7. Broadleaf herbicides should be applied five days before or after Acclaim.
8. Avoid drift of Acclaim to ornamentals.
9. Do not apply Acclaim to pastures or rangeland.
10. Acclaim does not control broadleaf weeds or sedges, and does not control grassy weeds when applied preemergently.
11. Acclaim works slowly (14-21 days) on weeds with more than one tiller.
12. Do not apply to species other than Kentucky bluegrass, perennial ryegrass, fine leaf fescues, tall fescue, and 'Meyer' zoysiagrass.

Table 4. Summary of important points to remember before applying Acclaim.

PESTICIDE TARGETING

Regulatory and public opinion pressures are forcing lawn care operators to adopt safer treatment practices. Pesticide targeting is one such safe treatment practice.

The threat of impending posting and prenotification regulations in many states around the country has spurred the need to enhance the image this industry projects to the public. The outward appearance of the services the lawn care industry provides must be scrutinized and improved wherever possible. One such area receiving considerable attention these days is the accuracy of pesticide treatments to home lawns. There is a definite need to improve pesticide targeting.

A number of companies market spray rigs that feature some type of injection or proportioning system that will allow pesticide targeting, but we wanted to consult someone who not only manufactures such rigs, but uses them on a daily basis in a lawn care operation. Perma-Green Supreme is a company that develops low-volume spray rigs in its own lawn care operation before mass-producing them at its manufacturing facilities for sale to the rest of the industry. President Tom Jessen is sure that the pesticide controversy has caused many major lawn care companies to consider cutting back on their use of pesticides. And the spray rigs he builds in Crown Point, Indiana can help them do just that.

Jessen treats lawns with and markets two types of systems that accomplish the same basic results. One is an injection system with a dual-hose arrangement. "You feed a relatively concentrated chemical through the injection tube and it's injected at the handgun with the mainstream material," explains Jessen. "We have been working with that method for about five years now."

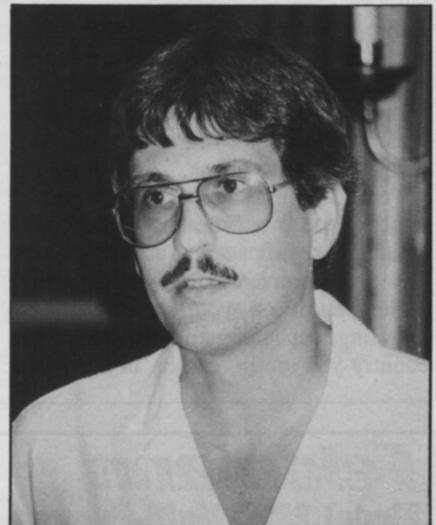
He calls the second system he has developed, "solution switching." The system consists of two hoses of equal size that are bonded together and terminate at the handgun. The hoses access two main tanks. Under most lawn care circumstances, both tanks would contain fertilizer in solution, but one of the tanks would contain a pesticide as well, such

as a preemergent herbicide for first round applications. "The operator can switch back and forth between tank-mixed materials at the handgun," says Jessen. "It accomplishes the same end result, but without the calibration problems that are inevitable with injection."

Jessen contrasts his systems with that of Davey Tree Expert Company of Kent, Ohio which has developed an exclusive injection system that features pumps coordinated with the main pump to pump out precise amounts of material in concentrated form and inject them at the handgun. He notes that ChemLawn Corporation has an injection system consisting of canisters of concentrate material strapped to the applicator's waist which inject concentrate at the gun with the pull of a trigger.

Having treated lawns for seven years, Jessen can see some inherent drawbacks to the canister system. For one thing, a leaky canister could cause serious exposure problems for the applicator who fails to notice the pesticide concentrate trickling down his leg. Plus, the canisters can be a real burden to lug around. "An applicator isn't going to want to carry around that extra weight of those extra containers and connect and disconnect himself at every stop," says Jessen. The canisters also have to be refilled during the course of the day, which is time consuming and another opportunity for harmful exposure.

The metering process that occurs in such a system is very precise and subject to fluctuations with changes in temperature. As the temperature changes, Jessen says the viscosity of the concentrate also changes, affecting the amount of material that is metered into the spray solution. For example, he says in the case of a herbicide like Trimec®, you might want to meter exactly 1-1/2 ounces of it into the spray solution per minute of injection flow rate. Jessen says that would be like trying to create a continuous trickle of liquor from a shot glass over the



Tom Jessen

course of one minute. Factor in the effects of temperature changes on the viscosity of the fluid and you have a difficult situation.

He says there are systems available which have overcome such obstacles, but the cost of this level of technology is steep. "The systems that accurately pump material and coordinate that flow with the mainstream flow at a plus or minus 2 to 5 percent margin of error on either side of total accuracy become relatively expensive," says Jessen. "It is a very fine-tuned, sophisticated piece of equipment. Cost becomes prohibitive and maintenance could be a problem."

He notes that there are other types of systems available which take other approaches to targeting pesticides. One rather simplistic system consists of two separate spray rigs on the same truck. The applicator has to use one hose to put down a fertilizer treatment and make a second pass over the lawn to spray a herbicide or insecticide solution from the other hose. Another system features a rig with a main tank of material accompanied by one or more drop tanks that will let the applicator formulate a custom application

on-site.

Jessen admits that his new system, which features two tank mixes which the applicator can choose from at the gun, sacrifices some of the flexibility inherent in his original injection system. "With injection, I can pull the trigger once a day or I can pull it a thousand times a day," notes Jessen. But the use of mini-trucks limits the quantity of the two tank mix solutions available in the relatively small tanks of Jessen's new system. "I can't have the luxury of doing 200,000 square feet, for example, without a herbicide or doing 200,000 square feet with a herbicide like I did have with the injection system," explains Jessen. "I've lost a little bit in flexibility, but I have gained in simplicity and reliability of tank-mix accuracy."

The use of either system will result in significant savings in concentrate material. "If you can't save at least 25 percent of the chemicals, there is no reason to target, you might as well blanket-treat the lawns," says Jessen.

Targeting pesticides with some type of injection or proportioning system will result in a significant cost advantage over the use of conventional spray systems. "The return on your investment by targeting, depending on what area of the country you are in, can be as short as a

few months," says Jessen. "In the case of preemergents, in the northern states where crabgrass pressures are not excessive, people have been trimming their preemergent bill by anywhere from 25 to 50 percent by targeting the materials." Since preemergent herbicides are a major expense in the first treatment rounds, applicators can recoup a considerable savings by reducing the amount of preemergents used, according to Jessen.

Targeting lawn care pesticides with some type of injection or proportioning system will result in a significant cost advantage over the use of conventional spray systems.

Many small to medium-sized companies target pesticide applications with backpack or other portable compressed air sprayers. Jessen still employs such sprayers in his operation. He says they are fine for small jobs requiring limited legwork, but that is the limiting factor.

"This system costs extra labor in order to accomplish the job," notes Jessen. "The guy has to make one trip across the lawn to find the problem and go back a second time to take care of the problem." Backpack sprayers may be inexpensive, but some of their economy is negated by the increased labor costs incurred by their use.

And the applicators have to physically handle concentrates when they refill the sprayers, which creates a potential exposure hazard. Refilling the sprayers on the job also wastes time and creates potential formulating errors on the part of the applicators who are mixing up the spray solutions.

Jessen is a firm believer in the power of progressive business practices like pesticide targeting to impress and sway the opinions of lawn care critics in the general public. "I think people are in tune to this type of concept," says Jessen. "I know there are people who are using this as a sales tool and highlighting that as one of the reasons to select their company over some of their competitors. It seems to be effective for them to differentiate themselves in a competitive market."

Lawn Doctor, Inc. of Matawan, New Jersey knows the value of differentiating themselves from their competitors with unique application equipment. At Lawn

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Doctor, an unusual piece of equipment called the "Turf Tamer" has evolved. Staff Agronomist Jack Armstrong describes the machine as a gas-powered, walk-behind that delivers granular and liquid material via a ground-metered system. He says the faster you go with the machine, the more material comes out.

TARGETING WITH COLORANTS

Discussions about targeting pesticides are generally limited to the spray rig technology necessary to accomplish the feat of targeting. However, it might be appropriate to consider the use of colorants added to the tank mix which would allow the applicator to know exactly where he has applied a pesticide. Colorants have been used for a number of years in the golf course industry to add a vivid green color to dormant or ailing playing surfaces or to allow golf course maintenance people to see where they have applied a chemical. This latter application could be applied to the lawn care industry to enhance a lawn care operator's efforts at targeting pesticides to specific trouble spots on a home lawn.

Like the spray rig technology that will allow applicators to target pesticides, there are also a number of colorant products available to the lawn care operator for use in the residential setting. The two following products are representative of the types of materials available:

Regal Chemical Company first marketed turf colorants for golf course applications eight to 10 years ago. The offspring of that effort is Dy'on® turf colorant. This product disappears in the rain, during watering, and with exposure to sunlight. It mixes well with spray-applied pesticides, herbicides, and fertilizers without altering their actions. The manufacturer warns that many colorants reduce the activity of pesticides.

Dy'on is highly concentrated and cost effective. It costs only \$1.55 per sprayed acre at the standard use rates. It is also ideal for spot treating because the applicator can see the dyed spots left by the spray. Whenever uniform, even sprays are essential, Dy'on is the answer. A uniform colored spray area is proof of a uniform application.

Finally, it is the ultimate safety factor for the applicator. If the operator accidentally spills the spray solution on himself, he must wash until the blue color is removed to be sure that the pesticide is also removed.

There are now several similar products on the market. They are made from various dyes and dyestuffs with differing concentrations so that there is a wide variance in values. Check the recommended dilution rates and see how much color is there. Using more or less of a colorant will furnish a lighter or deeper color.

Regal Chemical recommends using a light rate initially, then add more colorant to obtain a darker color if needed or desired. After spraying a pesticide, when using Dy'on, washing, flushing, or cleaning the tank to remove the pesticide to avoid contamination with the next chemical to be used is advisable. When all the blue color is removed, the rinseate is clear, then the tank is clean. Colorants like Dy'on can take the guesswork out of tank cleaning.

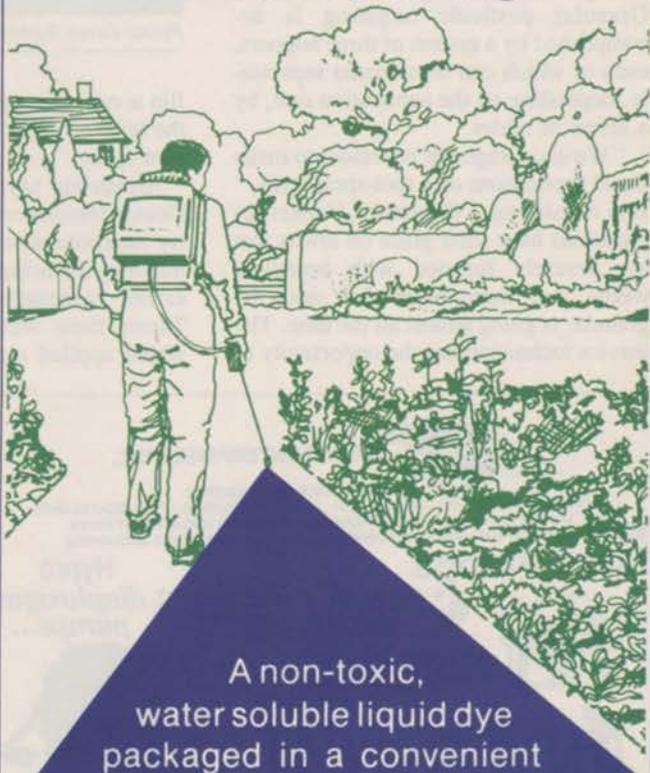
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Milliken Chemical also markets a turf colorant for enhanced effectiveness of pesticide targeting. Blazon® Spray Pattern Indicator is a non-staining polymeric col-

(continued on page 39)

DY'ON Jr. Colorant

SEE WHERE YOU ARE SPRAYING



A non-toxic, water soluble liquid dye packaged in a convenient 1 quart easy measure bottle perfect for small spraying jobs with hand-held or back-pack sprayers. Added to spray solution, DY'ON Jr. will temporarily turn vegetation a rich blue-green color so you can see where you are spraying.



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"Up to a certain limit, you can go at almost any speed that you want with the Turf Tamer," says Armstrong. Although liquids can be sprayed through a two-boom sprayer, Armstrong says the vast majority of applications made by Lawn Doctor technicians are granular.

Liquids are pumped through the booms by a piston pumping action. Two hoses wrap around an area inside the wheel. As the wheel moves, says Armstrong, the material is squeezed out by a series of rollers.

Granular material is metered by a feed belt that varies in speed depending on the speed of the wheels. When the feed belt rotates at a faster speed, it carries more material to the spinner plate and the spinner plate distributes the material. Granular pesticide targeting is accomplished by a system of three hoppers, each of which can be adjusted separately, depending on the application rate, by a series of slides.

"We encourage our operators to make liquid applications on a spot-spray basis," says Armstrong. "Obviously, blanket applications have their place on lawns that are severely infested with broadleaf weeds, but more often than not, the granular is going almost all the time. The service technician has the opportunity to



Perma-Green Supreme's low-volume spray rig.

flip a couple toggle switches to turn on the left and right booms if they want to spot spray."

Armstrong says only a couple Lawn Doctor franchisees throughout the country use conventional tank trucks, the vast majority are using the Turf Tamer or its earlier incarnations. Before the Turf Tamer there was the Speed Machine, which applied only granular materials.

That machine had to be used in conjunction with the Magnum II sprayer for applying liquid materials. In recent years the two were combined to form one machine, the Turf Tamer.

Lawn application equipment at Liqui-Land Corporation of Niles, Illinois has also undergone considerable in-house development over the years. Like Perma-Green Supreme, Liqui-Land markets and

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manufactures the same spray equipment its lawn care division uses to service lawns. Liqui-Land's Sandy Nelson says her company has been using and marketing pesticide targeting systems for the last two years.

"We are in the process of educating homeowners that we are a little different and what we are doing is a lot safer," says Nelson. For instance, she says if it is a little windy, her applicators can avoid switching on the injection system around ornamental plantings when applying herbicides. "We have found that we end up with healthier turf because we are not applying that herbicide when it is not needed," explains Nelson. She also notes that injecting pesticides can result in a tremendous savings.

By using their low-volume injection system, Nelson reports that her applicators apply pesticides to only about 20 percent of their customers' turf, on the average. The money her company saves in pesticide expenses can be pumped back into fertilizer purchases to give her customers a better agronomic program. She claims the unit will pay for itself in the money saved through reduced pesticide purchases. "We offer an injection system they can add to their existing equipment for somewhere around

\$3,500," says Nelson. "It doesn't take that long to absorb that \$3,500."

Potential buyers of Liqui-Land's spray rigs can choose from complete rigs or just the injection system which can be incorporated into an existing high- or low-volume rig. "We have a dual line system with an injection type of valve at the fingertip," explains Nelson. "It is a battery-operated electric pumping system. We have a 5/8-inch hose and threaded inside of that hose is a 1/4-inch hose. This all comes into the injection valve and when you trigger it, it calls for herbicides to be applied along with your fertilizer."

Lawn care customers can be convinced of the increased safety to people, pets, and the environment through the use of pesticide targeting, but Nelson is quick to note that homeowners must be educated on this point. "They have to be made aware that you are aware of the environment," says Nelson. "Because of the adverse publicity we have gotten through the media, people in general are far more aware of chemical safety. If they bother to read what you leave with them or listen to what you are telling them, they will appreciate it." — *Tim Weidner* ■

The author is Managing Editor of ALA magazine

TARGETING

(continued from page 37)

orant that can improve the effectiveness of low-volume applications by handgun, boom, or backpack sprayer. Any fine spray particles created by the application can be detected and can be accounted for. With this temporary and discreet effect, colorants can and are being used on residential lawns with confidence, according to Milliken.

Blazon is added directly to the spray mixture at rates ranging from 0.25 to 0.50 ounces per 1,000 square feet, because it is a very concentrated product. It can also be added directly to a pesticide concentrate side tank in an injector system since the product has been tested by universities and found to be compatible even in a concentrated form.

In this era of lawn pesticide regulations, the ability to demonstrate to your customer that you know exactly what you are doing can be an effective selling tool. Quality work retains customers and increases the safety to the applicator, your customer, and the environment. With the costs of some add-on services, the reduction in waste due to overlap and misses can be very beneficial in a competitive market.

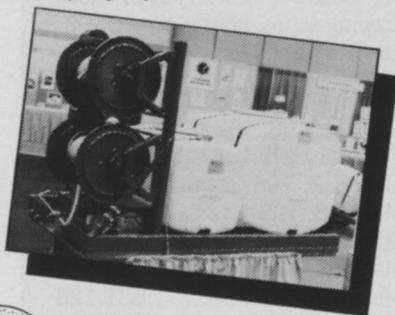
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LEVERAGED BUY-OUT: CHEMLAWN UNDER ATTACK!

Waste Management wants to buy ChemLawn at \$27 a share, but ChemLawn is frantically trying to find another buyer to up the bidding.

Peripheral information. That's really all that ChemLawn Services Corporation and Waste Management, Inc. were willing to divulge at press time about Waste Management's leveraged buy-out bid for control of ChemLawn on February 26.

The day before Waste Management placed its half-page advertisement in the *Wall Street Journal* offering ChemLawn stockholders \$27 a share for their stock, trading in ChemLawn stock closed at \$17.75 a share. At virtually the same moment that Waste Management made its offer, Wall Street gurus attempted to attract other bidders for the ChemLawn property by pushing the trading in ChemLawn stock to \$29.625 a share. Waste Management officials stated that they believed their offer was a fair one and under no circumstances would they raise their bid. The Waste Management offer is set to expire on March 25. The bid for ChemLawn is valued at about \$270 million.

In a terse press release sent out the following day, ChemLawn stated that it was "evaluating all options available to the company in light of the unsolicited tender offer" and that it "strongly advises shareholders to take no action at this time." J. Steven Bergerson, a lawyer for Waste Management, told the *Wall Street Journal* that the hostile tender offer was made after first attempting to negotiate a friendly buy-out. ChemLawn quickly rejected as "inadequate" the \$27 per share offer and adopted a 120-day Interim Safeguard Rights Plan. This plan is designed to deter attempts to acquire control of a company through any means other than an all-cash tender offer for all shares while the company is seeking other purchasers. ChemLawn announced that its financial advisor, Smith Barney, Harris Upham and Company, Inc., was in fact courting other suitors.

In a March 5 news release, ChemLawn President and CEO Jack Van Fossen said, "Our board carefully reviewed the Waste Management offer and concluded that it

does not fully reflect the value of the company." The release also outlined a law suit that ChemLawn has filed against

CHEMLAWN STOCK SOARS

Waste Management, Inc.'s interest in ChemLawn Services Corporation seems to have piqued the interest of Wall Street moguls. The day Waste Management placed its advertisement in the *Wall Street Journal* offering \$27 a share for ChemLawn stock, national over-the-counter trading in ChemLawn stock soared \$11.875 to \$29.625. By March 12, trading in ChemLawn stock had equalled the all-time high of \$31.5.

Will all this activity entice another potential ChemLawn buyer? As of press time, no such buyer had stepped forward, but many Wall Street insiders are no doubt hoping that someone will up the ante and top Waste Management's \$27 bid. For those of you who haven't been keeping score, here is how ChemLawn's stock has been faring:

Date	Closing Price
February 26, 1987.....	\$29.625
February 27, 1987.....	\$29.50
March 2, 1987.....	\$29.75
March 3, 1987.....	\$30.375
March 4, 1987.....	\$30.50
March 5, 1987.....	\$30.125
March 6, 1987.....	\$31.125
March 9, 1987.....	\$30.875
March 10, 1987.....	\$30.875
March 11, 1987.....	\$31.50
March 12, 1987.....	\$31.875
March 13, 1987.....	\$32.50
March 16, 1987.....	\$31.875
March 17, 1987.....	\$31.25
March 18, 1987.....	\$31.875

Waste Management. The law suit alleges that the offer violates Sections 14(d) and 14(e) of the Securities Exchange Act of 1934 in a number of respects. The release also alluded to possible insider trading infractions committed by Waste Management officials who purchased ChemLawn stock prior to making the offer.

Bergerson says the suits and counter-suits filed by ChemLawn and Waste Management are really just a lot of posturing. He says Waste Management now has the blessing of the Federal Trade Commission under the provisions of the Hart-Scott-Rodino Antitrust Improvements Act of 1976, which is an FTC anti-trust review. At press time, Bergerson says Waste Management was still awaiting the findings of Federal District Court Judge Graham who had set a hearing for March 19 and 20 to study ChemLawn's request for an injunction to prevent Waste Management from going forward with the offer. "We are very confident we will win and not be blocked," says Bergerson.

As expected, comments on the situation by ChemLawn officials have been brief and not too illuminating, but Waste Management officials have been more willing to speak to us. Herbert A. Getz, Waste Management's Assistant General Council, says that although ChemLawn's stock continues to trade up and Wall Street speculators are obviously hoping for a higher bid, he doubts that such a bid will materialize. "And we don't intend, based on what we know today, to make any move off our offer," says Getz. "It is in a holding pattern right now."

Getz says litigation on the part of either party will not likely solve the problem. "These sorts of things are not typically resolved on the litigation front," says Getz. "They are solved in the market and on the dollars, so there is no reason for us to negotiate against ourselves."

In light of recent acquisition activity by ServiceMaster in the lawn care industry, Getz says his company was waiting to see

if they would surface as a bidder, but statements ServiceMaster has made to the press would indicate that they are not a player. "I would think that some of the independent operators might welcome an aggressive entry by Waste Management," reasons Getz. "They understand that we have done lots of acquisitions in our business over time and I would think there would be lots of smaller operators who would be happy to look at somebody who would have cash money to pay for acquisitions."

He says the lawn care industry is very similar in structure to the refuse collection industry of 10 to 15 years ago. "There must be thousands of operators across the country," says Getz. "That is how the large national garbage companies were put together. This is an industry in which somebody should or could be able to do that. That would provide a lot of liquidity for a lot of families that are looking for a way to sell their businesses."

Aside from the impression that the lawn care industry is structured in much the same way the waste management industry used to be structured, Getz admits that his company knows little else about the lawn care business. "It is very heavily service oriented," notes Getz. "It is a lot of small businesses that you have to manage together, which is exactly how our company is run. What we bring to the table is the ability to manage that kind of a structure." He says the two industries are also similar in that they both work with service routes and trucks.

Getz is convinced that most of ChemLawn's stock has been traded. "As a result of the trading, my sense is that most of the individual stockholders are probably out by now. They made a tremendous amount of money on their stock. About 60 percent of the company's common stock has traded since our offer went out. The Duke family (ChemLawn's founders) holds 15 or 16 percent of it." He says control of the stock is now in the hands of Wall Street professional traders.

"If we don't see another offer laid on the table, I think the market price is going to start falling as people realize that we put a fair offer on the table," says Getz. "Either they have to come up with somebody who is willing to pay more or people will start getting more and more nervous and be more likely to sell and there will be downward pressure on the stock."

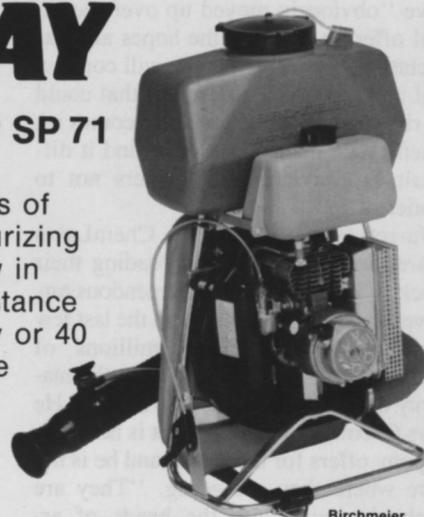
Most Wall Street analysts who have been tracking the situation with ChemLawn believe that Waste Management will not have to raise their bid. David L. Jarrett, Vice President of the In-

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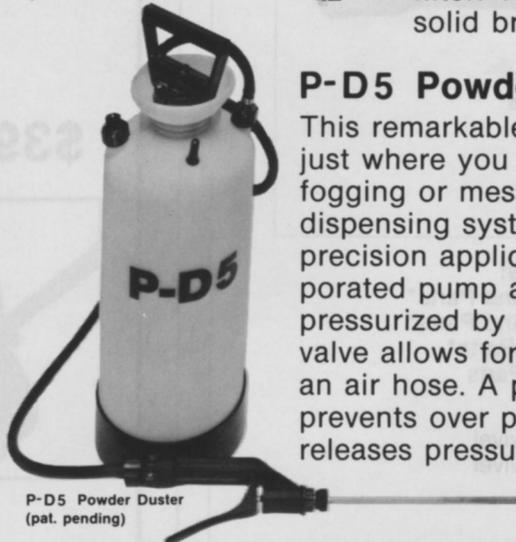
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vestment Research Department at Tucker, Anthony, and R.L. Day, Inc., New York, New York, puts a less than 50 percent probability on Waste Management raising its bid. Jarrett says the stock prices have "obviously moved up over the initial offering price on the hopes and expectations that other people will come in and make a higher offer. But that could be risky because if no one else comes in, ChemLawn managers would find it difficult to convince shareholders not to tender at \$27."

Jarrett says a lot of ChemLawn shareholders have been unloading their stock. "There has been a tremendous turnover in ChemLawn shares in the last few weeks — millions and millions of shares," says Jarrett. "Probably the majority of the former shares have sold." He says ChemLawn management is not making any offers for the shares and he is not sure where they are going. "They are probably going into the hands of arbitrageurs who are hoping for a higher price," concludes Jarrett.

Unless another bidder steps forward, Jarrett says ChemLawn will have difficulty in persuading shareholders to hold onto their stock. "I say that because many of the shareholders are disenchanted with the disappointing performance of Chem-

Lawn's earnings over the last two years," claims Jarrett. "They probably view this as an opportunity to get out." ChemLawn's earnings slid to \$1.19 a share in 1986, down from \$1.24 in 1985 and the peak of \$1.55 in 1984.

Some Wall Street analysts, like Stanley Lanzet of Drexel, Burnham, Lambert, Inc. of New York, New York think another bidder may be waiting in the wings. "ChemLawn has made some statements that they are talking to people, the stock is five points over what Waste has bid, so the impression is that somebody is going to come along and bid something better than \$32."

But Lanzet points out that ChemLawn is gone either way. "It is just a question of price," says Lanzet. "The way the stock is traded, most of the stock is in the hands of arbitrageurs who don't give a damn if this company stays independent or not, all they care about is making some money. If no bid materializes other than Waste's, this stock is gone at \$27. If they are fortunate and get another bid something beyond where they are trading at \$32.25, I think Waste will just say, 'Take it.'"

Lanzet says ChemLawn does not have much more time to find another bidder.

"People are very impatient. You are

not going to spend your life investigating whether or not you are going to buy ChemLawn. So they have to come up with something in a week or two. If nobody surfaces, they are going to look like a bunch of horses' asses and Waste is going to get them for \$27 and a lot of arbitrageurs are going to lose a lot of money."

The ball is in ChemLawn's court and Lanzet says ChemLawn's advisors at Smith Barney are scampering to find another bidder, yet at the same time they are not talking to anybody. Lanzet is not too impressed with the law suits ChemLawn has initiated in an attempt to fend off Waste Management's bid. "The Mickey Mouse scheme that they proposed to try to fend off a bid won't wash."

Wall Street analysts aren't the only ones speculating on the future of ChemLawn. The lawn care industry is not only buzzing with speculation on the fate of the "industry leader," but there is also concern about how this takeover could affect the industry in general. Russell Frith, President of Lawn Doctor, Inc., Matawan, New Jersey, doesn't know how the whole situation might affect the lawn care industry, but he is a little fearful of the unknown.

(continued on page 52)

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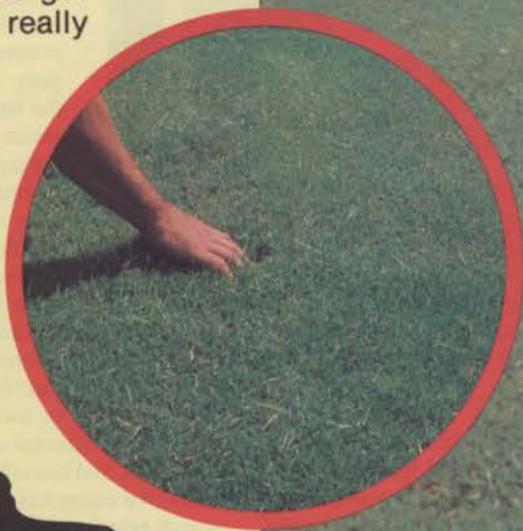
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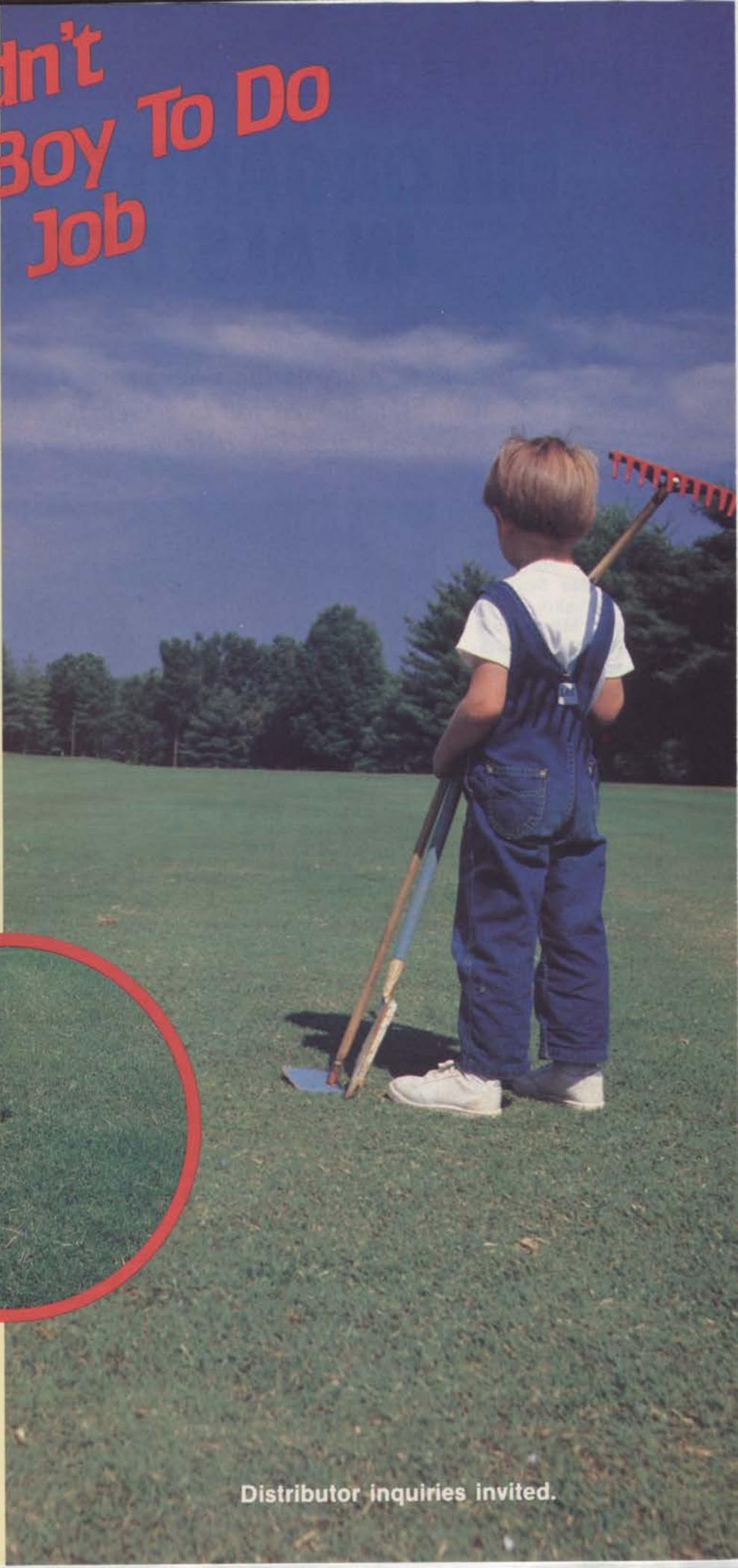
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MILORGANITE SUSPECT IN ALS DEATHS

Milwaukee Metropolitan Sewerage District's Milorganite was first blamed for Lou Gehrig's disease deaths, but now has been all but exonerated.

A recent storm of publicity accompanied fears that the Milwaukee Metropolitan Sewerage District's nitrogen-rich fertilizer Milorganite® might be linked to the fatal Lou Gehrig's disease. Concern grew when it was learned that three victims of the illness, ex-San Francisco 49ers, had played football together on a field where Milorganite may have been applied in a turf care program. Due to its heavy metal content, Milorganite was quickly subject to scrutiny as exposure to such materials have at times been considered suspect. Experts have since reviewed the issue, determined there's no evidence suggesting a connection, and given the product a clean bill of health.

On Jan. 22, *USA Today* quoted Bruce Bosley, President of the NFL's Alumni Association chapter in San Francisco, suggesting that a study be

undertaken to determine whether Milorganite could be linked to amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease. Of the three athletes who played on the 1964 team and contracted ALS, Gary Lewis and Matt Hazeltine have since died and Western Carolina University football coach Bob Waters is now battling the illness.

No evidence was given to confirm that Milorganite was ever used on the field, or that it was the only fertilizer used.



A worker places fertilizer bags on a loading machine at the Milorganite processing center of the Milwaukee Metropolitan Sewerage District. (AP LaserPhoto courtesy of Wide World Photos.)

However, Milwaukee newspapers quickly jumped on the story and the city's residents were deluged with two weeks worth of conflicting coverage in the *Milwaukee Sentinel* and *Milwaukee Journal*. The story really got rolling when it was later reported that two former Milwaukee Metropolitan Sewerage District workers also died of ALS.

After receiving phone calls from several patients who'd seen news stories and felt they'd been exposed to Milorganite

at some point in the past, national expert on Lou Gehrig's disease, Dr. Benjamin Brooks, Director of the ALS Clinical Research Center at the University of Wisconsin, Madison, applied to the Muscular Dystrophy Association (MDA) for a grant to study the Milorganite situation.

Often called Lou Gehrig's disease because of the famous baseball player who died of the illness in 1941, ALS destroys the motor nerve cells in the spinal cord, brain stem, and brain cortex resulting in progressive muscle weakness and eventual death. The tragedy is compounded by the fact that the mind remains clear and active throughout the ordeal. Normal incidence of ALS is two cases per 100,000 people.

Several possible causes have been linked to the disease, including exposure to heavy metals, electric shocks, pneumatic tools, strenuous athletic

activity, hormonal abnormality, animal carcasses, and household pets. Finding a definitive cause has long been a top research priority of the federal government and MDA (this year combined research will total over \$7 million), but scientists have found few clues.

Brooks has been widely quoted as saying that the incidence of ALS in Milwaukee is significantly higher than in the rest of the United States. The *Milwaukee*

(continued on page 46)

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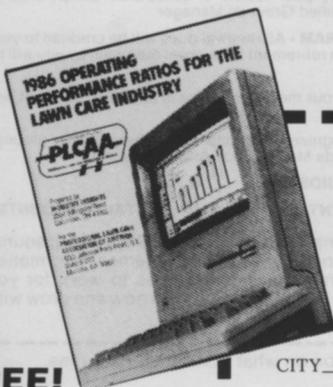
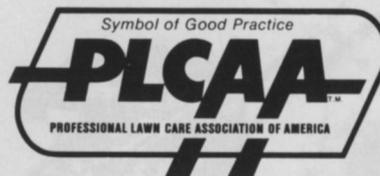
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ALA

MILORGANITE

(continued from page 44)

Journal reported that the ALS death rate nationally between 1979 and 1984 was an average of 1.23 deaths per 100,000 population. In the city of Milwaukee, the death rate between 1979 and 1986 was an average of 1.68 per 100,000 population. The rate was 1.95 per 100,000 for Milwaukee County and 1.90 for the state as a whole.

Milorganite, a composted sewage sludge, has been sold by the Milwaukee Metropolitan Sewerage District for more than 60 years. Sales in 1986 reached \$6

zinc.

Although the alleged Milorganite-ALS link hadn't been reported in medical journals, the controversy still managed to come to the attention of most health care specialists in the neurology field. Dr. Hiroshi Mitsumoto, Director of the Neuro-Muscular Department Program at the Cleveland Clinic said the controversy aroused his interest.

"The story about the 49ers is very fascinating," says Mitsumoto. "But it's probably anecdotal and any solid researchers working on ALS would be extremely cautious. There is no cause or pathogen

graphic regions such as the Great Lakes area. Areas with an unusually high incidence include the island of Guam, West New Guinea, and the Kii peninsula in Japan.

"Of the heavy metals, lead has been particularly suspect over the last 30 years," says Mitsumoto. "There is also some evidence that trace metals such as selenium and manganese are to blame. However, the general opinion is that Lou Gehrig's disease is not caused by one factor like heavy metal. It could be caused by many different noxious stimuli like the aging process, immunological disease, or virus infection."

Mitsumoto reasons that if Milorganite causes ALS, there should be a detectable difference in its incidence in rural areas and urban areas, which isn't the case. "Scaring people about the fertilizer is the wrong idea," says Mitsumoto. "I would certainly recommend that someone who is an expert on fertilizers continue the investigation, but without the excitement."

Dr. Neil Lewis, Director of Research Development, Muscular Dystrophy Association, New York City, agreed that any possible cause shouldn't be ruled out, but that researchers should proceed with caution.

"With the discussions and health infor-

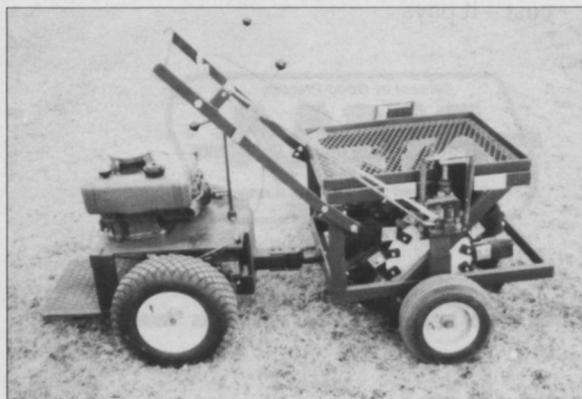
Of the heavy metal contents, cadmium, which causes the most concern, occurs in the fertilizer in very small quantities — an average rate of about 35 parts per billion. Other metals include chromium, copper, lead, mercury, nickel, and zinc.

million. Of the heavy metal contents, cadmium, which causes the most concern, occurs in the fertilizer in very small quantities — an average rate of about 35 parts per billion. Other metals include chromium, copper, lead, mercury, nickel, and

known for Lou Gehrig's disease, so when there's any clue or bit of information, people tend to get excited. I can't blame that."

In the past, small clusters of cases have shown up coincidentally in other geo-

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mation available to date, I'm unaware of any definitive link that shows Milorganite, or even the heavy metals that are part of the older formulation, is a direct cause of ALS," says Lewis.

However, there continues to be a great deal of interest in heavy metals and neurological disorders, he adds. "There's no proof at this time to suggest a strong link between ALS and any single product that's being applied to lawns per se, but it's always difficult with negative evidence to draw conclusions. We're continuing to review it and we have research going on in a number of different places."

ALS patients are routinely given background questionnaires to help determine what types of things they remember being exposed to. It is also possible to measure levels of heavy metals in the blood. From such studies, there seems to be nothing that points to heat-dried sewage sludge formulated into fertilizer which poses a risk of motor neuron disease, says Lewis.

"There have been studies done in many sewerage districts looking for employee health hazards. We have grants to examine if there's any unusual link. But usually when someone claims to have some connection, you'll find studies where it doesn't hold up in other groups of patients. It's very hard to come up with anything conclusive. We have work being pursued in many different directions to find underlying causes."

"We've been in close contact with EPA-affiliated research groups and have put them in touch with our ALS neurological investigators," he says. "We're continuing to make every effort to come up with answers that will keep everyone comfortable in knowing they shouldn't have to worry about a particular product. I think nothing should be taken for granted, but vigilance is always important."

"One of the biggest issues, of course, is whether or not Milorganite was even used on the playing field through the years that Bob Waters was there." Lewis says the concentration of heavy metals that was present might have been deposited on the 49ers football field prior to the Milorganite treatments.

Concern prompted a meeting of several health officials at the University of Wisconsin Hospital and Clinics, Lewis says. There federal and state epidemiologists declared that there is no scientific link between Milorganite and ALS. Panel members included Dr. Alfred Rimm, Chief of Biostatistics, Medical College of Wisconsin; Dr. Henry Anderson, Chronic Disease Epidemiologist, State Division of Health, Wisconsin; and Dr. Patricia Murphy, Epidemiologist, United States Environmental Protection Agency, Cin-

(continued on page 50)

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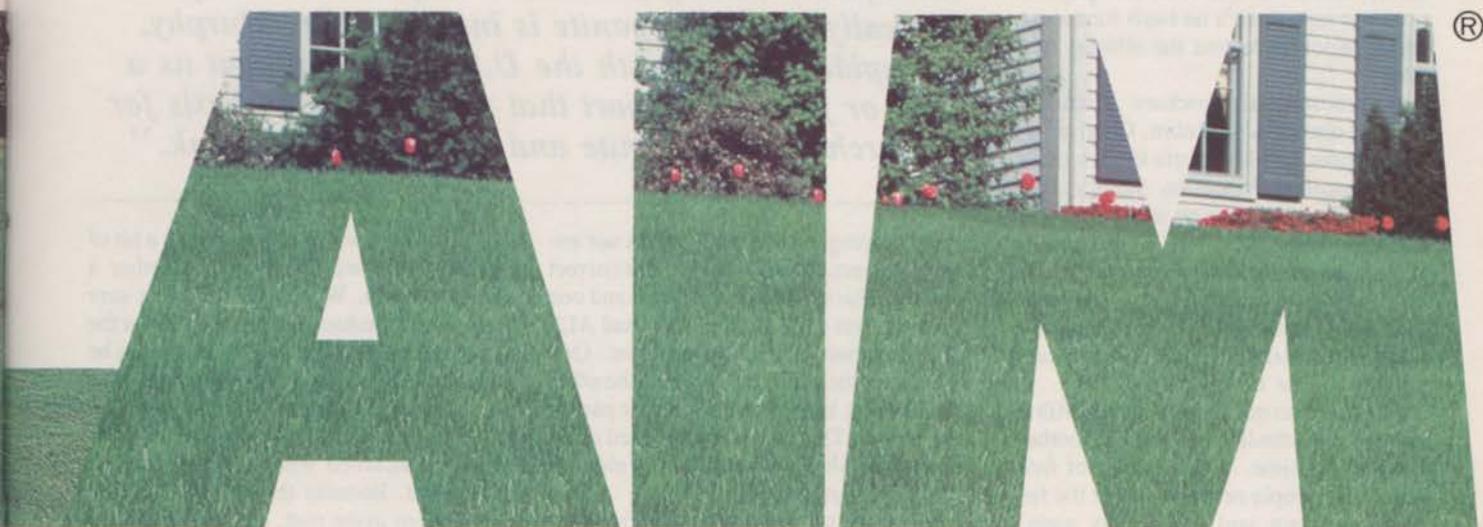
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MILORGANITE

(continued from page 47)

cinnati.

Frank Munsey, Director of Marketing, Milwaukee Metropolitan Sewerage District, says these officials have found Milorganite above suspicion. "The panel basically said Milorganite is innocent. Dr. Murphy, the epidemiologist with the U.S. EPA, has sent us a four or five page report that says there's no basis for researching Milorganite and the alleged ALS link."

A promotional brochure from the MMSD quotes Alan Rubin, Chief of the Wastewater Solids Criteria Branch of the Environmental Protection Agency, "As of now there has been no way to draw an inference that cadmium, chromium or other substances in Milorganite were linked to ALS. In the studies we have, we have never seen any trends or statistics indicating a deterioration of people's health because of the use of sludges."

Munsey also questions whether Milorganite was actually used on the football field at that time. "As a matter of fact, one of the people responsible for the fertilizer program said it definitely wasn't used after something like 1951, and it was 1964 that they were on the team. They

had applied other sewage sludges that were not dried like ours. There are many other things that went on the field."

The fact that two long-term MMSD employees have died from ALS got the

son who worked at the plant had ALS, there's any reason to link the case to Milorganite.

For the most part, business went on as usual during the controversy, Munsey

Frank Munsey, Director of Marketing, Milwaukee Metropolitan Sewerage District, says these officials have found Milorganite above suspicion. "The panel basically said Milorganite is innocent. Dr. Murphy, the epidemiologist with the U.S. EPA, has sent us a four or five page report that says there's no basis for researching Milorganite and the alleged ALS link."

story moving in a big way, but is not entirely correct, says Munsey. "It's correct that two district workers had ALS and one of them died of ALS. The other had ALS but then died of another problem. One worked at the Milorganite plant, the other one did not; he worked in another part of the district. The person who worked at the plant died when he was 78 years old, but that wasn't reported."

When the scientists looked at the data, says Munsey, they decided there's was no reason to conclude that because one per-

says. "There was obviously quite a bit of concern and we quickly put together a medical team. We wanted to make sure that if our product was going to be on the market that we'd be as sure as we can be about its safety. Otherwise we would have pulled our product off the market."

Munsey says MMSD workers were initially concerned when the reports first came out. Because the MMSD has had allegations in the past, it has set up an extensive annual physical for employees, which includes a blood test for heavy

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metals. "In the four years of doing that, all results have been normal, which is reassuring to all the employees. There's so little heavy metals in Milorganite that our own employees who work with it everyday have no unusual metal uptake indicated by the blood test."

The materials in question are naturally found in the environment, says Munsey. "Heavy metals are in every food you eat and they're in the air you breath. They're just part of the environment, if you look in low enough dosages."

Has the incident had a negative impact on other sewerage districts supplying sludge products? Greg Anderson of the Sewerage and Drainage Division, Department of Public Utilities and Aviation, City of Columbus, Ohio, seems to think so. Com-Til Multi-Purpose Soil Conditioner has become a casualty because of all the adverse publicity. The *Columbus Dispatch*, picked up on the story from a "local angle" in its Feb. 23 edition.

"They tied the Com-Til name right in," says Anderson. "And from my understanding, there was absolutely no scientific data to back up that story. Nor was it justified to tie us in with Milorganite, especially when dealing with the product in the 1960s. I know for a fact, that in the 1960s, Milorganite had cadmium at the levels of five to six times what Com-Til has today."

"We're completely different materials, used in completely different ways, in completely different areas," says Anderson. "Milorganite is a heat-activated sludge — it's all sludge. Com-Til is a mixture of composted sewage sludge, and wood chips. We're a soil conditioner and they're a fertilizer."

The wood chips in Com-Til provide structural stability to the sludge as well as pathways for the air to travel through. This promotes the composting process, says Anderson.

He says the negative publicity won't be easy to counteract. "We have to go back and take the lumps. I'm not going to pay advertising money to get the word out and rebut the article. I do have to verbally rebut this to my retailers though. Last year I took on 32 retailers. I'm not sure how many I'm going to have this year, all because of the big questions brought up in our local newspaper. At this point, I only know of one retailer who's going to stick it out with me. How am I supposed to deal with this?"

Com-Til has been on the market since 1981, but was made available in bag form during the past year in an effort to target a larger market, which includes golf courses, landscapers, nurserymen, and homeowners.

Though aware of the Milorganite-ALS controversy, Ken Sarkis, Acting Utilization Manager of a wastewater treatment

plant in the City of Philadelphia, says Philorganic hasn't suffered the same consequences. "We haven't gotten any bad feedback here as far as that's concerned," says Sarkis.

Philorganic is a fertilizer/soil conditioner digested anaerobically at a facility in Southwest Philadelphia. The product comes in several forms including both a screened and unscreened compost; a mine mix for reclamation sites; and a sludge cake used on farms.

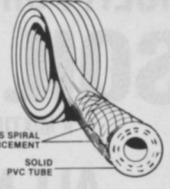
The Milwaukee Metropolitan Sewerage District has been producing Milorganite at the Jones Island Wastewater Treatment

Plant for over 60 years. Golf courses and garden centers are the major users of the fertilizer. Hopefully, it won't be long before scientists unlock some of the mysteries about Lou Gehrig's disease. And hopefully, Milorganite, which Executive Director of MMSD, Patrick Marchese, has described as being the "victim of an unfortunate scare" will retain its good reputation, and the public's existing fear of lawn care chemicals will not be intensified. — Julie November ■

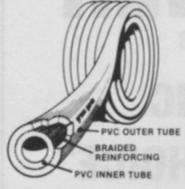
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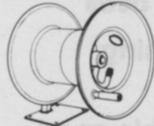
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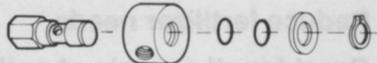
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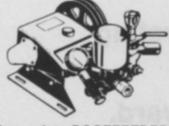
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LEVERAGED BUY-OUT

(continued from page 42)

To Frith, assessing the situation is like comparing company managers at ChemLawn who he doesn't know very well, to company managers at Waste Management who he doesn't know at all. "If you discount the recent six or seven quarters of ChemLawn's performance, and you look at company management over a long period of time, I believe the company has been well managed," says Frith. "In terms of capital resources and funding their operations, ChemLawn

seems to be able to develop all the resources necessary to do what they reasonably want to do.

Waste Management may have more money to work with, but Frith doubts that matters much. "If you need a million dollars to do something, and you have a billion dollars, that doesn't put you in a better position to do it than someone who has a million and that's all it takes."

Lawn care businessmen who may be contemplating the sale of their companies might welcome Waste Management's entry into the industry, but Frith doesn't think there are that many operators who

are ready to sell out. "To the extent that the majority is looking to stay in the business, a predatory company could pose a lot of threats," says Frith. Many small operators may sell out to Waste Management simply because they think the company will eventually eat them up anyway, according to Frith.

Ed Wandtke, Senior Consultant at All-Green Management Associates in Columbus, Ohio thinks small operators have nothing to worry about. "The only time that opportunity is going to surface is if you happen to be the largest company in the markets where ChemLawn has not been operating," says Wandtke. "If they are going to go into a small market, they are going to want to be the biggest guy in the small market."

Acquiring other companies is the only way a small company can make itself a more attractive buy-out target for a company like Waste Management. "If you are too small, you become so difficult to absorb that the effort is not worth it to a company like Waste Management," says Wandtke.

If Waste Management does gain control of ChemLawn, Wandtke says lawn care operators will be competing against a competitor with marketing tactics the likes of which they have never seen before. "That may mean some people are going to experience changes in their marketplace because of a change in tone and direction of advertising," says Wandtke. "If they are not close enough to the market to know what is needed in the marketplace, they may get some shocks."

Lawn care operators competing against Waste Management may have to come up with a whole new marketing strategy for 1988, according to Wandtke.

Lawn care operators may want to know what they could be up against. Put simply, Waste Management has been in the business of collecting, transporting, and disposing of a wide variety of waste materials. "Our company might be your friendly neighborhood garbage man," says Joe Pokorny, Waste Management's Staff Vice President for Corporate and Public Affairs. Pokorny says some cities, like New Orleans and San Jose, California, contract with companies like Waste Management to handle municipal collection services.

He says his company is also involved with the proper disposal of chemical wastes, hazardous wastes, and low-level nuclear wastes.

Waste Management's sales were just over \$2 billion in 1986. The company employs 24,000 people. ChemLawn's gross sales for 1986 were \$353 million. — *Tim Weidner*

The author is Managing Editor of ALA magazine.

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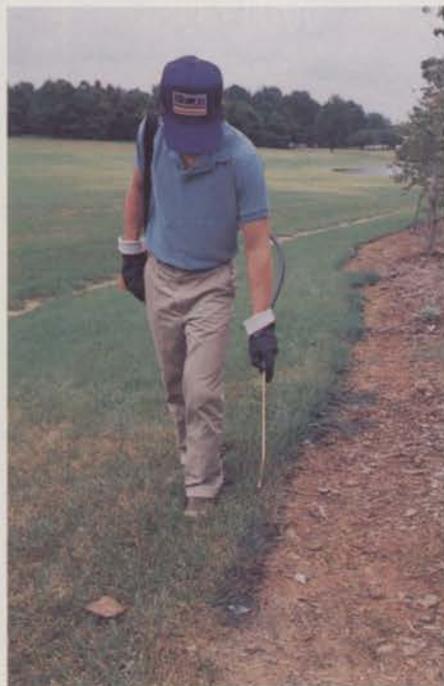
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PRODUCTS

The WS-490 Greens Wheelie, manufactured by **Wheel Spray Corporation** is a liquid chemical spreader with a unique ground-driven pumping system. This new model features larger, easy-to-push pneumatic-type rubber tires and a thick-wall 10 gallon tank with a wide mouth lid for easy filling and cleaning. It is used to apply liquid fertilizers, herbicides, fungicides, insecticides, and growth regulators. The twin wheel pumps spray a fan of solution 6-feet-wide, with an overlap at the center, at the rate of 1,000 square feet per gallon.

The unit delivers chemical applications which are relatively unchanged by the speed at which the sprayer is pushed. The faster it is pushed, the faster it pumps. When the operator stops, the sprayer stops pumping. The operator controls the shut-off valves from the handle grips whenever spray nozzles are used independently.

Circle 116 on reader card

The new Model T-7 II portable multi-purpose broadcast spreader with a hop-



per capacity of up to 20 pounds is now available from **Warren's Turf Seed and Special Products Division**. The new spreader has a 33 percent larger hopper than the popular Warren's Model T-7 it is designed to replace. It spreads seed, pesticides, and fertilizer in paths up to 20 feet wide. It goes anywhere a person can walk because it weighs less than 6 pounds (empty) and is carefully balanced so that even when fully loaded it hangs comfor-

tably from adjustable nylon web straps around the operator's neck and rests easily on the chest.

Features of the new Model T-7 II include a precision flow-rate control mechanism that is always in full view of the operator and can be adjusted during operation for more accurate and even material distribution. All interior exposed parts in the virtually unbreakable unit are made of stainless steel to fight corrosion, and the base and canister are made of tough, high-impact polyethylene. Gear case and drive shaft are fully enclosed and protected to assure trouble-free operation.

Circle 117 on reader card

Gravely International, Inc. has come out with a new 36-inch mower deck and grass catcher that attaches to all Gravely 5000 series two-wheel tractors. The new deck features cutting heights from 1 to 4 inches in 1/4-inch increments. It is constructed of 7 gauge steel that is single-piece welded.

It has two spindles with 1-inch diameter shafts and 1-inch tapered roller bearings. The spindle housings are cast-iron and greasable from the top side of the deck. The deck is all-gear drive with U-joint and shaft drive from the tractor engine to the right angle bevel gear box on the mower. The right angle bevel gear box has tapered roller bearings.

Circle 118 on reader card

The Soilmover® "Little Scratch" from the **Automatic Equipment Manufacturing Company** is a wheeled carry-all scraper that performs small land-tailoring jobs easier and more efficiently than rear blades or front-end loaders, says its manufacturer.

Little Scratch requires a 3-point lift or similar lift system for the drawbar, but dumps by mechanical "trip" lift. The spread can also be controlled with the drawbar lift.

Constructed with a rugged frame, Little Scratch is welded as a single unit for extra strength. Cold-formed rolled steel is used in key stress areas for superior strength with minimum gross weight. The bucket and gate are reinforced at critical points for durability and extra wear. Little Scratch's blade is high carbon grader blade steel, double-beveled, and reversible. Hubs and axles are high strength cold-formed steel with tapered, sealed-for-life bearings for "free-wheeling" action.

Circle 126 on reader card

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With the introduction of the new TR500 Truck Loader, **Billy Goat Industries** now offers a fully integrated lawn maintenance system. The complete system includes the popular Billy Goat Blowers and Vacuums for consolidating leaves into a central pile, and the new TR500 Truck Loader for quick and easy pick-up and removal.

The TR500 is easily attached to the



back of a truck. Its powerful vacuum sucks leaves through a 7- or 8-inch diameter intake hose into an impeller with 1/4-inch steel blades. The debris is pulverized into finer pieces before being discharged into the back of the truck, greatly reducing the bulk of the load and maximizing hauling capacity.

Powered by a 5-horsepower Briggs and Stratton engine, the TR500 Truck Loader also picks up and pulverizes piles of grass clippings, thatch, and light litter.

Circle 119 on reader card

The new Pipe-Piper Boring Unit has been added to **Turfco Manufacturing, Inc.**'s Pipe-Piper line of vibratory plows. The boring unit makes fast work of horizontal drilling under sidewalks and driveways. Besides using a 2-inch hardened steel drill bit, water from a garden hose is forced through the 3/4-inch standard iron pipe boring shaft leading the way for the drill bit. The tunnel is accurate to approximately 25 feet. When the drilling is completed, the tubing or wire can be attached to the boring shaft and pulled back through the tunnel when withdrawing the boring shaft.

An average boring job will take 30 to 45 minutes. Most of that time is for preparing the site. The actual time spent boring will usually be under 5 minutes. Because this machine is not an attachment to other equipment, it can be used at the same time as other machines and can even be used on separate job sites.

The unit is designed to withstand commercial or rental use. The frame is 3/16-inch steel plate, the handle is 3/4-inch iron pipe, and the water coupl-

ing has been designed into the frame to protect it from damage. For your convenience, we have selected standard 3/4-inch iron pipe to be used as the boring bars. This size pipe is readily available, inexpensive, and can be replaced quickly if they get lost or damaged.

Circle 120 on reader card

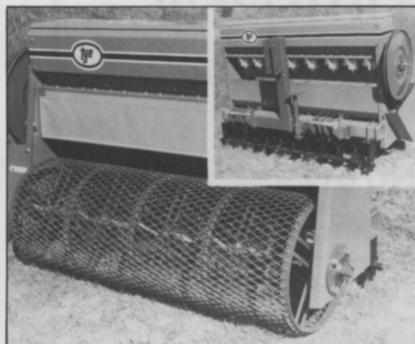
Glenmac, Inc. announces the arrival of the new Harley TR 35 Landscape Power Rake. Designed for small tractors, the TR 35 replaces the conventional 3-point hitch rake. It grades, levels, and winds rock, trash, and roots in one continuous operation. The rake also features dual five-foot-wide rollers that provide a finer pulverized seed bed. It is suited for pulverizing, dethatching, and overseeding, and does the job in less than half the time of conventional methods.

According to Glenmac, the Harley TR 35 is for use at residential sites, landscapes, athletic fields, golf courses, horse tracks, and park land development and maintenance.

Circle 123 on reader card

Hitched to a small lawn and garden tractor, the new Tye Landscape Seeder from the **Tye Company** is an economical seeding alternative for lawns, public parks, and athletic fields. The machine is also useful in the reseeding of small construction sites, specialty farms, and landscape projects.

The Landscape Seeder is equipped with a 3-point hitch for easy maneuverability and transport. Accurate seed metering of grass seed is assured by its internally fluted seeders. Seeders are closely spaced to provide uniform seed distribution



across the 48- or 64-inch seeding width. Seed is rolled into the seedbed surface by a 16-inch expanded-metal packer roll. The packer roll also drives the seeders.

Tye Landscape Seeders can be equipped with an optional front-mounted "star roll" to scarify stale, poorly prepared seedbeds. The star roll can also penetrate surface crusts and residue thatch.

Circle 124 on reader card

Exmark Manufacturing Company, Inc. offers a powerful solution to lawn care problems with its versatile Turf Rake. Powered by a durable 5-horsepower Briggs & Stratton engine, the Exmark Turf Rake moves through thatch and root bound grass with 28 hardened-steel, self-cleaning cutting fingers. Its single action height adjustment allows changes to be made in seconds.

A spring-steel slicer assembly also permits the rake to become an aerator that can be used year-round. This attachment makes it ideal for dethatching, turf renovation, or preparing seed beds. Featuring a 20-1/2-inch by 22-1/2-inch raking deck, the sturdy rake is built for years of low-maintenance operation.

Circle 121 on reader card



Lawn Masters, Inc. has added a closed spoon core aerifier to its 1987 Westmac line. With this addition, owners can convert their current Westmac from plug aerators to core aerifiers. The change is possible by either purchasing the new core aerifier assembly with closed spoons or the kit for converting an open-spooned plug aerator to that with a different weight arrangement with closed spoons.

Because of Westmac's super durability, it also converts to a roto-tiller in less than 60 seconds. It can be equipped with all Westmac attachments consisting of the Power Wheel for steep driveways, the Trail Hitch for fast trailering to job sites without jackknifing, and the added weight package.

Circle 125 on reader card

According to **Terracare Products Company**, its Terra 140 aerator will provide applicators with years of maintenance-free operation. All Terra models work full time during aerating seasons. The Terra 140 comes in three models, including a pull-type with hydraulics, a 3-point hitch, and a pull-type that uses hydraulics from the vehicle pulling the aerator.

Circle 122 on reader card

LESCO, Inc. now has available its own brand of Sevin SL Insecticide. By packaging its own product, LESCO Sevin brand SL Insecticide. By packaging its own product, LESCO has introduced an effective, more competitively-priced insecticide into a broad turf and ornamental market.

LESCO Sevin brand SL is labeled for control of almost 100 insects on trees, ornamentals, woody plants, and shrubs. On turfgrass areas, this product is labeled at new low rates for use on ants, cutworms, chinch bugs, armyworms, sod webworms, and other common surface insects. In addition, recent university research has shown very good results for control of grubs at the rate of eight quarts per acre.

With an average 82 percent control of grubs — comparable with other chemical grub controls — LESCO Sevin brand SL, even when applied at highest recommended rates, costs less than \$1 per 1,000 square feet. The product is available in 1-, 5-, and 55-gallon containers.

Also from LESCO, Three-Way Bentgrass Selective Herbicide has recently received registration from the Environmental Protection Agency for use on bentgrass as well as most other turfgrass species. This product effectively controls

black medic, buckhorn, chickweed, clover, spurge, purslane, and other common turfgrass weeds. Labeled at rates of 3 to 4 pints per acre, it contains the active ingredients dicamba, MCPP, and 2,4-D.

Circle 127 on reader card

Rear-mounted grass catching systems manufactured by **Excel Industries, Inc.**

offer efficient grass pick-up without sacrificing the out-front Hustler hydrostatic mower's ability to maneuver or do close trim work. Virtually all models of Hustler mowers can be equipped with BAC-VAC collectors to leave a perfectly clean job.

The BAC-VAC can be attached to Hustler models 275, 320, 340, and 400. In addition to catching clippings, the rear-



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mounted Hi-Lift BAC-VAC hydraulically raises 4.5 feet to easily deposit its 15-bushel load into a container or the bed of a pickup truck. The operator controls the operation from the seat and the automatic pop-up indicator signals the operator when the hopper is full. The unit gives no-clog performance with its large diameter flexible tubing and is equipped with an air sweep to keep driveways and sidewalks clear of clippings.

Circle 128 on reader card

Bunton Company has announced that the Honda GXV340 overhead valve commercial four-stroke engine is now available as an engine option on its 52-inch, 48-inch, 40-inch and 36-inch heavy-duty commercial lawn and turf mowers.

The 11-horsepower overhead-valve vertical shaft engine uses up to 30 percent less gas and oil and weighs as much as 25 percent less than comparable side



valve engines. Vibration and noise are minimized with this engine due to dual synchro-balancers and superior muffler design. The trochoid oil pump provides oil under pressure to the upper crankshaft bearing and rocker arms insuring long life to these components.

Other engine features include cast iron cylinder sleeves, ball bearing-supported crankshaft and chrome top piston rings for maximum engine life. Bunton also offers other 11-, 12.5-, and 16-horsepower engines as four-cycle options on its mowers. An 8-horsepower two-cycle engine is also available.

Circle 129 on reader card

Legible Signs, a leading manufacturer of safety and hazardous material markings throughout the United States, Canada, and Mexico, has worked with several lawn maintenance companies to design a lawn treatment notification sign. This sign may be ordered with your company's name, phone number, logo or any message you might want to convey. A small plastic rod can be inserted into a flute of the sign to quickly complete the assembly.

The price is based on a 5-inch by 7-1/2-inch pennant-shaped sign. Other

sizes, shapes, multi-color or printing on both sides can be quoted on request. Minimum order is 1,000 pieces.

Circle 130 on reader card

Exmark Manufacturing Company, Inc. helps relieve fatigue during long mowing jobs with the comfortable riding sulky. The Exmark riding sulky is designed for long-riding comfort with its shock-absorbing leaf-spring construction, and vinyl seat with high back and foam padding. Low-pressure pneumatic tires track



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directly behind the mower and the sulky can be attached or removed quickly with a convenient on-off hitch pin. The riding sulky is compatible with all larger Exmark commercial power mowers. And, like all Exmark lawn care equipment, the riding sulky is designed and built for years of low maintenance operation.

Circle 131 on reader card

A new fire ant bait that destroys colonies by stopping queens from laying eggs has been approved by the United States Environmental Protection Agency for use on non-agricultural areas. Called Affirm® (abamectin), the product will be marketed to retail, government, and professional outlets by **Rigo Company**. Packaged in an all-plastic container with child-resistant top, the bait should be sprinkled near fire ant mounds, or broadcast around the yard, where fire ant workers pick it up and carry it into the mound to feed the queen and other ants. Affirm stops the queen from laying eggs. With no eggs hatching, the colony gradually dies out as fire ant workers reach their normal lifespan and die.

The new bait may be used on lawns, around apartment complexes, playgrounds, public parks, roadside

rights-of-way, school campuses, golf courses, and other non-agricultural locations. The bait contains abamectin, a novel natural product from a soil microorganism, discovered by scientists at Merck Sharp and Dohme Research Laboratories.

Circle 132 on reader card



SUCCESS WITH ACCLAIM

(continued from page 34)

Another advantage of Acclaim is that it can be tank-mixed with pre-emergence herbicides. Testing has shown that Acclaim tank-mixed with bensulide (Betasan®, Lescosan®, PreSan®, and others), DCPA (Dac-thal®) and pendimethalin (LESCO Pre-M®) will postemergently control existing crabgrass and will pre-emergently control weed seedlings developing thereafter.

Other tests have shown that single applications of Acclaim will control crabgrass, goosegrass, and other annual grass weeds in August if there is adequate soil moisture. Acclaim, however, has reduced effectiveness on heat- and drought-hardened weeds, and effective control is dependent on the control factors. Other information regarding timing and rate selection for Acclaim is given in Table 1. — *Dr. Peter H. Dermoiden*

The author is Associate Professor in the Department of Agronomy at the University of Maryland, College Park, Maryland.

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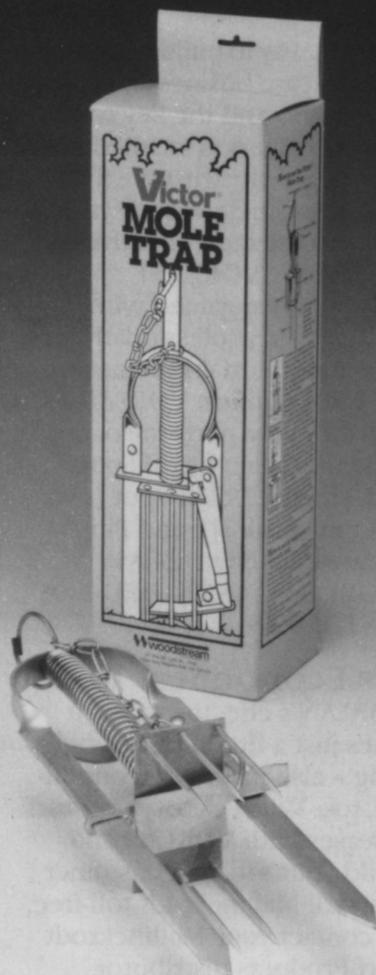


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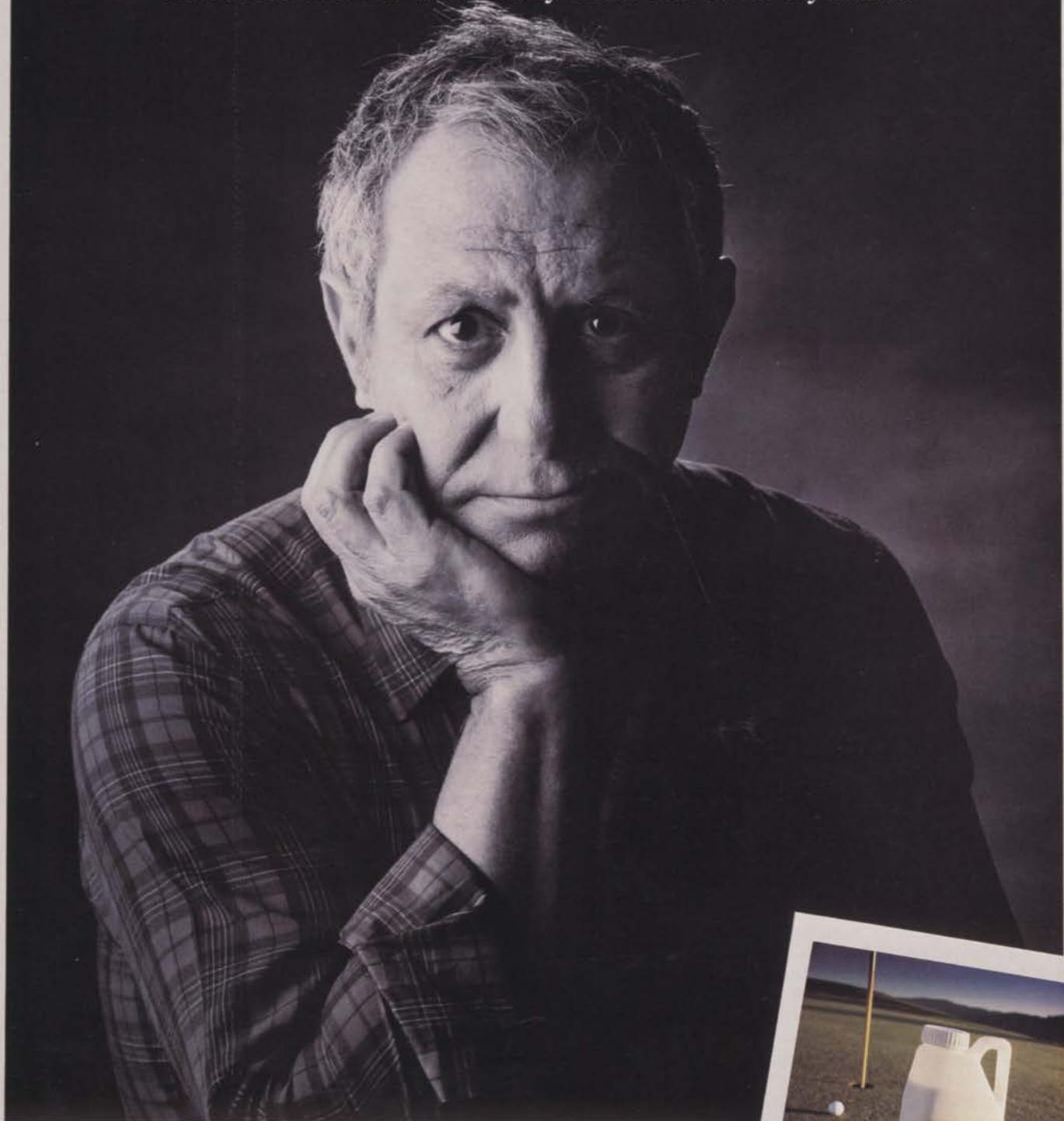
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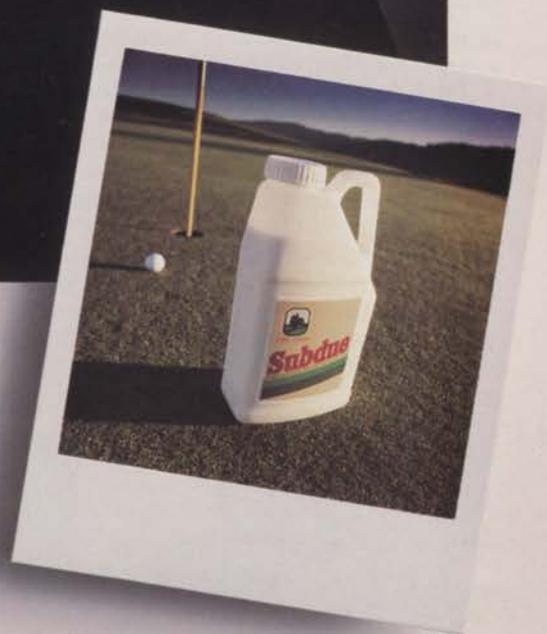
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