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DR. JAMES B. BEARD
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COLLEGE STATION TX 77843

GETTING GOVERNMENT CONTRACTS

ALSO IN THIS ISSUE:

**RECOVERING
FROM 1986**

**CRACKING THE
COMMERCIAL MARKET**

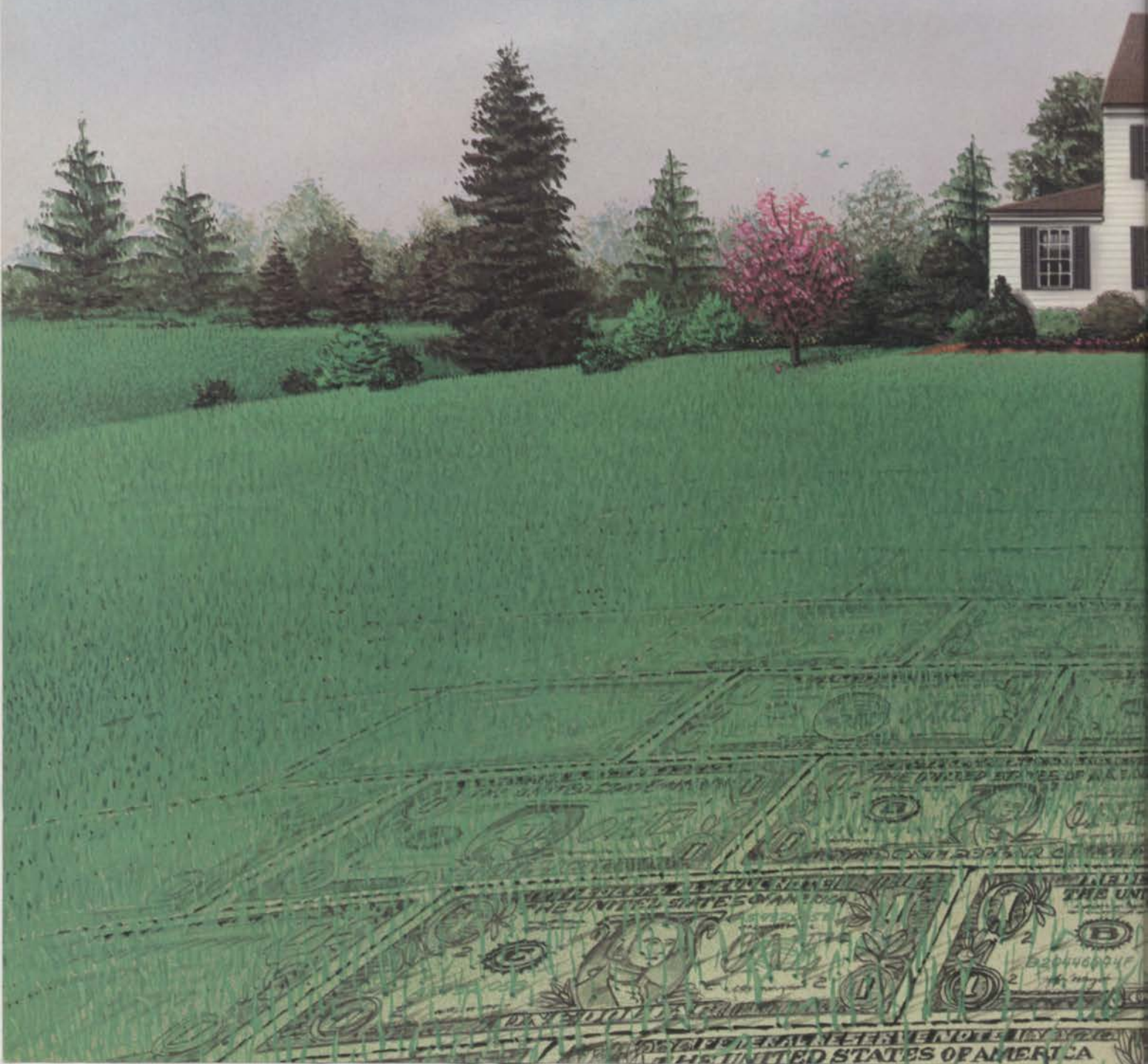
**WHAT'S THE STORY
WITH OFTANOL?**

**PGR'S: NOT JUST
FOR ROADSIDES
ANYMORE**

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COLLECTION



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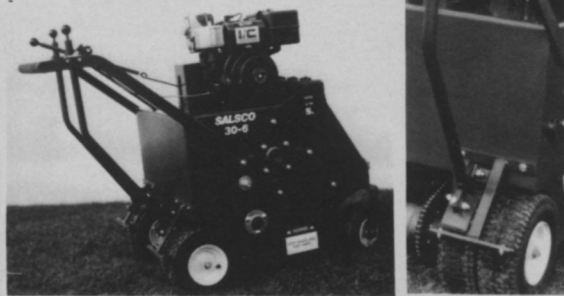


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ALA

MAY 1987
VOLUME 8 NUMBER 5

BPA MEMBERSHIP APPLIED FOR 10/85

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COVER

Contracting with government facilities, such as military installations, can be exasperating, yet profitable.
(Cover photo by Barney Taxel)

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innovating (to make your job more profitable and your customers happier), we've just introduced two *new*

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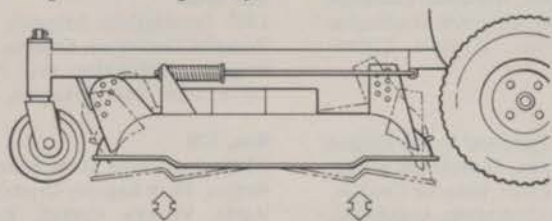
riding mowers and two *new* Commercial mid-size walk mowers. The

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horsepower, gasoline and diesel models. They, along with the two new Commercial 110 and 116 midsize walk-behinds, are designed and engineered to provide a quality cut in the most demanding conditions. They all utilize floating cutting units within carrier frames that let you follow the contour of the terrain with minimal scalping. And Toro's grass collection systems and Wind-Tunnel® design let you collect the clippings or discharge them



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AL057

VIEWS ACROSS THE TURF INDUSTRY

IS COMMERCIAL WORK A SIGNIFICANT PART OF YOUR BUSINESS?



“Yes, it is a significant part. We’ve always done commercial work in chemical lawn care and tree care. I can’t say exactly just how much business that commercial work brings us. I would guess it’s probably around 10 percent. There’s good potential in my area for a commercial market, but it happens to be more competitive than the residential market here. As a result, the profit margins for commercial jobs are more likely to be less than what the residential market would allow.” — *Chris Senske, Senske Weed and Pest Control, Inc., Kennewick, Washington*



“It’s not a real significant part of our business today, but we think it will be in the future. We’re a franchising company so we’ve got quite a few franchises in a lot of different areas. Some of our franchises do no commercial work and some do a little commercial work. We do a little bit now, but we think there’s room for quite a bit more in the future. It varies from franchise operator to franchise operator. Some like commercial work, so they naturally do more of it. The company is mostly residential right now.” — *Tom Hofer, Spring-Green Lawn Care Corp., Naperville, Illinois*



“Yes, we’re a little bit different than most lawn services. We’re at least 80 percent commercial, and 20 percent residential. We were about 100 percent commercial to begin with. We’ve gone into full maintenance this year to kind of protect ourselves from the so-called professional mower. We have always felt that it’s been a major problem in this industry that mowing has a great deal to do with the outcome of the complex, besides the insects and everything else. So we went into the full maintenance just to protect ourselves.” — *Norm Monska, Commercial Lawn Care, Hilliard, Ohio*

CALENDAR

May 20

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

Jun. 15

Southern California Turfgrass Council, Ruebens Restaurant, Buena Park, California. Contact: Ed McNeill, 2492 East Mountain Street, Pasadena, California 91104-3423; 818/798-1715.

Jun. 16-19

New England Cemetery Association, Sea Crest Resort, North Falmouth, Massachusetts. Contact: Frederick R. Laffond, 15 Riverton Street, Keene, New Hampshire 03431; 603/352-7655.

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.

Aug. 28-30

Farwest Trade Show sponsored by the Oregon Association of Nurserymen, Portland Colosseum, 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.

Oct. 25-28

1987 International Irrigation Exposition and Technical Conference, Orlando, Florida. Contact: Irrigation Association, 1911 North Fort Myer Drive, Suite 1009, Arlington, Virginia 22209.

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. 12-15

Professional Lawn Care Association of America's Conference and Show, San Antonio, Texas. Contact: PLCAA, 1225 Johnson Ferry Road, NE, B-220, Marietta, Georgia 30068; 404/977-5222.

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INSIDE STORY

Taking care of the military's lawn care needs may intimidate a lot of lawn care businessmen, but in preparing this month's cover story, Assistant Editor Vivian F. Rose found that there are indeed such opportunities out there. The enterprising lawn care or mowing/maintenance professional who doesn't mind wading through some red tape will find an abundance of contract work with various government facilities — from military installations to the county courthouse. There is a growing trend toward privatization of contract work like lawn maintenance by state and local government bodies, as well as military facilities. The work is there, you just have to be willing to put up with some headaches to get it.

Assistant Editor Rose also filed the related article on "Cracking the Commercial Market." While not as difficult to secure as government contracts, commercial contracts are quite unlike most residential accounts. A single large commercial account can bring in more



revenue than several residential accounts, but beware of putting too many of your eggs in one basket by becoming too dependent on a few key commercial accounts.

We also have an update on plant growth

regulator research. It would seem that although the state-of-the-art in turf PGRs has not improved dramatically in the last few years, attitudes about applications for existing PGRs have changed. Most notable is Dr. Bruce Branham's work at Michigan State University. Branham has found that by using PGRs at lower rates on a more frequent basis, the user can sidestep some of the negative side effects of PGRs and even dare to use them in the home lawn environment. Branham is doing more work with his PGR application concept this summer. Needless to say, we will keep you posted on the results!

And as always, we have an interesting selection of technical features — this time from Dr. Patricia Vittum at the University of Massachusetts and Dr. A. Douglas Brede at Jacklin Seed Company. Enjoy!

Tim Weidner

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LETTERS

NO CONNECTION

We have noted the use of a photograph of the Walker mower in connection with the news item entitled "CPSC Reports on Riding Mower Casualties." While no mention of the Walker mower (or any other brand name) was made in the article, we felt there was a *negative implication* that the Walker Rider was somehow involved in the CPSC report. The Walker mower will meet or exceed all current industry safety standards and has been designed with operator safety as a primary consideration.

*Bob Walker, President
Walker Manufacturing Company
Fort Collins, Colorado*

We would like to apologize for any negative implication that could be construed from our use of a photo of the Walker mower to accompany the news article about the Consumer Product Safety Commission's report in the February

issue. Since the news item concerned riding mower accidents in the residential setting, we chose the photo of the Walker mower simply because it was an attractive photo of a riding mower in a residential setting. Ed.

RE-RAKING LEAVES

This letter is in response to your question, or really your statement, concerning your experience with tree leaf mulch. In my experience, tree leaves in general and mulches derived from tree leaves have been toxic to the turf, and usually cause a severe thinning. If you compost all of your grass clippings for the entire season, and then collect the tree leaves at the end of the season for addition to the mulch, only a small portion of your mulch would actually be made up of the tree leaves.

I have no experience with combinations of grass clippings and tree leaf mulch. I have no idea what effect such a mulch would have on a lawn where only a small

percentage of its composition is tree leaves.

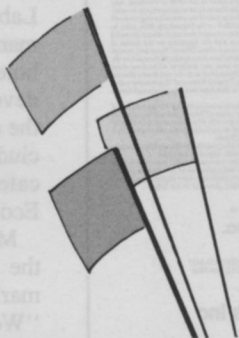
My real curiosity is what your lawn looks like if it is growing in a dense shade. I have never in my 25 years experience seen a decent lawn in a heavy shade condition like you describe! Perhaps you would be willing to send me pictures of the lawn. I am certainly not too old to learn, and perhaps your mulch is the answer to successfully growing grass in dense shade.

*J.M. Vargas, Jr.
Turfgrass Pathologist
Michigan State University
East Lansing, Michigan*

Dr. Vargas is responding to a letter addressed to him by Harold N. Timmer of Bunch Nurseries, Inc., Terre Haute, Indiana. Timmer's letter questioned Vargas' advice in our "Questions and Answers" column to rake up leaves in the fall to avoid phytotoxic consequences to the turf. Ed.

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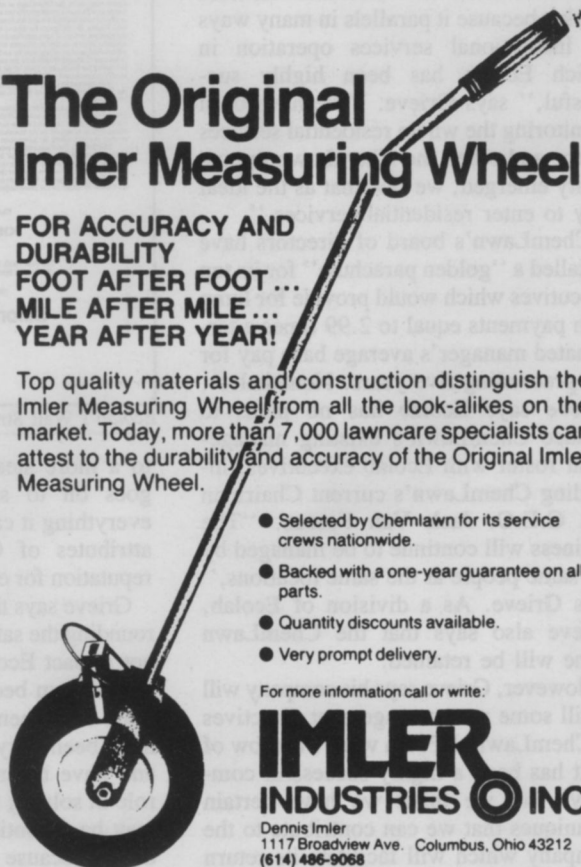
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NEWS IN BRIEF

SALE OF CHEMLAWN TO ECOLAB IS IMMINENT

As nearly everyone in the lawn care industry already knows by now, Waste Management Corporation has been outbid in their attempted buy-out of ChemLawn Services Corporation by Ecolab, Inc. of St. Paul, Minnesota. Waste Management raised its offer to \$33 and finally \$35 a share before Ecolab came in with its surprise offer of \$36.50 a share for the lawn care giant on March 20. The acquisition is expected to cost Ecolab about \$370 million.

Ecolab first approached ChemLawn with a friendly offer on February 27, the day after Waste Management announced its intention to buy the company, but ChemLawn's financial advisors, Smith Barney, Harris Upham and Company, were instructed to look for other suitors. Ecolab's Chairman, President, and C.E.O., Pierson M. Grieve, claims the ChemLawn acquisition is the fulfillment of Ecolab's long-standing desire to enter the residential services market.

"Ecolab developed, as a part of its strategic planning, a judgment that it wanted to enter the residential services market because it parallels in many ways its institutional services operation in which Ecolab has been highly successful," says Grieve. "We have been monitoring the whole residential services sector and when the ChemLawn opportunity emerged, we saw that as the ideal way to enter residential services."

ChemLawn's board of directors has installed a "golden parachute" for its top executives which would provide for lump sum payments equal to 2.99 times a terminated manager's average base pay for the preceding five years. Nonetheless, Grieve says Ecolab has no plans to replace ChemLawn's existing management roster with Ecolab executives, including ChemLawn's current Chairman and C.E.O. Jack Van Fossen. "The business will continue to be managed by the same people at the same locations," says Grieve. As a division of Ecolab, Grieve also says that the ChemLawn name will be retained.

However, Grieve says his company will instill some new management directives in ChemLawn. "From what we know of it, it has been a highly successful company. But we think we have certain techniques that we can contribute to the company which will facilitate its return

This announcement is neither an offer to purchase nor a solicitation of an offer to sell Shares. The Offer is made solely by the Offer to Purchase dated March 20, 1987 and the related Letter of Transmittal. The Offer is being made to you, not to holders of Shares, and is not to be made to you, nor will tenders be accepted from or on behalf of, holders of Shares residing in any jurisdiction in which the making of the Offer or the acceptance of tenders would not be in compliance with the securities or other laws of such jurisdiction. In those jurisdictions where securities laws require the Offer to be made by a licensed broker or dealer, the Offer shall be deemed to be made on behalf of the Purchaser by one or more registered brokers or dealers licensed under the laws of such jurisdiction.

Notice of Offer to Purchase for Cash

All Outstanding Common Shares
of

ChemLawn Corporation

at

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by

ECO Acquisition Inc. II

an indirect wholly owned subsidiary of

Ecolab Inc.

ECO Acquisition Inc. II, an Ohio corporation (the "Purchaser") and an indirect wholly owned subsidiary of Ecolab Inc., a Delaware corporation ("Ecolab"), is offering to purchase all outstanding common shares, including the "Shares" of ChemLawn Corporation, an Ohio corporation (the "Company"), for \$36.50 Net Per Share, net to the seller, upon the terms and subject to the conditions set forth in the Offer to Purchase dated March 20, 1987 and in the related Letter of Transmittal (collectively, the "Offer"). The Offer is being made to you, not to holders of Shares, and is not to be made to you, nor will tenders be accepted from or on behalf of, holders of Shares residing in any jurisdiction in which the making of the Offer or the acceptance of tenders would not be in compliance with the securities or other laws of such jurisdiction. In those jurisdictions where securities laws require the Offer to be made by a licensed broker or dealer, the Offer shall be deemed to be made on behalf of the Purchaser by one or more registered brokers or dealers licensed under the laws of such jurisdiction.

THE OFFER AND WITHDRAWAL RIGHTS WILL EXPIRE AT 12:00 MIDNIGHT, NEW YORK CITY TIME, ON MONDAY, APRIL 20, 1987, UNLESS EXTENDED.

The Offer is being made pursuant to an Agreement of Merger, dated as of March 20, 1987 (the "Merger Agreement"), among the Company, Ecolab and the Purchaser. Pursuant to the Merger Agreement, and subject to the terms and conditions thereof, the Purchaser will merge with and into the Company as soon as practicable following the expiration of the Offer or the exercise of withdrawal rights hereunder (whichever is later), such that outstanding Shares not owned by Ecolab, the Purchaser or any other direct or indirect subsidiary of Ecolab (other than those Shares held in the Company's name) will be converted into the right to receive in cash \$36.50 for each other per Share (plus any interest accrued thereon) and the Company will be dissolved and its assets and liabilities will be transferred to the Purchaser, subject to certain circumstances. Ecolab will be entitled to receive, as liquidated damages, a cash payment equal to \$20,000,000.

Pursuant to the Merger Agreement, the Company has granted Ecolab a conditional option (the "Conditional Option") to purchase, at a price of \$36.50 per Share, all of its common, unissued and unreserved Shares. The Conditional Option is exercisable prior to the termination of the Merger Agreement, upon certain conditions, at any time after ten business days after the date of the Offer, by the Purchaser or its affiliates. Ecolab has become the beneficial owner of 286,000 more of the outstanding Shares than pursuant to a tender offer for all Shares at a price per Share greater than the price per Share being offered in the Offer, as the same may be amended from time to time. If the Merger Agreement is terminated under certain circumstances, Ecolab will be entitled to receive, as liquidated damages, a cash payment equal to \$20,000,000.

Concurrently with entering into the Merger Agreement, Ecolab and the Purchaser and certain shareholders of the Company, including certain officers and directors of the Company, entered into substantially identical agreements that provide for, among other things, the grant to the Purchaser of options to purchase an aggregate of 2,500,000 Shares (representing approximately 20% of the outstanding Shares) for \$26.50 per Share, subject to increase as provided therein. Pursuant to each such agreement, the shareholder has agreed to tender and sell (and not to withdraw) all of his Shares, unless another person has announced a tender offer for all Shares at a price per Share greater than the price per Share being offered in the Offer, as the same may be amended from time to time.

For purposes of the Offer, the Purchaser will be deemed to have announced a tender offer for all Shares at a price per Share greater than the price per Share being offered in the Offer, as the same may be amended from time to time, if the Purchaser has given oral or written notice to Cushman, N.A. (the "Depositary"), as agent for the tendering shareholders of the Purchaser's acceptance for payment (and thereby purchased) tendered Shares when, as and if the Purchaser gives oral or written notice to Cushman, N.A. (the "Depositary"), as agent for the tendering shareholders of the Purchaser's acceptance for payment (and thereby purchased) tendered Shares and accepted for payment pursuant to the Offer will be made only after timely receipt by the Depositary of certificates for each Share and entry of a book-entry transfer of such Shares into the Depositary's account at a Book-Entry Transfer Facility (as defined in Section 2 of the Offer to Purchase) pursuant to the procedures set forth in Section 3 of the Offer to Purchase and timely receipt of a withdrawal card and a signed and dated Letter of Transmittal (or facsimile thereof) and any other documents required by the Letter of Transmittal.

The Purchaser expressly reserves the right, subject to the terms of the Merger Agreement, at any time or from time to time, to extend the period of time during which the Offer shall remain open by giving oral or written notice of such extension to the Depositary and by making a public announcement thereof. Tenders of Shares made pursuant to the Offer will be irrevocable, except that Shares tendered pursuant to the Offer will be withdrawn at any time prior to 12:00 midnight, New York City time, on Monday, April 20, 1987 (or a later date as may be determined by the Purchaser, in its sole discretion), after which time all Shares tendered pursuant to the Offer, if extended by the Purchaser, shall expire. If a withdrawal card is not received by the Purchaser, the Shares will be withdrawn at any time after May 22, 1987. For a complete description of the terms and conditions of the Offer, including a copy of the withdrawal card, which may be obtained by the Depositary at one of its addresses set forth on the back cover of the Offer to Purchase. Any withdrawal must specify the name of the person having tendered the Shares to be withdrawn, the number of Shares to be withdrawn and the name of the registered holder, if different from that of the person having tendered such Shares. If certificates for Shares have been delivered to the Depositary, the withdrawal must also specify the physical return of such certificates by the Depositary, the withdrawing shareholder also must submit the social security numbers on the certificates evidencing the Shares to be withdrawn. If Shares have been tendered pursuant to the Offer, the name and account number at a Book-Entry Transfer Facility to be utilized with withdrawal Shares, the information required to be disclosed by Rule 144-4(e)(1)(v) of the General Rules and Regulations under the Securities Exchange Act of 1934, as amended, contained in the Offer to Purchase and is incorporated herein by reference.

The Company has made available to Ecolab its shareholder list and security position listings for the purpose of distributing the Offer to holders of Shares. The Offer to Purchase and the Letter of Transmittal will be mailed to record holders of Shares and will be furnished to brokers, banks and similar persons who receive on the names of those persons appear on the shareholder list or, if applicable, who are parties in a clearing agency to the Company's securities listing for subsequent transmission to beneficial owners of Shares.

The Offer to Purchase and the related Letter of Transmittal, which are being mailed to shareholders, contain important information which should be read before any decision is made with respect to the Offer. Requests for copies of the Offer to Purchase, the Letter of Transmittal and other tender offer materials may be directed to the Information Agent or the Dealer Manager as set forth below and copies will be furnished promptly at the Purchaser's expense. No fees or commissions will be payable to brokers, dealers or other persons (other than the Dealer Manager or the Information Agent) for soliciting tenders of Shares pursuant to the Offer.

The Information Agent for the Offer is:

KIBBEL-SLAKEL INC.

80 Broad Street
New York, New York 10004
Toll-Free (800) 554-7733, except New York State (800) 443-3455
Banks and Brokerage Firms please call collect: (212) 344-9926

The Dealer Manager for the Offer is:

Salomon Brothers Inc.

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(Call Collect)

March 24, 1987

Ecolab's Wall Street Journal advertisement.

to a more steady growth pattern." He goes on to say that Ecolab will do everything it can to enhance some of the attributes of ChemLawn, such as its reputation for excellent customer service.

Grieve says the recent controversy surrounding the safety of lawn treatments did not impact Ecolab's decision to acquire ChemLawn because he says it is not an issue for ChemLawn. "We think they have been very responsive to that issue and have taken an excellent leadership role in solving it," says Grieve. "There may be a continuing problem in the industry because some of the smaller com-

panies are probably not as responsive to the ecological needs as ChemLawn."

He says the marketplace will solve the problem of environmentally unsafe lawn care applicators by "removing" them.

"The market belongs to those people who have the wisdom and the commitment to adapt their procedures to be ecologically responsible. ChemLawn has done that and will thereby enhance its position in the marketplace. We hope those who have not will be graceful enough to leave the industry."

ChemLawn is not the first service industry company acquired by Ecolab. In November 1984, Ecolab acquired Lystads, Inc., a Grand Forks, North Dakota-based firm which offers premium pest elimination services in a 17-state area of the Midwest. In May 1985, the company acquired ICE, Inc., an Atlanta-based pest elimination company which serves 10 states in the Southeast. It is clear that Ecolab is aggressively seeking service industry acquisitions, but Grieve says he is not prepared to discuss other long- or short-term lawn care acquisitions.

By lawn care industry standards, Ecolab is an ancient company. Founded in 1923 under the name Economics Laboratory, Inc., it was primarily a manufacturer of cleaning products for the hotel industry. That original charter has developed into a very strong position in the entire institutional market, which includes hotels, motels, restaurants, and cafeterias, according to Mike Monahan, Ecolab's Assistant Treasurer.

Monahan says Ecolab is the leader in the commercial dishwashing product market with a 45 percent market share. "We have revenues that are four times the size of our nearest competitor," says Monahan. Ecolab has diversified within that market by offering its customers laundry, janitorial, and general housekeeping products. Ecolab also markets pest elimination products for institutions. All of the products are sold direct from the company as well as through distributors.

But like the lawn care business, Monahan says their real claim to fame is the service they provide to their customers. He says their customers are told they will take care of all their cleaning and sanitizing needs. "We will guarantee results just as ChemLawn guarantees green weed-free lawns," says Monahan.

(continued on page 16)

The Professional Lawn Care Association of America...

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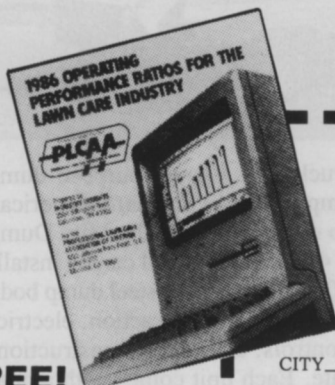
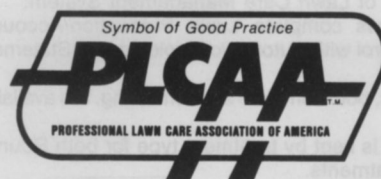
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ALA

NEWS

(continued from page 14)

Closely related to the institutional division, is Ecolab's Klenzade division which delivers cleaning and sanitizing products for the dairy plant, farm, and food processing markets. Ecolab's consumer division sells packaged goods for cleaning and sanitizing the home. Products marketed by this division include Electrasol® and Finish® dishwashing detergent, Lime-A-Way® and Scrub Free® bathroom cleaners and several other products.

In keeping with Ecolab's past ventures, Monahan feels the ChemLawn acquisition will be a very profitable investment. "We have done the financial modeling that is necessary in any acquisition and we see ChemLawn as offering us a very fine return," says Monahan. One reason Monahan projects success for the ChemLawn venture is the similarities between ChemLawn and Ecolab.

"Both of our companies are dedicated to premium service," explains Monahan. He says both companies also operate a large field sales operation. "We have a field sales force corporate-wide of about 2,500 people. We think that we can help ChemLawn in developing its lawn care business further, but also in expanding its



Pierson M. Grieve

residential services."

Monahan admits that there really is no tie-in with the services presently offered by Ecolab, but ChemLawn definitely

represents an industry that Ecolab wants to penetrate. "We have desired to have a route business," says Monahan. "While we don't have that now, we see ChemLawn bringing that to us. We do not have experience in the lawn care business and we look to ChemLawn for the expertise there. We are eager to work with the ChemLawn people because they have done such a tremendous job of building a business."

Unlike the Waste Management buy-out bid, ChemLawn itself has embraced the idea of ownership by Ecolab and is patiently awaiting the close of the deal. "People are tendering their stock to them," says Steve Hardymon, ChemLawn's Manager of Legislative Affairs. "At the end of that first phase, they will go into the second phase which is the purchase of some of the officers' stock or the remaining amount of outstanding stock at that point." Hardymon characterizes the general atmosphere around ChemLawn's corporate headquarters as good.

"Everybody is encouraged," says Hardymon. "They are optimistic. They can see where it can be a positive thing for both Ecolab and for ChemLawn. Everybody is very bullish on the future."

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ChemLawn's gross sales for 1986 totaled \$353 million. Ecolab's net sales for the same period were \$812.9 million. Ecolab operates seven manufacturing facilities in the United States, three in Puerto Rico, and 15 facilities located in some of the 25 other countries in which the company has subsidiaries or joint ventures. — *Tim Weidner*



policy that forbids trading on inside information. Getz said the purchases were proper under the law because "substantial steps" hadn't yet been taken toward a tender offer. "How does it look?" asked Getz. "That's a tough call. You have an appearance of impropriety."

WASTE MANAGEMENT EXECS COULD STILL PROFIT FROM SALE

According to a recent report in *The Wall Street Journal*, four executives of Waste Management Corporation stand to personally profit by about \$1 million on stock that they hold in ChemLawn Corporation. The executives, including Dean L. Buntrock, Waste Management's chairman and C.E.O., bought a total of 45,400 ChemLawn shares over the past two years. During that period, Waste Management intermittently considered ChemLawn a potential acquisition candidate.

The executives' personal purchases of ChemLawn stock continued until February 5, three weeks before Waste

Management launched its hostile tender offer and after Buntrock had asked investment bankers to make initial overtures to ChemLawn, according to Waste Management disclosures in connection with the offer.

A lawyer for Waste Management said that the executive who made the February 5 purchase of 2,000 shares, Vice Chairman Jerry E. Dempsey, wasn't aware that in the previous month Buntrock had instructed the firm of Morgan Lewis Githens and Ahn to approach ChemLawn about a possible business combination. The lawyer, Herbert A. Getz, also said that all of the other purchases were made earlier and at times when Waste Management had no plans to acquire ChemLawn.

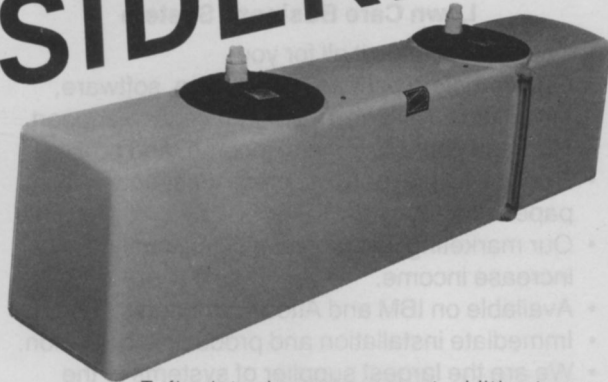
"We're not at all embarrassed by their ownership," said Getz, adding that all of the purchases complied with a company

CRAB SHELLS TO CONTROL NEMATODES?

Nematodes, like those sometimes associated with lawn problems, may be controlled by an extract of crab shells, according to a recent report in *The Wall Street Journal*. Nematode larvae contain a complex sugar called chitin, explains Robert Milch, the President of Igene Biotechnology, Inc. in Columbia, Maryland. If extraneous chitin is mixed with soil, it will trigger other soil microbes to produce an enzyme that will destroy nematodes.

Crab, oyster, and clam shells are rich in chitin and Igene has found an inexpensive way to extract it. After extracting residual meat from crab shell wastes to produce a flavoring compound, Igene dissolves away the calcium with an acid.

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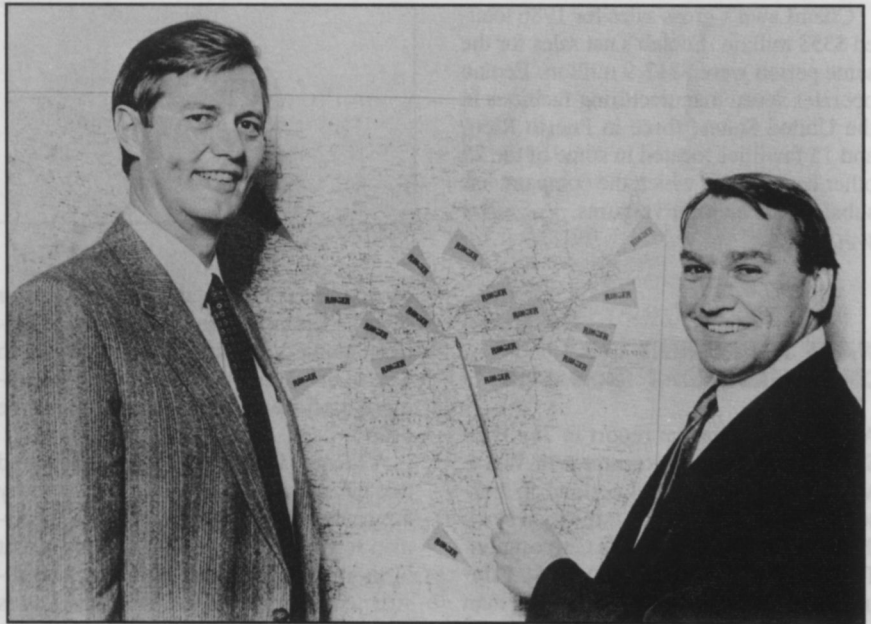
This leaves a chitin and protein mix that Igene has turned into a product it calls ClandoSan. The protein spurs the growth of fungi and other microbes thought to attack adult nematodes.

Igene plans to market ClandoSan later this year, after tests of its effectiveness are completed at Auburn University in Alabama and Hebrew University in Israel. Since chitin is a natural pesticide, formal federal approval may not be needed for the product, according to Milch.

RINGER SEEKS BROADER MARKET PENETRATION

Incentive profits for retailers and broader market penetration in 1987 are the immediate goals of the Ringer Corporation's new management team. Under the leadership of Udo E. Schulz, an aggressive team effort is under way to expand current distribution and boost sales of its Ringer's™ Lawn Restore®

Ringer's Lawn Restore, a non-toxic, bio-organic lawn nutrient product, was pre-tested and in limited distribution in six Midwest and Northeast markets for two years. During that time it has also been



Ringer President Udo Schulz (left) and Vice President-Distributor Sales Dave Riffey head an aggressive team effort to expand distribution and boost sales.

offered to the professional lawn care market. The national retail marketing push for Ringer's Lawn Restore began in March.

This marketing push will feature a

direct-mail campaign targeted to retailers, and heavy print and radio advertising in 21 key markets. The print campaign includes full-page, four-color ads in the regional editions of *Time*, *Newsweek*,

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U.S. News & World Report, Sports Illustrated, and other general interest magazines.

The well-known horticultural consultant, Dr. John Bryan, will promote the product in television, radio, and newspaper interviews in selected cities during the spring.

GYPSY MOTHS ABOUT TO INVADE CLEVELAND!

The steady westward movement of the destructive gypsy moth has taken it into the northeastern-most counties of Ohio and it now threatens to invade the Cleveland area, according to a report in the *Cleveland Plain Dealer*. "It will come to Cuyahoga County," said Richard E. Barth, Supervisor for the Ohio Department Agriculture's gypsy moth program. "I don't know when, but that's a prediction that I definitely will hold to."

During the past several years, winds and natural migration have brought them into Ohio where they have established a major foothold in Astabula and Lake Counties. Barth said that because moths can travel miles within a year, it might not be much longer before the moth makes its presence felt in Cuyahoga County.



In recent years, agriculture officials began setting traps to catch moths and monitor their advancement. Barth said that last year, the traps snared 365 gypsy moths in Cuyahoga County, compared to 85 in 1985. The 1986 figure pales in comparison to the 14,000 moths found last year in Ashtabula County, or the 4,000 found in Lake County.

Gypsy moths have caused the defoliation of millions of acres in the northeastern United States. In Pennsylvania, the state's Bureau of Forestry said the moth had damaged 6 million acres of land since 1981. More than 1 million acres are expected to be damaged this year. Aerial

(continued on page 22)

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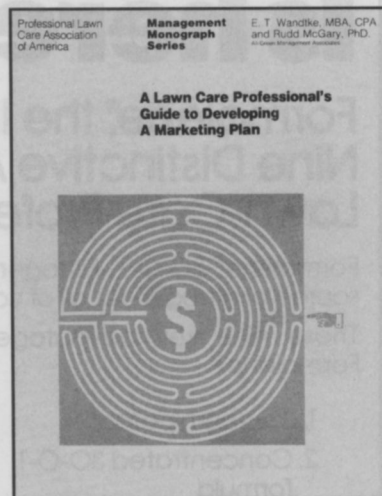
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PLCAA UPDATE

Two more Management Monographs from the Professional Lawn Care Association of America (PLCAA) have rolled off the presses. The new 24-page handbooks include *A Lawn Care Professional's Guide to Developing a Marketing Plan*, by Ed Wandtke and Rudd McGary of All-Green Management Associates and *Effective and Efficient Hiring and Firing Practices*, edited by Richard Lehr, PLCAA General Counsel.

The first monograph presents a suggested approach to developing the proper marketing plan for lawn care companies. According to the authors, the elements of a good marketing plan include consumer analysis as well as a mix of price, product/service, physical distribution and promotion. Each component of the marketing mix must be considered in relation to the others, as well as by themselves.

Wandtke and McGary advise that one person (most often the owner/operator) take charge of the marketing plan and



PLCAA's Management Monograph on developing a marketing plan.

prepare a document detailing what is to be expected for the upcoming year. All the sales figures should be run against projections, as well as the expenditures that are clearly in the marketing area.

"As the lawn care industry becomes more competitive, a key to continued success will be the ability of the individual companies to plan their marketing and understand how it fits into the overall business planning for the company."

The second manual covers such matters as recruiting, hiring, and the termination process as they relate to new employees of lawn care companies.

"An employee who is terminated was either a hiring mistake or the result of ineffective teaching by the employer. Whether a terminated employee seeks another job or a lawyer often depends on how the employer handles the termination process," says monograph author Richard Lehr.

Monographs are provided free to all PLCAA members and available for non-members for \$40.00, plus \$6 shipping and handling. Extra copies for members are priced at \$20.00. To order, write the PLCAA at 1225 Johnson Ferry Road, Suite B-220, Marietta, Georgia 30068 or phone, (404)977-5222.

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PEOPLE

Ronald Burklund was recently named Sales Coordinator for the OMC Lincoln division of Outboard Marine Corporation. In the position, he will be responsible for administration of export sales and coordinating communications with foreign distributors, sales forecasting, and the administration of contracts with Federal government agencies.

Burklund started in the company's sales department in 1972, and from 1975-1985 was a district sales manager for the western United States.

Joseph Miller has been named Director of Accounting for OMC Lincoln division of Outboard Marine Corporation.

Miller joined the company in 1956 as an accountant at Johnson Motors Company in Waukegan, Illinois. He transferred to the OMC Lincoln division as a cost accountant in 1967, and was appointed director of cost and budgets in 1979.

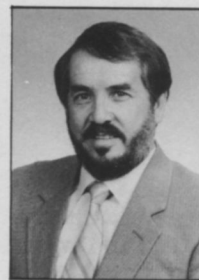
Tom Davis of Indianapolis, Indiana has joined OMC Lincoln as District Sales Manager for Cushman® and Ryan® turf



Ronald Burklund



Joseph Miller



Tom Davis



Yvonne Fenner

vehicles and equipment. Davis' duties will include working with Cushman and Ryan dealers in the Midwest and North Central states, assisting with their marketing efforts and sales training activities.

Davis has served as general manager of sales and equipment for Kassing Construction and Landscaping, Inc., Indianapolis. He was also involved in a family farming operation, and previously worked for D-A Lubricants and Nissan Motors Corporation on the West Coast.

Yvonne Fenner has been appointed Meeting Coordinator for CLCA. Her duties include the planning and production of educational seminars, leadership conferences, tri-board meetings, the Landscape Industry Show, and Education Committees.

Fenner comes to CLCA with experience as a Seminar Coordinator for the Beckley Group, a seminar production company headquartered in Fairfield, Iowa. She is a graduate of Concordia College in Moorhead, Minnesota.

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NEWS

(continued from page 19)

spraying programs have been instituted for controlling the moths that have invaded Ohio.

LOFTS ESTABLISHES PRO TURF DIVISION

Lofts Seed, Inc. has formed a specialized division expressly to serve turf professionals. Lofts' Professional Turf Division is headed by Dr. Richard Hurley, Lofts' Director of Research, and John Morrissey, Executive Vice President. As experienced turf professionals, the members of Lofts' Professional Turf Division are available to assist people in the turf industry in attaining maximum turf results. As an example, they'll help choose the most appropriate varieties for troublesome areas or provide the technical support needed to solve complicated turf problems.

LEBANON CHEMICAL CELEBRATES 40TH ANNIVERSARY

Lebanon Chemical Company is celebrating its 40th year of service to the agricultural and turfgrass industries of North America. Established in 1947, Lebanon Chemical began as a small fertilizer business operating out of a renovated drop forge plant in Lebanon, Pennsylvania. Founded on service to production agriculture, the company's reputation for quality grew, bringing prosperity and new opportunities for future growth.

While strengthening its position as a leader in the agricultural marketplace, Lebanon branched out with new product lines for the turf and horticultural markets. It started supplying Sears and



Lebanon Chemical Company's sales and marketing staff (left to right, top row): Bill Nist, Randy Rogers, Charlie Pendlebury, (bottom row) Ed Price, Harry Mathis, and Paul Mengle.

Roebuck, as well as many other customers, with their own brands of private label fertilizers.

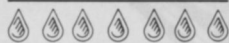
Today, Lebanon's branded and private label products reach out to homeowners and professional users from coast to coast, and represent almost 50 percent of the company's total volume. This is part of the corporation's ongoing strategy to maintain a balanced marketing program of continuing growth in both the production agriculture and the turf and horticultural markets.

Much of Lebanon Chemical's growth in the past 40 years can be attributed to Vernon Bishop's successful practice of growth through acquisition. The purchase of New Jersey's Dayton Fertilizer plant

in 1965 was the first of many acquisitions which proved to be profitable. A number of national and regional companies contributed to Lebanon's further expansion, and included Olin, Agrico, Kerr-McGee, Greenfield, Borden, Agway, Tidewater, and many more.

Once a single plant in Lebanon County, Lebanon Chemical now operates 48 producing locations in seven states and employs over 700 people. By maintaining a commitment to quality products and services, the company has increased its sales at an annual rate of 14 percent, from its first year's sales of \$500,000. It has prospered for 40 years in an industry constantly challenged by change and financial stress.

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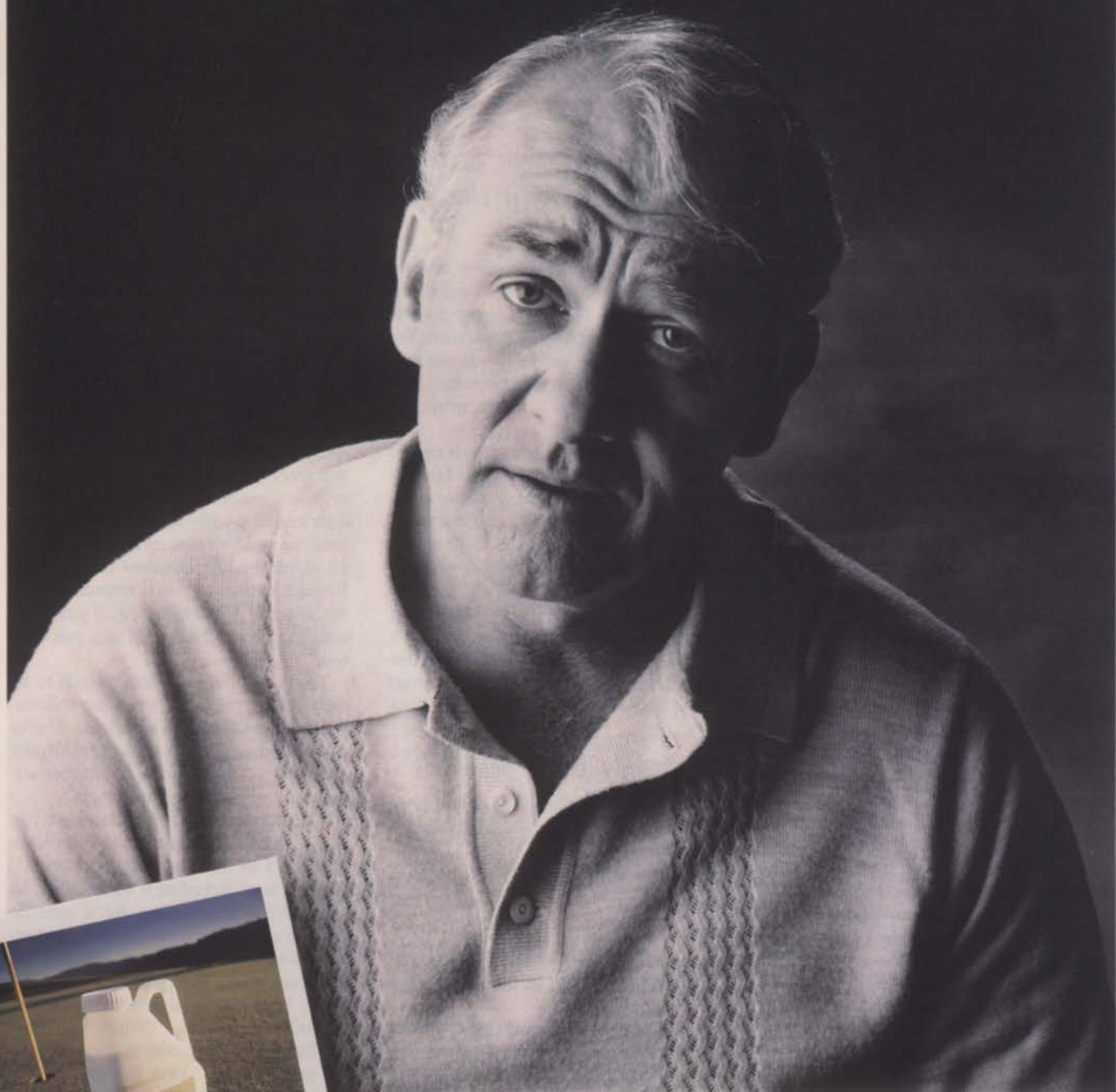
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GETTING GOVERNMENT CONTRACTS

Words of wisdom for those lawn care professionals who want to do business with the government.

If you don't like doing paperwork or making telephone calls, then going after government contracts is probably not a business avenue for you. On the other hand, with a little persistence and a lot of patience, you may be able to successfully tap the government market — be it at the local, state, or federal level.

Many different government opportunities are available to the lawn care and mowing/maintenance professional. Think of all the municipal turf in your hometown — around community centers, administration complexes, police stations, and fire departments. Look at the amount of ground governed by the state — along roadways, at rest areas, surrounding government buildings. And what about all the military bases that account for acres and acres of federal land? Many of them are cities within themselves.

All of these areas should at least be considered when targeting new accounts. While many government facilities utilize their own grounds maintenance personnel, many more are starting to contract with professionals to perform lawn care and mowing/maintenance services.

Of course, soliciting business from the government is quite different from making a sales pitch to a typical residential customer or even presenting a proposal to a typical commercial account. More time and effort is involved, and often it's required during the lawn care industry's peak season. Consequently, each lawn care operation must weigh the cost of doing business against the rewards it will reap. Once you have determined the profitability of this market, the key is to know how to begin the solicitation process.

LOCAL BUSINESS. The size of the municipality you're seeking to do business with will often determine the simplicity or complexity of the administration's procurement policies. While different towns, cities, and counties may have variances in their solicitation procedures, as a gen-

eral rule of thumb, your first contact should be with the municipality's division of purchasing. The purchasing department usually handles the paperwork for procuring most municipal goods and services. If it does not, office personnel will be able to steer you to the appropriate department.

In Dayton, Ohio, employees of the city's Park District and Property Management Division handle most of the community's lawn care and maintenance work. However, from time to time odd jobs requiring outside service do pop up. "As a requirement comes up, the city tries to handle it individually," according to Jesse Royster, a buyer for Dayton's Purchasing Department. "We advertise in the *Dayton Daily News* and *Journal Herald* at least twice and allow eight days

Unlike a typical residential agreement, a government contract is seldom one or two pages in length.

before opening bids. We also post the requirement on a board in the Purchasing Department."

In addition to scanning local newspapers for bid opportunities offered by nearby communities, lawn care businessmen should also register with appropriate municipalities as an interested vendor. By filling out a bid list application or similarly dubbed form, the lawn care operator will automatically receive bids for service as they become available from the city. In Dayton, notes Royster, the city tries to encourage as much competition as possible.

When considering government contracts, it's important to carefully examine all specifications and requirements. For example, you may be required to post a

performance bond, if awarded the contract, to insure proper performance of the contract. Other contracts may have pre-bid requirements which must be fulfilled before an actual bid can be made. In Dayton, for example, the Department of Engineering, which handles any federally-funded or partially federally-funded projects, including street repair and accompanying landscape construction or maintenance, requires interested vendors to attend a pre-bid meeting. "At that time the vendors sign up and they're told all about the requirements of the bid," Royster explains. "And attendance is a requirement of the bid itself. If you don't attend the pre-bid meeting, then you can't bid."

The actual bid or contract tends to be the most perplexing part of the solicitation process because of its volume. Unlike a lawn care operator's typical residential agreement, a government contract is seldom one or two pages in length.

"Here in the city of Dayton, we try to make it simple and not confuse the issue with a lot of bureaucratic paperwork," Royster says. But often it's inevitable, he adds. When contracting for a specific good or service, all specifications and requirements must be outlined, detailing the job description, each party's responsibilities, insurance obligations, and other related information. "When you start spelling everything out, it does get into the paper chase," says Royster.

The timing of the "paper chase" often makes it difficult for some lawn care operators to pursue government business. Wayne Crawford, Branch Manager of Lawn Medic in Virginia Beach, Virginia, was feeling the squeeze in early March. Amidst starting the season's first applications, he was trying to complete two lawn care bids for the cities of Chesapeake and Virginia Beach. The company had done work for both communities last year when each municipality farmed out jobs in pieces for particular properties. While the

contracts were previously renewable for a specified number of years, this year both cities decided to consolidate their lawn care contracts. Now instead of having multiple contracts, each community will work with one contractor of lawn care services.

While both bids would be financially rewarding to Crawford, he will not sacrifice his current customers to get either job. "This is our heavy season. If I don't have the time to work up the bid, then I'm just going to have to let it go because our residential accounts are our bread and butter," he explains.

Like many other lawn care businessmen, Crawford wishes the government would initiate their solicitations for lawn care work before the season begins. Most bids come out in February and March, he says. "And unfortunately, in most cases, they only give us a week to two weeks to inspect the properties, contact them, ask questions, and submit the bid." That's not always enough time, especially when it coincides with the launch of a new season, he adds.

While the timing of government solicitations is not always ideal, Crawford has found that the contracts do afford additional income. "It makes us look a little better at the end of the year," he says. "And sometimes there are fewer complaints from these customers because you're usually dealing with a more professional clientele."

Special considerations do have to be made, however, when pricing these jobs, he explains. "I'm finding that the pricing is very close to what I would price a residential job of the same size with about a 10 percent increase to cover the cost of a different product that may be required."

In some instances, a community may specify the use of a particular preeminent product in the contract. "That can be a bit of a pain, because I may have to order something different. Then the city's application schedule may not follow my exact program. So if I have to use a different product and their schedule doesn't follow mine," Crawford explains, "that means I've got to pre-order the products, empty a truck out the previous day, flush



out the truck, and put in the particular product that the city wants. Of course," he adds, "then I have to go through the same conversion process to go back to my regular application."

STATE CONTRACTS. John Cruse, President of Easy Lawn Corporation, Piqua, Ohio, has bid on several state jobs for roadside spraying over the last few years. He has come close — often taking second place — but has yet to receive a bid. However, he has discovered that it takes at least a couple years to learn the bidding system, and he's still not sure that he's got it down pat.

Cost is usually the bottom line or deciding factor as to which contractor gets the job — at least in Ohio, he says. And pricing roadside spraying or rest area maintenance jobs is often difficult to do, he adds. "The state doesn't always tell you what materials you have to use, but they do tell you that you have to get a certain degree of performance," says Cruse. "So you have to know what products your competitors use, because 50 percent of your cost is probably in materials."

"Usually I start out by bidding higher and then waiting to see what happens. You can find out the three lowest bids or what everyone bid, so you'll know whether you were high or low and you can use that information for future bidding," Cruse explains.

If you are interested in contracting with the state to service established roadside, rest area, or building sites, you should call the state's Department of Transportation (DOT) to get on their bidder's list. In most cases, once you have filed an application, which adds your name to the list, you will be notified of every bid job from the state, whether it's for paving or lawn care. If you are interested in a particular job, then you write the state for specific details. The state in turn will send you the necessary specifications and bid forms.

If you are interested in doing lawn care or mowing/maintenance for a new state project — for example, at the site of a rest area currently or soon-to-be under construction — you may need to follow different procedures. For example, in Ohio, the contractor who receives the award to build the rest area is the one who subcontracts out for lawn service and grounds maintenance of the facility. In order to compete for these types of positions, the lawn care operator first must meet the Administrator's Contractors Qualifications, which are based on company experience, reputation, and financial stability. To become pre-qualified, a lawn care operator should contact the DOT for the appropriate paperwork.

Cruse believes the biggest hassle of getting government contracts is the paper-

work and red tape. While the jobs are profitable, he says, he's not sure that they are as lucrative as they should be for the effort that is put into securing them. However, he admits, "You're pretty sure of getting your money. Some of your other large accounts, like apartment complexes, are always changing managers and that becomes a problem with payment."

While it's unlikely that the state will not pay its bills, it's not uncommon for payment to be held until performance is proven satisfactory. Don't expect a 10- to 20-day turnaround time for payment from the government — 30 days is the standard.

AT THE FEDERAL LEVEL. The Department of Defense (DOD) enters into millions of contracts each year. Military bases are located all over the country, and they provide a good opportunity for those lawn care businessmen who are located nearby. One way to find out about contracting opportunities at the federal level is through the *Commerce Business Daily (CBD)*, a publication issued each business day by the Commerce Department. The *CBD* can be found at most libraries or may be subscribed to. In it, all federal agencies list expected buys for goods and services of \$25,000 or more.

"For buys of \$25,000 or less, you need to contact the buying activity closest to you," explains Wilma Combs, Associate Director of Small Business Defense Contracts, Defense Logistics Agency, Cleveland, Ohio. If a lawn care professional wants to know if a military and/or other federal agency requiring his service is located within its market area, he should contact the nearest Defense Contract Administration Services (DCAS) Small Business Office (ask for the small business specialist or purchasing agent), Housing and Urban Development (HUD) Office (ask for the contracting officer), or General Services Administration (GSA) Office (ask for the facility's building manager).

Any lawn care businessman is eligible to solicit business at the federal level; however, beware that each contract has its own restrictions. For example, some specify that the lawn care operation must be located within the county where the service is needed, Combs explains. "Every solicitation will spell out its requirements."

If you already know of a military installation in your area, contact the small business specialist at that facility's Small Business Office to determine if the installation contracts outside services for lawn care and grounds maintenance work. "More than likely they do nowadays," Combs notes. "Very little of this effort is done by the enlisted servicemen any longer."

At Wright-Patterson Air Force Base in Ohio, fertilizer and pesticide applications are made by outside firms, but grounds maintenance is done in-house. However, lawn mowing and maintenance companies should note that every government installation conducts cost comparison studies every few years to determine whether it's more economical to perform the service by government employees or contract outside labor. At Wright-Patterson, for example, solicitations for a cost comparison study for grounds maintenance work will be done next year. If the base decides that it's no longer financially advantageous to continue doing its own groundskeeping, it will open up a new opportunity for local mowing maintenance firms.

After you contact the Small Business Office, you should request a Bidder's Mailing List application (a standard form 129) and a Commodity List. Every government installation has a Commodity

Brodbeck strongly encourages fellow lawn care businessmen to consult with an attorney before entering into contractual agreements with the government, and so do officials at Wright-Patterson.

List, which enumerates all the goods and services it purchases and identifies them with a number. Because the numbers used to identify lawn care may be different at Wright-Patterson than at some other base or DCAS Small Business Office, it's important to obtain a Commodity List from each facility you seek to do business with.

After you fill out and return the Bidder's Mailing List application, your name and the services you can furnish, will be loaded into the facility's computer. When a specific requirement for lawn care service comes up, the computer kicks out some names and those companies will be solicited. Note, however, that most federal agencies *do not* solicit every firm on their mailing list each time a requirement becomes available because there are so many. This means that your name is not going to come up every time.

Armed with this knowledge, you should make a point of checking the facility's bid board, which is usually located in the Small Business Office. If not, the small business specialist will be able to direct you to its location. Bids for lawn care and mowing/maintenance work are

typically posted after the first of the calendar year through early spring. If you see a service requirement for a particular job that interests you, you can request a solicitation package from the Small Business Office.

Contracts are usually awarded to the lowest-priced, responsible bidder that can meet the government's requirements. And in order to be a successful DOD contractor, one must be well acquainted with the Federal Acquisition Regulation (FAR), which contains detailed procurement policies governing all Defense contracting, as well as the DOD FAR Supplement.

Together, these two publications total over 2,100 pages — an awesome amount of information that would intimidate even the most voracious reader. But take heart, you don't need to be fearful or overwhelmed by the size of these documents. According to Wilma Combs, "Every bit of that regulation does not apply to every contract. There are different sections which apply to different contracts."

If you don't have a copy of either document, you can ask the small business specialist for a copy of the full text version of those clauses referred to in your bid specifications. However, if you plan on getting heavily involved with federal contracts, it's advisable to purchase your own copy of the FAR and its Supplement through the Government Printing Office in Washington, D.C. Together, the publications cost approximately \$100.

Dan Brodbeck, the Dayton Branch Manager of Leisure Lawn, Inc., recently received a bid from Wright-Patterson to do lawn care applications for all base housing. Upon receiving the 18-page document, accompanied by blueprints and three amendments to the contract, the company enlisted the services of a lawyer who specializes in government contracts.

"When you turn the bid in you have to make sure that it's completely filled out and filled out correctly," explains Brodbeck. "If you miss one little thing in there, they can throw the contract out the window right away."

Brodbeck strongly encourages fellow lawn care businessmen to consult with an attorney before entering into contractual agreements with the government, and so do officials at Wright-Patterson. According to one spokesman at the base's Small Business Office, "DOD contractors need to read and understand the contract before they sign it. If you're new to doing business with the government, there's a lot to learn. When you sign on the dotted line, you're bound by everything in the contract whether you understand it or not. And one of the major problems we encounter is that people will sign something and send it in, thinking that they understand it but they don't."

For example, most DOD contracts are one-year agreements with either two, three, or four one-year options. At the end of the first year, the option to renew is up to the government — not the contractor. This is an important distinction because in cases where the contractor has underbid the job, he may not want the second year. However, if the government elects to exercise the option, then the contractor is obligated to abide by it and absorb any monetary losses he may incur.

It's also important to note that the selected contractor must follow any notification policies and all other related requirements as determined by the buyer. For example, the bid Leisure Lawn received from Wright-Patterson was for a one-year contract to include four regular fertilizer applications, plus one application of Oftanol®. It stipulated that the contractor would have to notify the individual home residents 48 hours in advance of any application and inform them whether it would be made in the morning or afternoon. In addition, the contract dictated a certain wage that technicians had to be paid by the contractor, as well as their work hours (8 a.m. to 4 p.m.), and the holidays they must have off. The contract also required that a list of the materials to be used, along with the chemical's safety data sheets, be furnished to the buyer two weeks prior to application.

While this is Leisure Lawn's first bid with Wright-Patterson, the Dayton branch has done odd jobs on base through a maintenance company that subcontracted the work out. With the Freedom of Information Act, Brodbeck was able to find out what the past contracts have been at Wright-Patterson; however, it's difficult to determine this year's outcome until the sealed bids are opened.

In any business competition such as this, the key is to carefully calculate your costs and avoid undercutting — it doesn't help you or your competitor. As Wayne Crawford of Lawn Medic says, "You have to take it like you would playing sports — if you lose, big deal. At least you gave it your best shot."

And even if you don't get a government contract this year or the next year, there's always the year after. The important thing is to recognize the potential this market can offer. You may decide that government contracts are not worth the hassle, or you may discover that there is a lot of visibility to be had by parking your truck in the center of town while one of your technicians sprays the lawn of the local courthouse. But you'll never know the answer until you've at least tried tapping the government market. — *Vivian F. Rose*

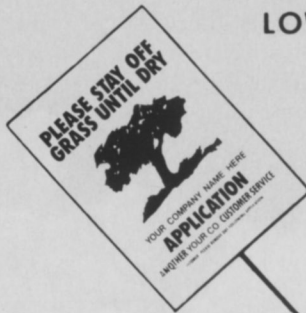
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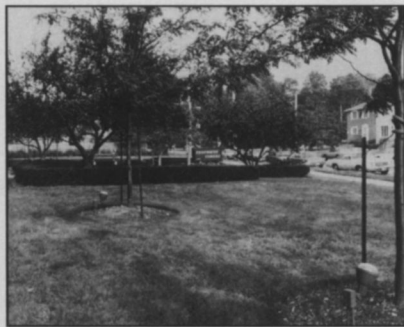


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CRACKING THE COMMERCIAL MARKET

Whether you're just starting out in the lawn care industry or seeking new avenues of growth for your established business, the commercial market has a lot to offer the professional lawn care and maintenance operator. But beware, you may need to adapt your business to meet the needs of commercial customers.



A condo complex in Cleveland.

Hank Smith of Miracle Lawns, Inc. has operated a successful chemical lawn care program for several years. Once he established his credibility within the community, it didn't take him long to build a profitable list of residential accounts. However, the company's early years of rapid growth have started to taper off. Eager to continue

expansion of his business, Smith is considering his options. Since his customer base is primarily comprised of homeowners, the logical move is toward the commercial market. But how should he go about carving a niche in this sector of the business?

According to most lawn care applicators and maintenance professionals contacted by *American Lawn Applicator* magazine, Smith's first step should be to broaden the scope of his services so he can furnish commercial customers with a comprehensive lawn care and maintenance program. "Full service" is the buzz word in today's fast-paced business world. Commercial customers

Armed with the proper manpower, equipment, and insurance, Johnson is ready to hit the commercial market head-on.

want to be able to dial one telephone number and deal with one vendor for all their grounds maintenance needs.

While Hank Smith is a fictitious character, the scenario is quite similar to actual situations in the lawn care industry. John Johnson, President of Corporate Lawns, Inc. in Olathe, Kansas, found that he had to expand his com-

pany to a full-service operation this year if he wanted to keep his commercial customers. "We had to have the full service to get the big accounts," Johnson explains. "We had a lot of commercial accounts, but we lost some last year because we didn't offer the mowing. Businesses are going for companies that can do it all."

At the request of his customers, Johnson has added mowing, landscaping, verti-cutting, core-aerating, and other services to his company's fertilizer program. By doing so, Corporate Lawns has not only accommodated its current commercial customers, but also attracted new business accounts. "We recently landed all the Perkin Restaurants in the greater Kansas City area," Johnson says. "Full service gives us an edge. We're not just relying on the spraying."

His current customer base has a 9:1 ratio of residential customers to commercial customers, but you can bet those figures are going to change now that Johnson has increased his investment in the commercial end of his business. "We had to purchase quite a bit of equipment to do the job," he says. "Plus, I had to get some key personnel to run it. I hired some new employees and used some existing personnel." In addition, the company had to increase its liability insurance to protect itself from potential damages resulting from rocks or debris often thrown from mowing maintenance equipment.

Armed with the proper manpower, equipment, and insurance, Johnson is ready to hit the commercial market head-on. After all, he says, it's bigger money. "With any commercial work they want a competitive price, but they want the best job," according to Johnson. "The bottom dollar is important to a lot of commercial accounts, but it just depends on who you're dealing with. With Perkins, we were probably the highest bidders but we knew what they wanted."

Like Johnson, Red Snell, President of Acme Maintenance, Acme, Michigan, believes most commercial accounts seek quality. "They're willing to pay a little more," he says. "If they're a business, they understand that you've got to make some money, too, and that you're not going to do these things for nothing."

On the other hand, Snell explains, "Residential customers are usually a little more particular. They seem to



Commercial landscapes abound in any city, like this one at the Curtis Hixon Convention Center, Tampa, Florida.

want more for less. Commercial accounts know what things cost and it's a little easier to deal with them."

Snell has found that commercial customers tend to be more loyal than residential customers "as long as you're not ripping them off." Homeowners do more price comparison shopping, he says. "And usually if you've got a commercial customer and you're doing a good job, he's not going to go out for bid. He doesn't want to be bothered — he just wants the job done right."

Acme Maintenance services a variety of commercial accounts, from shopping centers, miniature golf courses, and office buildings to condominium complexes, car dealerships, and restaurants. Of the various business clients, Snell says he encounters the most problems with condominium associations. "New people move in; other people move out. They don't really understand what they're getting for their money," he says. "Sometimes you have to go to their board meetings and go over everything with them."

At the same time, however, Snell says condominium complexes have a genuine appreciation for full-service lawn maintenance firms. With the constant turnover of residents and change of association presidents, most condominium complexes prefer to work with one company that can fertilize, mow, trim, plow snow, and upkeep the grounds throughout the year.

For any commercial account, Snell advises, "You need to get yourself in a position where you can do all of the

work for the people. You can spray their trees, move their bushes, mow their grass, put fertilizer on it — anything they need and they just have to call one number."

Secondly, he reminds fellow lawn care and mowing/maintenance professionals to realize commercial customers are in business, too. "You need to find out how much money they're willing to spend on lawn care," Snell explains. "You have to have the attitude that it's their money and you'll be glad to put together any kind of program that they can afford. I can put on five applications or I can do two. But I think you need to give them some options on how much money they can spend and what they're going to get for it."

Lawn care is often one of the first services to be cut by businesses if they have to slash their budgets. This is particularly true of office buildings or manufacturing complexes, where the aesthetic value of the turf's appearance does not directly impact the business's profitability. "If a commercial customer is making valves and it just has some grass out in front that they want to look nice," Snell explains, "if times are tough, you can bet you're going to get cut."

"If the business is one where the grounds have to look real good in order for them to make money, like with a hotel, condominium association, or restaurant, then I don't think there's too much of a problem." If the account's income is influenced by the property's appearance, he says, then the customer is not going to cut

the lawn care service.

Nonetheless, to minimize losses Snell thinks it's important to have a wide variety of commercial accounts. Brian Reynolds, President of The Custom Grounds-keeper based in Bristol, Connecticut, agrees. He strongly believes in the saying, "Don't put all your eggs in one basket." They're words to live by if you're just breaking into the commercial lawn care market. According to Reynolds, a lawn care operator could run into trouble if he depends too heavily on a few lucrative accounts.

"There's no obligation to keep you," he explains. A lawn care operator can lose two key commercial accounts as quickly as he can pick them up. "If you lose two key commercial accounts in one season and you can't replace them, and you've invested into the business to maintain those accounts, you're in trouble."

Ideally, Reynolds would like to land two-year contracts with all his commercial customers. He believes two years would give a lawn care operator enough time to pay off any equipment that was purchased in order to land the accounts, so a heavy bank note wouldn't be hanging over his head if the accounts were lost.

While Reynolds admits that it is dif-



ficult to secure a two-year contract on the first year, he believes it is possible to obtain such a deal after a lawn care company has proven its salt. "If you do good work the first year and they like you and the prices are acceptable, you can usually tie in for a two-year contract. And that's good," he says, "because then you can project your growth."

One of the best ways to secure a commercial account, according to Reynolds, is to get in at the ground-breaking stage of new construction. "There's been a lot of new building in this area," he explains. "And the general rule of thumb has been that the ones who do the installation work keep the maintenance work, unless they

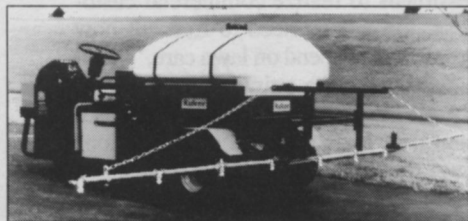
really screw up the job."

Knowing the right person to contact within a business, be it a new or established facility, is also key. "If you know somebody it helps," notes Reynolds, "because there is a little more red tape to cut through in the commercial market as opposed to the residential market."

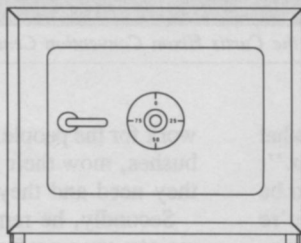
Reynolds says he's constantly in bidding situations for commercial accounts, and unlike colleagues Johnson and Snell, he finds a lot of commercial customers do go for the low bid. A bad trend has started, he observes. The purchasing or accounting department within a business allocates the funds for lawn care, accepts the lowest bid, then complains when the

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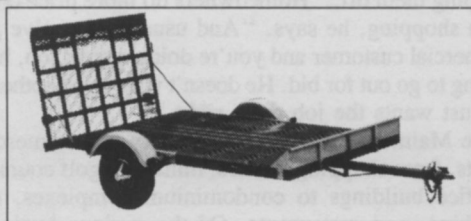
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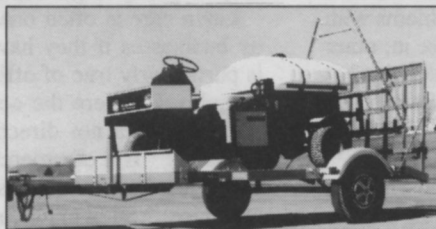
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lawn looks shoddy and rebids the job, Reynolds explains. The irony, he adds, is that the company just seeks the lowest bidder once again.

However, after talking with a number of dissatisfied commercial customers, Reynolds anticipates that this type of bidding cycle will break soon. He also notes that lawn care operators can't come in with a low bid to get the job, then bump their rates and expect to keep the account.

"Don't cut your throat just to get into the commercial market. If you lowball to get in, you'll probably turn around and find that you didn't make any money that year. And if you're going to up your rates the next year, expect to be put out to bid again," he explains. "But if you can get in there at a comfortable price, where you're making money and you're doing a quality job, they will stick with you."

Pricing has always been a sensitive issue in the lawn care industry. And it becomes particularly important when dealing with large dollar commercial accounts. "You've got to make sure you price the job right," according to Mike Young, President of Lawn and Shrub, Inc. in Lafayette, Indiana. "You've got to make sure you list out everything that needs to be done and get the materials and man-hours allotted so that you don't run out of dollars halfway through the year. You've got to make sure you know what the customer wants."

And that means doing your homework. Find out the customer's specific needs. "Some commercial accounts (such as industrial complexes) don't care about their outside grounds. They just want the job done," Young notes. "Those type of customers aren't going to pay as much attention to who's doing the lawn care or what the equipment looks like as much as those customers who are trying to portray a good image themselves and trying to be noticed (such as restaurants and hotels)."

When evaluating a commercial customer's needs, it's important to determine if the account requires any unique sched-



uling. On the surface it may appear that commercial properties are easier to get into than residential lawns — no unleashed pets or children at play — however, many commercial accounts have definite ideas about when a lawn care operator can and cannot be working on the grounds. "If you're doing an office building, you can work anytime," Young says. "But if you're doing a restaurant, you don't want to be there between 11 a.m. and 2 p.m., the lunch hour. If they serve breakfast, you can't get in there at 7 a.m. either. You have to be there between 8:30 a.m. and 11 a.m. or 2 p.m. and 4:30 p.m. Otherwise there's too much traffic. You're in their way; they're in our way. You've got to work around their busy hours."

And naturally, since restaurants tend to be busiest on weekends, they all want their grass cut on Thursday and Friday, notes Young. "We try to accommodate those accounts," he says. "We're connected with that property and we want it to look good when they want it to look good."

Young gets a lot of commercial work through referrals. He believes one of the best forms of advertisement is by servic-

ing the right business in the right location and making it look good. In fact, many lawn care operators who service commercial accounts find that the quality of their work serves as a more influential calling card than their printed business card. It says more about their business.

Young also enjoys the prestige that accompanies commercial work. "When we talk to people, we can say that we work for the Red Lobster or Denny's Restaurants or the Rax Restaurants. If we say we work for Tom Jones on the other side of town," he explains, "well, everybody doesn't know him."

Of course, the residential customer shouldn't be overlooked as a source of new commercial business, either. If you treat the lawn of a top executive and he's impressed with your company's performance, you never know when his company might give you a call.

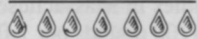
Of the lawn care and mowing/maintenance professionals interviewed by *American Lawn Applicator* magazine, few of them could think of disadvantages associated with the commercial lawn care market. One forewarning, however, did come from Mike Young of Lawn & Shrub, Inc. "Certain businesses, particularly the chain restaurants, have their accounting offices across the country, so slow payment can be a problem," he says. "If for some reason they get behind, the books get messed up, or somebody doesn't approve a statement, then it requires communicating long distance or through several people to try to work out the problem."

On occasion, Young has encountered this type of difficulty, but it certainly hasn't been a drawback that has stymied his commercial lawn care service.

All in all, it looks like commercial accounts get high ratings from the lawn care professionals who service them. — Vivian F. Rose

The author is Assistant Editor of ALA magazine.

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WHAT'S THE STORY WITH OFTANOL?

Have you had mixed results with Oftanol? If you have, don't feel bad, you're not alone.

Oftanol® insecticide is a relatively new organophosphate insecticide which was introduced to the turf market in the early 1980's. When it first came out, there were indications that it would provide "season-long" control of soil insects, such as white grubs. Some university studies had shown that an application made in April would control the spring population of grubs and there still would be enough residue present in August and September to control the next generation of grubs.

This was the first time that turf managers had had such a material available to them since chlordane had been removed from the turf market in the early 1970's. Chlordane had been an industry standard for grub control and had worked exceptionally well, partly because it stayed active in the soil for two years or longer. The federal Environmental Protection Agency cancelled turf (and other agricultural) uses of chlordane because the long residual activity was viewed as a threat to the environment. While chlordane was not acutely toxic to mammals, the long-term or chronic health effects to other organisms could not be documented.

At any rate, Oftanol quickly became a favorite material for many turf managers because it could be used in preventive insect control. The material could be applied in the spring and it would control grubs for the rest of the season.

Shortly after Oftanol was introduced to the turf market, rumors of some "problems" began to crop up. Most of the "problems" related to a failure of the material to provide the season-long control which was expected of it. The first reports of difficulties occurred in the Midwest, where the active ingredient in Oftanol (isofenphos) had been available for a couple years as a soil insecticide for field crops, sold as Amaze®.

Within a couple seasons, another trouble spot had developed on Long Island, where several lawn applications



Japanese beetle adults and adult feeding injury. Photo courtesy of NYSTA.

had not performed as well as expected. Mobay Corporation, which manufactures isofenphos, quickly began to investigate the reports of failures. Several suggestions were put forward for investigation.

LIME. Some of the lawn care applications had been made following lime applications. Since alkaline conditions in water can sometimes cause insecticides to break down prematurely, there was concern that the lime applications might have interfered with the subsequent Oftanol applications. We conducted two large studies in Massachusetts in 1984, in which we applied lime (100 pounds per 1,000 square feet) on one of two dates, two to six weeks before an isofenphos application. We used three formulations of isofenphos (2I, 1.5G, and 5G) and applied isofenphos on one of two dates in each test. We included all possible combinations (early lime and early isofenphos, late lime and early isofenphos, and so on).

The upshot of the test was that there was never any significant difference in the performance of any of the formulations of isofenphos with or without lime. While there were some limitations in the design of the test, we feel that lime applications probably are not interfering with isofenphos in the field.

WATERING. As with any grub treatment, water is critical in moving the material through the thatch and increasing the effectiveness of the material. While some studies at Ohio State University, under the direction of Dr. Harry Niemczyk, suggest that some of the insecticides used in turf may not move through the thatch as readily as we might have thought, there is evidence that substantial watering (at least 1/2-inch) immediately after an application may be crucial to the effectiveness of several grub materials.

There was an indication that some of the areas where Oftanol has not performed as well as expected had not been watered in adequately, but there were other sites where plenty of water had been applied and still the material did not work.

CALIBRATION. In several cases, areas of reduced effectiveness may have involved improper calibration of equipment. Drop spreaders may not have been dropping granules evenly; Cyclone-type spreaders may not have been throwing granules evenly; and spray solutions may not have been prepared at a suitable concentration. In some instances, areas of control versus no control were distinct straight lines, suggesting that some areas had been missed during application. However, in many cases the applicator had gone through every precaution and was able to demonstrate that he had applied the material at the appropriate rate.

SPECIES OF GRUBS. There are several species of white grubs which damage home lawns in the Northeast. Perhaps the most widely distributed is the Japanese beetle, and much of the research which has been done at universities in the Northeast has been done on the Japanese beetle. However, each species responds a little differently to insecticides. The oriental beetle, which is a common problem on Long Island, appeared to be less susceptible to isofenphos than some of the other species encountered. This species difference accounted for some of the "failures."



Japanese beetle grub (right) and European chafer grub (left) show relative size differences. Photo courtesy of NYSTA.



Grubs exposed after removal of sod. Photo courtesy of NYSTA.

SOIL DEGRADATION. Studies with Amaze in field crops in the Midwest had shown that the same kind of thing was happening with isofenphos in field crops as was being seen on home lawns. That is, isofenphos provided a very acceptable level of grub control for a couple years and then began to tail off. This suggested that there might be some condition in the soil which developed over time and broke down the active ingredient.

While Mobay-sponsored studies are still continuing, there is an indication that there is a micro-organism (a

bacterium) which occurs in some of the soils where isofenphos "failures" have been reported. The correlation is not complete — isofenphos has performed well in soils which contained the bacterium and there have been soils which did not contain the bacterium where isofenphos did not perform up to expectations.

Current thinking is that at least some of the "failures" are connected with degradation of the active ingredient by soil micro-organisms. Further studies are underway at this time to attempt to identify what factors favor the occurrence of the micro-organism and what might be done to minimize its effect.

Apparently, the micro-organism derives nutrition from isofenphos in some manner. If isofenphos is present in the soil, the bacterium is favored. A vicious cycle can start if a turf manager applies more isofenphos after an initial application fails to provide adequate control. The more isofenphos is applied to the soil, the more is available for the bacterium to break down. The bacterium reproduces and breaks down additional applications even more rapidly. The only way to break the cycle is to stop applying Oftanol and use some other material instead. Some of the other organophosphate materials may be somewhat susceptible to breakdown by the bacterium, but some other turf insecticides apparently are not susceptible.

A FINAL PERSPECTIVE. My experience has been that the initial "problem" with Oftanol was that we came to expect too much from it. The material still works quite acceptably in many locations — if it is used like any of the other turf insecticides. Do not expect a single application of Oftanol in the spring to control all of the insect problems for the year. Instead, consider using it in the spring for spring grub control *or* in late spring for chinch bug control *or* in late summer for summer grub control.

You probably should not use it more than once per year, because the soil



Japanese beetle

micro-organism appears to be ubiquitous. Each time you use Oftanol, you increase the likelihood that the bacterium will begin to proliferate. Consider using other organophosphates, such as diazinon, or a carbamate, such as Sevin® or Turcam®. Keep in mind that carbamates are extremely toxic to earthworms.

My own sense is that perhaps 80 percent of the reported "failures" can be explained by improper calibration or inadequate watering after a grub application. Of the remaining 20 percent, most of them have occurred in locations where Oftanol has been applied repeatedly over the past few years. Because it is very expensive to test the soils involved, most of these sites have not been analyzed for the presence or absence of the soil micro-organism. However, the circumstantial evidence would suggest that it might be

involved in at least some of the cases.

The bottom line seems to be that Oftanol can continue to be an important part of the turf insecticide arsenal if we change our expectations and use common sense. The expectation must change from "season-long control" to a shorter term control. One shot will not cure all the problems. Common sense dictates that turf managers must begin to adjust their insect control strategies — alternate classes of insecticide materials, use biological agents when available, and use insecticides only when the insect population is high enough to warrant them. — *Dr. Patricia J. Vittum* ■

The author is Associate Professor of Entomology at the University of Massachusetts Suburban Experiment Station in Waltham, Massachusetts.

TREATING WITH OFTANOL

Oftanol® Insecticide can be used for preventive or curative control of grubs, according to its manufacturer, Mobay Chemical Corporation. For preventive control of white grubs, apply prior to visual damage at the rate of 1 gallon per acre or 3 fluid ounces per 1,000 square feet in a sufficient volume of water to provide uniform distribution. Water the turf thoroughly within 10 to 12 hours after application.

Oftanol 5 percent Granular is used for

preventive control of grubs when applied prior to visual damage at the rate of 40 pounds per acre or 0.9 pounds per 1,000 square feet. Oftanol liquid used for curative control of grubs is applied at the first sign of infestation at the rate of 1 gallon per acre or 3 fluid ounces per 1,000 square feet in a sufficient volume of water to provide uniform distribution. It should be watered-in immediately after application.

When used as a curative control, Oftanol 5 percent Granular should be ap-

plied at the first sign of infestation at the rate of 40 pounds per acre or 0.9 pounds per 1,000 square feet. This product should also be watered-in immediately after application.

Oftanol is an organophosphate insecticide that works on contact. After it is activated in the top 1 to 1-1/2 inches of soil, it should take only three to five days for grubs to stop feeding and become moribund, according to the manufacturer. In this state, they are unable to cause damage.

RECOVERING FROM 1986

For much of the Midwest and the Southeast, 1986 was a year of precipitation extremes -- too much or too little.

Nineteen eighty six was a year of weather extremes. During July and August, the southeastern United States baked under the worst drought in 100 years. Georgia, North Carolina, Alabama, and neighboring states sustained nearly two months of searing heat without significant precipitation. Water shortages and water rationing were common. Unprecedented economic aid efforts were mobilized in the nation's mid-section to help the drought-stricken farmers of the Southeast.

Meanwhile, in the nation's breadbasket, just the opposite was occurring. Over 22 inches of rain fell in one week in parts of Oklahoma. Eastern Michigan saw 26 continuous days of rain. And in Illinois, residents were evacuated from homes in low-lying areas while rivers surged over their banks.

Weather extremes, such as those of 1986, have a profound effect on nature as well as man — and certainly affect the lawn care industry. They also affect our turfgrass management decisions, in terms

of overcoming disaster damage and preparing for "the next one." In this article I'd like to describe some of the damages that occurred to lawn turf this past year, how some lawn care operators are coping with the damages, and what can be done to prepare for the worst in the future.

FLOODING DAMAGE. Natural disasters have one thing in common: they strike quickly. "We went from a very, very dry situation on September 9, to total downpour," says Bill Kotenko, Branch Manager of the Tru Green facility in Saginaw, Michigan. "The weather instantly changed." Kotenko's major complaint about the flooding disaster was that he couldn't get to work one day.

"All the roads and bridges were closed on the way to work. For a few days, of course, we were shut down completely. We couldn't do anything." Kotenko did manage to spray a few times during the month of September, between showers. "I didn't advise spraying in the rain — both from a results standpoint and

a customer relations standpoint." In spite of soggy soil, they didn't get far behind in their fall scheduling.

Flooding damage in the Midwest was extensive, but was primarily concentrated in low-lying river valleys. Standing water was only a problem for about a week or two. But after the floods receded, other problems remained. "The lawns remained awfully wet for a long period of time, probably longer than the flooding itself," says Kotenko. Over a month of waterlogged turf prevented many lawn care operators in eastern Michigan from making fall applications. Silt residue was also a common side effect of the flood waters. Most lawns in Saginaw, the hardest hit area in the state of Michigan, were spared the deposits of silt. However, several areas "had a lot of silt covering the landscape. Fortunately, not a lot of grass died. It looks okay now," reports Kotenko.

Michigan State University turf specialist Dr. Paul Rieke, advises lawn care operators in flood-ravaged areas to be aware of problems that may arise this spring and summer. "Heavy rains caus-

Scientific name	Common name	EVAPOTRANSPIRATION SUMMER MEAN FIELD CONDITIONS	
		(mm day ⁻¹)	(in/wk)
<i>Festuca arundinacea</i>	Tall fescue	7.2 — 12.6	2.0 — 3.5
<i>Lolium perenne</i>	Perennial ryegrass	6.6 — 11.2	1.8 — 3.1
<i>Stenotaphrum secundatum</i>	St. Augustinegrass	6.3 — 9.6	1.7 — 2.6
<i>Paspalum vaginatum</i>	Seashore paspalum	6.2 — 8.1	1.7 — 2.2
<i>Paspalum notatum</i>	Bahiagrass	6.2	1.7
<i>Pennisetum clandestinum</i>	Kikuyugrass	5.8 — 9.0	1.6 — 2.5
<i>Agrostis palustris</i>	Creeping bentgrass	5.0 — 9.7	1.3 — 2.7
<i>Bouteloua gracilis</i>	Blue grama	5.7	1.6
<i>Eremochloa orphiuroides</i>	Centipedegrass	5.5 — 8.5	1.5 — 2.3
<i>Buchloe dactyloides</i>	Buffalograss	5.3 — 7.3	1.5 — 2.0
<i>Cynodon</i> spp.	Bermudagrass	4.0 — 8.7	1.0 — 2.2
<i>Zoysia</i> spp.	Zoysiagrass	4.8 — 7.6	1.3 — 2.1
<i>Poa pratensis</i>	Kentucky bluegrass	4.1 — 6.6	1.1 — 1.8

Table 1. Range in reported summer mean evapotranspiration rates summarized by turfgrass species.

ed excessive growth in many areas," Rieke explains. "Damp grounds prevented mowing."

The heavy rains also leached nitrogen and potassium from the soil. Both N and K are water-soluble and are easily washed from the soil during heavy rain. Rieke suggests that extra potassium be used on affected lawns in the spring. Weak turf plants may result from the decreased nutrients if not corrected.

Potassium is especially noted for bolstering the stress tolerance in turf. If the plant is lacking K, it will be less able to withstand future stresses. Maintaining an acceptable K level in the soil will help prepare for the next problem or disaster that arises. Rieke warns, however, not to apply excessive nitrogen in the spring to overcome the flood leaching. "Heavy spring N applications will really bring on leafspot disease," says Rieke.

Weeds can become a problem on stressed turf, regardless of the source of stress. Flood waters sometimes deposit new and exotic weed seeds from far upstream. Couple this with a stressed grass plant, and you have weeds. In most cases, normal spring herbicide applications should alleviate the new weed problems. But be on the lookout for new weeds that may have washed in from afar.

Relative cultivar evapotranspiration ranking	KENTUCKY BLUEGRASS CULTIVARS	
	Michigan	Nebraska
Low	Prato Cougar Delta Kenblue	Enoble Adelphi A-20 Newport Baron
Medium-low	Pennstar Park Nugget Windsor	Cheri Touchdown
Medium	Merion Galaxy Monopoly Baron	Parade Bensun Victoria
Medium-high	Bensun Newport Fylking	Park Fylking South Dakota
High	Sodco Sydsport	Bristol Bonnieblue Nugget Majestic Birka Sydsport Merion

Table 2. Comparison of relative evapotranspiration rates among Kentucky bluegrass cultivars when grown in two different regions. Source: Beard, Eaton, and Yoder, 1973; Shearman, 1978.

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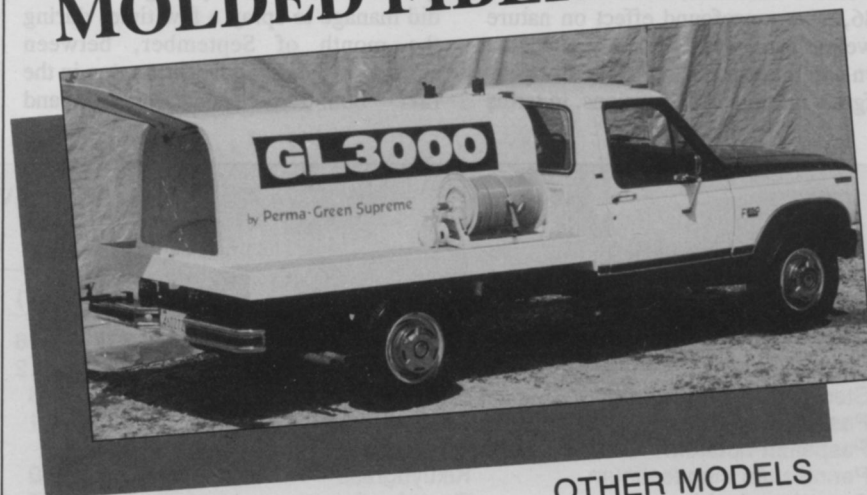


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DROUGHT DAMAGE. Although droughts come on more slowly than floods, their effects on the green industry are often swift. In the 1986 drought that affected the Southeast, residents and lawn care operators received little or no advanced warning of watering restrictions. "For example, right here in Griffin (Georgia), officials just told us one day to quit watering lawns," says Dr. Bob Carrow, Department of Agronomy, University of Georgia. "They gave us no previous indications that they were going to restrict watering."

Northern Georgia saw lawn watering restrictions which lasted for weeks. "Some of the water restrictions were total restrictions, others were every-other-day or once-a-week," says Carrow. "This really did affect lawns as the summer went on, particularly the cool-season lawns. One of the major problems was that the water restrictions went well into the fall period. That really affected options for overseeding of cool-season grasses."

In Georgia, normally the cut-off date for fall seeding is October 10. Stands seeded past that date generally lack the maturity needed to compete well against spring weeds. "In my own lawn I had that problem," explains Carrow. "I put some grass out in my yard after they finally lifted the watering restrictions in the fall. I planted on about October 20. The grass germinated alright but wasn't very big going into winter. I think there's going to be many cases where the cool-season grasses are still going to show the effects of the drought and water restrictions into 1987."

In areas of the country with annual, "predictable" droughts, university researchers have developed guidelines for weaning turf of heavy water requirements. Florida, California, Texas, Colorado, and Arizona are states where a summer drought is the rule rather than the exception. Training turf to need less water can be done. Dr. Bruce Augustin, a LESCO, Inc. turf scientist, described his method in an issue of *Florida Turf* magazine. "It may take up to six weeks to condition a turf to survive several days or more without wilting between irrigations or rainfalls. During this (drydown period), the root system is developing and growing deeper into the soil. Stolons that are not rooted will tend to die and be mowed off. In time, the lawn will establish a more uniform appearance with less thatch and better rooted plants."

Augustin's method is to withhold watering until the first signs of drought, such as a color change or "footprinting." Then, apply an inch of water. The next irrigation should be withheld similarly. Gradually the turf will go longer periods between wilting, as the root system

elongates.

Other techniques are helpful for maintaining turf during periods of restricted watering. Again, as with flood recovery, potassium is an important element. "Potassium fertilization can help turf-grasses increase their tolerance to (drought) stress, (promoting) increased root growth and thicker cell walls," writes Augustin.

The jury is still out on the question of the effect of mowing height on drought tolerance. Recent research evidence from Colorado and Texas suggests that turf maintained at higher mowing heights uses more water than close-cut turf. "Grass maintained at a 2-inch mowing height used about 15 percent more water than grass maintained at 1-inch," wrote Dr. Robert Danielson of Colorado State University in a recent report on urban lawn irrigation. Augustin points out, however, that a closely-mowed turf will have a

shallower root system than taller turf. "Although transpiration — water loss through leaves — will be slightly greater with higher mown turf, the more expansive root system provides far more advantages," says Augustin. Danielson agrees that even though the shorter turf used less water, "the taller grass remained at high quality longer when irrigation was limited."

Researchers recommend other methods to enhance the drought tolerating ability of turf:

- When anticipating a drought, lighten up on the nitrogen. Slightly nitrogen-deficient grass used 10 percent less water than adequately fertilized turf in a Colorado study.
- Minimize pesticide applications during drought. "Pesticides can add extra stress through phytotoxicity," says Augustin. "Pesticides should never be applied on a

(continued on page 47)



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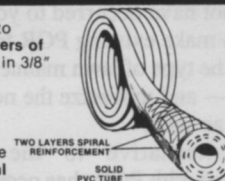
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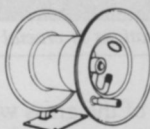
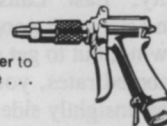
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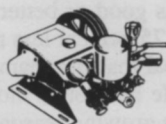
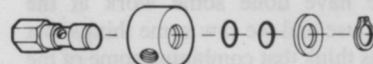


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PGRs: NOT JUST FOR ROADSIDES ANYMORE

Plant growth regulators still need a lot of refinement, but some applicators are finding a way to make existing PGRs work in residential settings.

If you have ever thought about plant growth regulators, you probably thought about a material used to control the growth of utility turfs, like roadside vegetation. You probably also visualized the negative side effects — thinning and discoloration of turf — associated with the use of PGRs. What might not have occurred to you are some ways to make existing PGR formulations fit into the type of lawn maintenance work you do — and minimize the negative side effects as well.

An alternative to the problems associated with PGRs has occurred to Dr. Bruce Branham in the Department of Crop and Soil Science at Michigan State University, East Lansing, Michigan. Branham says most people use PGRs to stop mowing, but to get season-long control at labeled rates, you have to put up with some unsightly side effects — which has kept PGRs off quality turf areas. Last summer, Branham began working with PGRs on quality turf, using lower than labeled rates to *reduce* the need for mowing. His results thus far have been encouraging.

"We have done some work at the greenhouse and we saw some things that made us think that combining some of the products could give better results," says Branham. "Some of the materials, like paclobutrazol (PP-333) and Cutless® cause an increase in tillering and therefore would give you even more density. Other materials like Limit® and mefluidide (Embark®) would inhibit tillering and give less density. If you combine the two, you might end up about where you should be with significant growth retardation."

In last year's field study, Branham put down PGR combination treatments at between one-quarter and one-half of the labeled rate either every other week or monthly. After measuring the growth of the grass, Branham decided to mow



Overlapping PGR applications is crucial to avoid leaving bands of unregulated turf growth.

whenever the height of the grass was 30 percent higher than the mowing height. "We measured those two times a week and every time a plot got over that height we mowed it and kept track of the mowing times," says Branham.

Turf that looks as good or better than untreated turf with 75 percent less mowing — that's the goal that Branham says is quite realistic. He has gotten close to that goal after half a growing season with such combinations as PP-333/Limit and Cutless/Limit. "The question is, how long can you keep it suppressed like that," says Branham. "We actually had some plots that were denser than the untreated plots."

"We see a lot less of the yellowing and after the first application, you get that dark green a couple weeks after initial application," notes Branham. Since the PGRs are then continually applied at low

rates, there is no yellowing after the initial application and the dark green coloration effect is maintained. However, Branham cautions that these applications cannot be made to high traffic areas since the regulated turf is not able to replace top growth worn down by traffic. But since the object of Branham's research is to regulate turf growth rather than totally suppress it, slow growth does occur, enabling the turf to repair itself under favorable conditions.

Using his program, Branham says homeowners could expect to mow their lawn once every three to four weeks instead of once every week. "I still think that is a desirable savings in terms of time," says Branham. "That is what we are going to have to look at trying to sell if we ever are going to use PGRs on home lawns. As long as we can keep the quality as good, there is no reason not to use

them."

The dark green color that results from many PGR applications can be almost a drawback in itself since many people find the color unnatural. "It is especially true with our paclobutrazol plot. It was dense, more dense than the control plot and darker green."

This season, Branham's research will focus on refining the dosages and timings of PGR applications. Some day he says he would like to work out a way of injecting PGRs into the irrigation systems supplying the grounds of many large industrial complexes.

Branham can also visualize using PGRs as edging products to control grass growth around flower beds and other lawn

obstacles. But Branham also thinks his scheme for regulating home lawn growth would also fit into a lawn care operation's schedule nicely because most companies visit each account every six weeks. He says the different PGR formulations conform with the changing needs of a lawn care program. "I am leaning more toward the use of things like paclobutrazol and chlorflurenol and I would use Limit or Embark to control the seedheads in the spring of the year and then concentrate more on the other ones."

More exhaustive research on this project will require more funding and more funding has to come from sources like PGR manufacturers. So far, PGR manufacturers have shown interest in

Branham's work, but have yet to fork over any cash. "I really haven't talked it up as much as I should have either," admits Branham. "We are at the stage right now that we need to put together some results to show that it is going to work before going to some people to show that it is worth developing."

One company that has taken an interest in Branham's work is Monsanto Company of St. Louis, Missouri. Monsanto manufactures and markets the PGR Limit. Dr. John Kaufmann, Research and Development, says Monsanto's marketing philosophy for PGRs will move toward Branham's program, providing it continues to show promise.

But Kaufmann notes that Branham's

PGR USER EXPERIENCES

In the past, applicators only applied PGRs to utility turf, such as roadsides and fence rows. For the most part, that is still the case, but now more professionals are beginning to use PGRs in other settings as well. We even know of an operator who is making four PGR applications a year to a rural home lawn because the customer simply doesn't have the time to mow his large lawn. Many mowing/maintenance firms have begun to work PGRs into their mowing programs to reduce mowing frequency on difficult-to-mow areas.

Last year, Todd Reese of Reese Lawn Service, Duluth, Georgia, made some preliminary applications of Limit® from Monsanto Company and found that it cut back his mowing frequency from once a week to once a month. "I just sprayed a 50,000 square foot yard about two weeks ago at a church and it cut my mowing time down from three hours per week to one hour per week," claims Reese. However, he notes that he could further reduce his mowing time if he didn't add fertilizer to the tank mix to counteract possible yellowing side effects of the PGR. He says the fertilizer makes the treated grass grow a little faster.

"I put micronutrients on the grass and it cancels everything out so you never even see the effects," says Reese. On small areas he uses a backpack sprayer and on large areas he uses a 55-gallon spray rig. He says he hasn't had any problems with overlapping treatments. He sprays 10-foot swaths with his rig and overlaps half of that swath on each



PGRs can be used in cemeteries.

succeeding pass.

At Nature's Care in Allamuchy, New Jersey, Kile Dempsey tried a gallon of Limit last spring. She says they used it around fences and trees and places where they had to do a lot of string trimming. "We only applied it once and it did seem to help for a few weeks," reports Dempsey. "It did turn the grass a little bit on the funny green side, but it blended back in." She notes that last year might have been a bad year to test the PGR because northern New Jersey had a dry spring which inhibited turf growth considerably anyway. Nonetheless, her company is going to use it again this spring.

The areas where Dempsey made the Limit applications were low-traffic, low-visibility residential areas within the product's labeled guidelines. Since the product has proved itself in unobtrusive areas, Dempsey will use it on exposed slopes this year. "There are

places where people have put lawns that are much too steep for any heavy-duty mowing equipment," says Dempsey. "It would have to be done with light mowers or string trimmers which take a lot of manhours to maintain. But these are also areas exposed to more sunlight so I am not sure how a growth regulator will work."

PGRs will be used in Dempsey's turf program as another tool to make her mowing/maintenance operation more efficient, rather than sell it as an add-on service to her customers. She says she will probably make several applications on the sloped areas this year, but will make only one application on the areas where the PGR will be applied to reduce string trimmer work because turf growth in those areas usually slows down anyway by mid-summer.

As its name implies, Industrial Weed Control in Enoch, Ohio is the ideal testing ground for PGRs in commercial turf settings. Fred Circle first tried Short Stop® from Stauffer Chemical Company last year. He says he got excellent results on roadside turf in both rural and urban areas. And he should be a pretty good judge of Short Stop's performance by now — he applied 60,000 pounds of it last year.

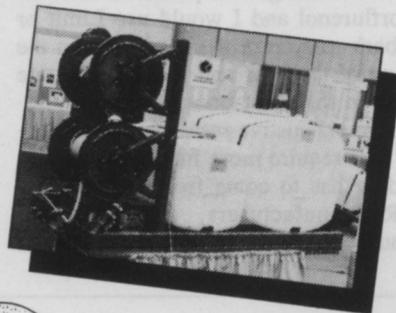
He says he made the applications in late April, which was a little too late, but still got control through the end of June. "Short Stop is unique in that it is a granular product that can be used in more environmentally sensitive areas," says Circle. "It is an excellent product." — *Tim Weidner*

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work is being done in Michigan and there are geographic differences that could influence the effectiveness of PGRs. The natural senescence of turfgrass under the influence of a PGR will vary from region to region, says Kaufmann. "At Michigan State," says Kaufmann, "he tends to have more uniform rainfall, he is probably working on irrigated plots, and he doesn't have the tremendous summer heat that we have. In Michigan he may be able to move them onto higher quality turfs through the summer before somebody like myself down in St. Louis."

But Kaufmann will go so far as to say that Monsanto will eventually move its PGR program into the home lawn market. He says their entry will most likely be a combination of Limit with another PGR like paclobutrazol. Limit will deliver quick growth regulator activity within about a week, while the paclobutrazol will remain in the plants to provide longer-term residual activity and control tillering, according to Kaufmann.

He says homeowners will want to try this treatment on their backyards, but once they see the results, Kaufmann predicts they will want their lawn care companies to make the applications on their front lawns as well. Since a certain amount of yellowing is inevitable with the initial application, Kaufmann says homeowners will have to make a trade-off.

"If my lawn already browns off in the summer time, and is not green, maybe I would trade a little brown in the spring because of the aging due to a growth regulator and have a little better color in the summer. Very often that is what happens. When you slow down the growth in the spring, you actually get better summer growth. We think people are going to get into this mode of thinking."

O.M. Scott and Sons of Marysville, Ohio has taken the home lawn PGR concept one step further. The company has adapted PGR technology to specific turfgrass market niches. O.M. Scott got Environmental Protection Agency registration last year for what the company is calling the first fine turf PGRs. The company actually has three products for the fine turf PGR market: TGR[®], a controlled-release methylene urea fertilizer/*Poa annua* control aimed at the golf course market; a combination fertilizer/warm-season grass PGR product directed at the golf market as well as commercial and residential turf markets; and Growth Manager[®], a retail version of the latter product being test-marketed in the South.

TGR (which stands for Turf Growth Regulator) reduces *Poa annua* competitive ability and allows stand domination by desirable grasses. "We found that a series of applications can reduce *Poa annua* populations from up to 70 percent

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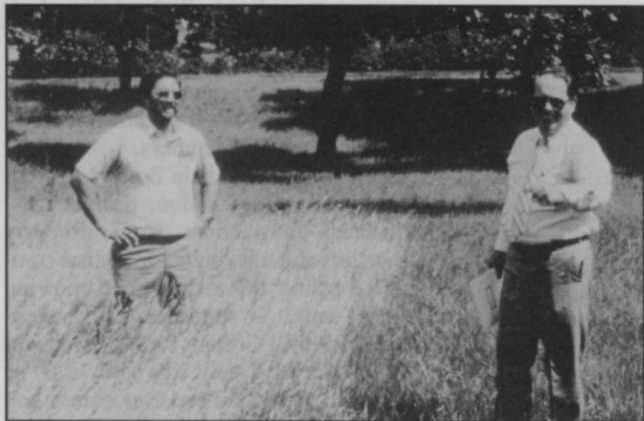
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PGRs can dramatically reduce the frequency of mowing as shown in the treated plots on the right and the untreated plots on the left.

of the turf stand, down to like 5 percent," says Jim Fetter, Scott's Senior Marketing Manager For Professional Products.

The new warm-season grass PGR is designed for use with St. Augustinegrass and Bermudagrass. "To date, our energy has been focused in developing a hybrid Bermuda fairway market for the product," says Fetter. "We have seen up to a two-thirds reduction in mowing and a 75 percent reduction in clippings and an extended greening that goes well beyond the kind of greening you would see with fertilizer alone."

"We believe that what we call 'second generation' growth regulators, using the anti-gibberellin chemistry offer some great potential in the fine turf applications," says Fetter. He says PGRs have traditionally been used for chemical mowing. "That is proving to be a pretty narrow way to look at growth regulators."

Aside from Monsanto and O.M. Scott and Sons, most PGR manufacturers continue to have what Fetter would consider a "pretty narrow" perspective on the PGR market. However, Leffingwell Chemical Company of Brea, California

(a division of Uniroyal Chemical) has taken a single PGR formulation and tailored it to fit into three different specialty markets. Maintain CF-125's primary use is for tree and shrub growth regulation on the West Coast, but it is also labeled for use as a turf growth regulator and a broadleaf phenoxy herbicide substitute.

The active ingredient in Maintain is chlorflurenol. As a tree and shrub PGR, it can be either applied to a freshly pruned plant for six months of growth control or applied to the bark of a tree with an oil carrier so it can be translocated into

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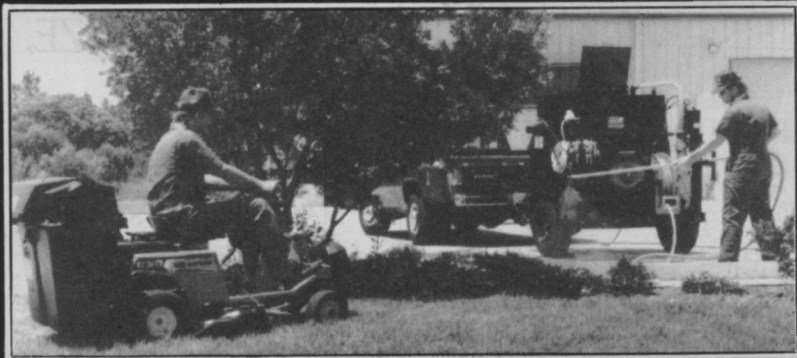
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the tree, according to Richard Cole, Lefingwell's Marketing Manager. As a turf PGR, Cole says Maintain is used around tombstones, under pipelines, and in other areas that are difficult to mow or costly to trim with line trimmers.

New found interest in Embark® from PBI Gordon Corporation, Kansas City, Missouri, has come from property managers and mowing/maintenance companies trying to work around mowing budget cuts. In the case of cemetery managers, PBI Gordon Product Manager Earl Tracy says they can spray a 6- or 8-inch band around the tombstones and speed up production because the mowing area will overlap the treated area.

Tracy admits that turf yellowing is a "real world" possibility following an Embark treatment, but PBI Gordon has come up with a way to overcome that problem. "We sell a product called Ferromec® that can be mixed with the Embark," says Tracy. Ferromec is a iron/nitrogen fertilizer. The nitrogen/urea in the Ferromec takes the iron and Embark into the grass plant, according to Tracy. He says the combination produces an appreciable change in green coloring over night. "The yellowing appeared where you have an overlap in the spray pattern and where there is a stress on the grass," says Tracy. "We sell this as a companion product and it makes a lot of sense."

But regardless of how much the discoloration problem can be improved, Tracy believes that the tillering inhibition which occurs will prevent PGRs from being used on high-visibility, high-traffic turfs.

Obviously, there is a lot of disagreement about what PGRs can and can't do. But at least there is finally some disagreement on the subject. Just a few years ago all the experts and manufacturer's representatives were in agreement that PGRs were relegated to low-visibility utility turf areas. Period.

Now researchers like Bruce Branham and manufacturers like Monsanto and O.M. Scott and Sons have begun to pierce the veil and open up new horizons for PGR use.

Do we have a PGR for the front lawn? Well no, at least not according to the labels of existing PGRs, but using combinations of existing PGRs under Branham's scheme of lower rates with more frequent applications can produce acceptable results on low-traffic front lawns. Perhaps with the funding and support of major manufacturers, applications such as the one proposed by Branham will be fully developed and eventually receive EPA registration. — *Tim Weidner* ■

The author is Managing Editor of ALA magazine.

RECOVERING

(continued from page 39)

preventive basis" during drought.

- Keep the mower blade sharp. A dull mower blade will fray the leaf blade and allow more water to escape.
- Check soil pH and salinity. Salt in the soil sucks moisture out of plants, creating the effect of drier soil. Abnormal soil pH can stunt rooting and limit the soil volume available to the plant for moisture mining.
- Core aerify compacted soils. Aerification benefits turf in flooded conditions as well as droughts by allowing water to freely move throughout the soil. Compaction limits the plant's ability to withstand stress.
- Urge community leaders to implement reasonable water contingency plans. Carrow and Dr. Jim Watson of Toro are presently developing the first draft of a water restriction handbook, to help advise communities in developing reasonable guidelines for watering during drought.

CHANGE YOUR GRASS. In areas where flooding or drought cause recurring damage to turf, a change of turf species or variety might be in order. Research at Michigan, Nebraska, Kansas, Georgia, and Texas has shed some light on the differences in drought tolerance among turfgrasses. The major difference among turfgrasses in drought tolerance is between cool-season and warm-season species. "The drought (in Georgia) affected all the lawns as the summer went along, but the cool-season lawns were particularly hard-hit," says Carrow. Warm-season (C-4) grasses have unique adaptations for conserving water that are lacking in cool-season (C-3) species. Warm-season grasses can close their stomates (microscopic air portals on the surfaces of leaves) when temperatures heat up. This adaptation allows less water vapor to escape out of leaves, resulting in greater water conservation.

Dr. Jim Beard at Texas A&M University and others have been researching water stress on grass for several years, sponsored by a grant from the United States Golf Association. Their results depict varietal as well as species differences in drought tolerance ability among turfgrasses (preliminary results are presented in Table 1).

"It would be premature to classify C-3 and C-4 turfgrasses into high and low ET (evapotranspiration) groupings," wrote Beard in a 1985 report. "More comprehensive investigations might prove that the range in ET rates of the C-3 cool-season and the C-4 warm-season perennial grasses may vary similarly."

Varietal differences in water usage among Kentucky bluegrasses were assessed in Michigan (by Beard and others) and

later in Nebraska by Dr. Bob Shearman (Table 2). Among the improved, turf-type bluegrasses presently on the market, Adelphi, A-20, Cheri, and Touchdown had the best ranking in water use efficiency. Common-type bluegrasses also showed low water-use rates but possessed inferior turf quality. Several of the varieties flip-flopped in ranking between the Michigan and Nebraska trials.

Beard notes that, "these differentials in ET (between Michigan and Nebraska) within individual cultivars may be due to seasonal climatic variations under which the turfs were originally propagated in the

field." As time goes by, additional research will undoubtedly yield new and exciting information on managing turf under sub-optimal moisture. — *Dr. A. Douglas Brede* ■

The author is Research Director at Jacklin Seed Company, Post Falls, Idaho. Table credits: J.B. Beard. 1985. An assessment of water use by turfgrasses. In V.A. Gibeault and S.T. Cocherham (eds.) Turfgrass water conservation. University of California Division of Agriculture and Natural Resources, Oakland, California.

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Milorganite also does great things for the soil. By adding valuable humus, it can actually increase the growing capabilities of all soils. It has been shown to reduce the incidence of disease and build up of harmful thatch.

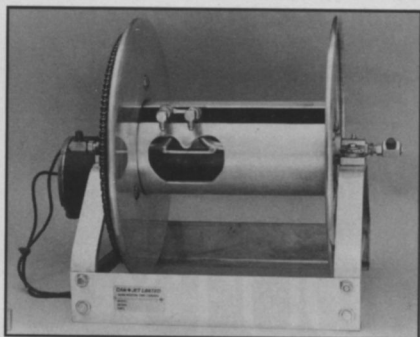
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The new trencher from **Jacobs Trenching Manufacturing** is designed to be rugged, lightweight, and dependable. It digs a neat trench that is 7 inches deep and 1-1/2 inches wide with optional digging depths and widths. This trencher has a dual belt drive which delivers maximum



power to the digging teeth from a 5 horsepower Briggs and Stratton engine. The company has designed two new optional carbide blade assemblies, one for extra hard ground and one for frozen ground. A 12-inch commercial model is also available.

Circle 102 on reader card

Aqua-Gro® soil wetting agents have become the best selling wetting agents for turf and landscape simply because they work, according to **Aquatrols Corporation of America, Inc.** Aqua-Gro saves labor by alleviating localized dry spots and compaction and reducing the need for aerifying, syringing, rebuilding. The product saves money by increasing fertilizer

and pesticide effectiveness because chemicals are distributed uniformly in the root zone. It saves water costs by 30 to 50 percent because more water uniformly penetrates the root zone — so plants get more and you waste less.

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Aqua-Gro "L" liquid is a blended ester and ester-alcohol non-ionic organic wetting agent consisting of 100 percent active ingredient, low foaming, and non-toxic to plant material and microorganisms. Aqua-Gro "S" spreadable is 15 percent by weight Aqua-Gro "L" on ground corn cobs, and is especially made for spreader applications.

Circle 103 on reader card

A new company has been formed to market a quick, easy, and inexpensive pesticide detector developed at **Midwest Research Institute**. **EnzyTec** was incorporated last spring as a wholly owned subsidiary of MRI Ventures. The pesticide detector to be marketed by EnzyTec provides a simple and reliable on-the-spot test to detect within minutes the presence of the two most widely used classes of pesticides, organophosphates and carbamates.

Lawn care operators can use the detectors to demonstrate the extent of coverage and to monitor drift. The product is now sold in kits of 10, 25, 50, or 100 or in bulk quantities at a cost less than \$5 per test. Laboratory tests providing comparable information generally cost \$150 or more, and sometimes require up to three weeks to complete.

Circle 106 on reader card

The **Ingram Kut-Mor Company** announces its new rotary mower line for 1987. The units are substantially shorter and now feature rotary actuator power steering systems for cat-like handling. Also new for 1987 is the model 623DW, powered by a 24 horsepower water cooled Perkins Diesel. The 623DW, like all Kut-Mor mowers, include power steering, hydrostatic drive, and fluid deck drive as standard equipment.

Circle 112 on reader card

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OMC Lincoln has introduced a new Ryan® Mataway® Overseeder unit. The new overseeder combines the power raking/dethatching action of the Mataway unit with "same pass" overseeding that drops grass seed in furrows 2 inches apart. The result is a one-pass overseeding operation that eliminates the need for a two-pass "criss-cross" effort.

A special Mataway Overseeder reel with disc blades on 2-inch spacings opens 10 slits or "furrows" for the seed, which is delivered from the seed hopper through clear plastic tubes. This enables the operator to visually ensure seed is being delivered through each tube. Seed furrow depth can be adjusted with a micro-screw control on the unit, and the all-stainless steel seeder gate and metering system has openings from 0 to 5/8-inch, to accommodate different types of grass seed and varied operating speeds.



The steel seed hopper has a capacity of 0.8 cubic feet and is equipped with a neoprene rotor bar driven by a V-belt from the unit's front wheel drive. The rotor bar engages when the Mataway reel is lowered for operation, and the seeder gate automatically shuts off when the rotor bar is disengaged. The rotor bar and seeder gate can be removed for cleaning.

The unit is designed with most of the weight balanced over the rear wheels. For turning, the operator just pushes down on the handle to raise the front drive wheels and turns the unit in the new direction, then lowers the drive wheels to the turf. Although the machine comes as a complete unit, the overseeder unit can be removed by taking out four pins, when the Mataway is to be used exclusively for power raking. The overseeder will be available as an accessory in 1988, to retro-fit existing Model 544283 Mataway units.

Circle 109 on reader card



Excel Industries, Inc. has introduced the new Hustler Tilt-Deck Trailer as part of its rugged line of Hustler turf and grounds maintenance equipment. Through a hydraulic assist, the Tilt-Deck Trailer automatically tilts down, locks into place and stays down for easy reloading. A simple twist of the wrist turns the knob which releases hydraulic pressure, returning the trailer to the normal travel position.

With inside floor space measuring more than 82 inches in width and 144 inches in length, the Tilt-Deck Trailer is large enough to transport any of the seven different models of Hustler out-front rotary mowers with a wide range of year-round attachments, as well as other turf and construction equipment. The trailer's large dimensions allows even a Hustler with a Range Wing™, an attachment that extends the cutting width of larger models to more than 12 feet, to come on board. Because it has solid, 12-inch high sides made of welded steel, the Tilt-Deck can be used for utility purposes, such as hauling clippings and nursery stock, when not transporting a mower.

Also from Excell, the unique rear discharge design of the 18 horsepower Hustler 251 provides an operator with the capability to trim from either side of the 51-inch deck. It also makes possible direct feeding of clippings and leaves into the optional eight bushel BAC-PAC grass catcher.

Dual trim capability, combined with true zero-degree radius turning, has made the 251 popular with operators who work in tight quarters, as encountered in cemetery maintenance. Because there is no side discharge chute to get in the way, the operator can trim while mowing in either direction. And, hand trimming around trees, shrubs or other obstacles is virtually eliminated.

All controls are conveniently placed for easy access from the operator's station. Vacuum cutting action is created by three 18-inch high-lift blades that stand up for a uniform cut. Even strips of grass that are pressed down by the front caster wheels are lifted and cut. Deck cutting height is fully adjustable from 8/10-inch to a full 5 inches. Each full rotation of the conveniently located adjustment lever raises or lowers the deck at 1/10-inch increments.

Circle 110 on reader card

Scag Power Equipment, Inc. recently announced the addition of a 32-inch and a 36-inch walker mower to Scag's popular line of mid-size walk-behind mowers.

"Our new 36-inch walker is equipped with an 8 horsepower, JLO two-cycle engine, making it an ideal choice for cutting on hillsides," says James Kee. "This engine is continually lubricated with fresh oil, eliminating user worry over starving the engine of oil when cutting on a steep grade." The two-cycle JLO engine is extremely durable.

Scag's new 32-inch walker, equipped with a 12 horsepower Briggs and Stratton engine, is the smallest of the mid-size walker line. Its compact cutter deck makes it an ideal choice for jobs requiring close-in cutting and easy maneuverability.

Both mowers feature Scag's Twin Power Belts that double friction to pulley surfaces for non-slip cutting, even in wet conditions. Another plus, a four-speed gear box, gives Scag mowers a cutting speed that is up to 30 percent faster than competitive mowers. And, simple self-service design and engineering have made Scag walkers and riders pacesetters among today's commercial mowers.

Circle 113 on reader card

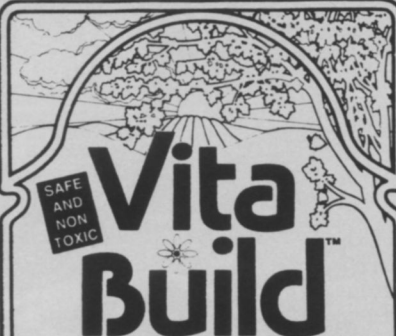
Designed for the commercial grounds maintenance and lawn care markets, the Grazer Models 1800C and 1800CK from **Willsey-D, Inc.** feature 18-horsepower Briggs and Stratton I/C or Kohler Magnum twin cylinder engines and 42-, 52-, or 62-inch cutting widths. Dual steering levers independently control each hydrostatic-powered drive wheel providing smooth one-hand zero-turning radius maneuverability. The low profile, fully floating out-front mower deck tilts back to a vertical position for easy cleanout and servicing. Attachments include a vacuum grasscatcher with an 11-bushel easy dump hopper.

Circle 104 on reader card

Vita Build from **Green Pro Services** is the natural choice for professionals looking for a better quality lawn program using less nitrogen and pesticides. This organic approach to lawn care is fast becoming the safe and affordable alternative to current lawn care practices. Vita Build is a highly concentrated humus and mineral-based organic lawn and garden food. It is available in both liquid and granular forms.

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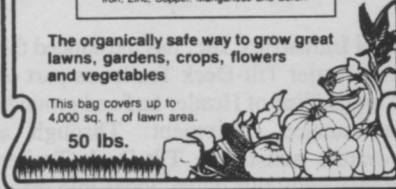
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Circle 108 on reader card

LESCO, Inc. has issued its new LESCO Catalog with information on fertilizers, combination products, chemicals, seed, golf course accessories, application accessories, literature, replacement parts, equipment and cleanup, safety, testing, and clothing.

Elite®, the new small-particle sulfur-coated urea-based fertilizers for low-cut turf is featured. A new tree fertilizer, LESCO Arbor Green, powdered slow-release fertilizer for liquid injection for trees and ornamentals is also spotlighted. A stainless steel tree and ornamental feeder is available for use with LESCO Arbor Green.

In the chemical section, LESCO 20-5-10 fertilizer with Team® herbicide and fertilizer combination makes its first appearance along with LESCO Dylox 5G® and LESCO Sevin Brand SL® insecticides. LESCO Tracker®, a non-hazardous blue indicator dye, is also new this year.

(continued on page 52)

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FIRE ANTS: PLAGUE OF THE SOUTH

There are many species of ants encountered by southern lawn care professionals. Many of these ants bite and/or sting, including Argentine ants, thief ants, and harvester ants. However, the stings of fire ants are perhaps the most notorious, since they not only cause a severe burning sensation at the time of attack, but the sting site often becomes sore or blisters, sometimes resulting in permanent scarring. People are rarely killed by fire ants, but animals are frequently killed, particularly newborn animals, including livestock and birds.

Unlike bees, fire ants can sting repeatedly, injecting their painful venom. Symptoms include burning and itching, often followed by white pustules, or sores. People who are allergic to fire ant venom may experience chest pains, nausea, paralysis, anaphylactic shock, and in rare cases, death. More than 2-1/2 million Americans are bitten every month by the red imported fire ant.

BIOLOGY AND HABITS. Fire ants seldom enter homes, although occasionally they nest in masonry voids, especially near chimneys. Typically, they nest in the ground outside.

The southern fire ant, *Solenopsis xyloni*, which occurs from Florida across to California, builds nests without any distinct mound, but with several small craters in an area of 2 to 4 square feet.

The red imported fire ant, *Solenopsis invicta*, which is now widespread in the South and throughout Texas, builds nest mounds which may be 2 feet in diameter and 1-1/2 feet high. These mounds surmount a complex systems of galleries which can extend many feet deep. One mound can house more than 250,000 ants.

The fire ant is aggressive. Once a native of Brazil, the fire ant was first introduced and identified in the United States at Mobile, Alabama in the 1930s. Today, the fire ant infests the entire southeastern region, reaching as far west as Texas. And, it is expected that fire ants will continue to migrate further west, along the coastal areas.

Generally, fire ants build their mounds in undisturbed areas, such as by gas or water meters, fences, and tree trunks, or under playground equipment and in flower beds. In between mowings, fire

ants may establish small mounds in lawns.

Fire ants vary the depth at which they live, depending on temperature and water levels. From their nests, fire ants forage for food, which mostly consists of insects or carrion, but also includes honeydew, seeds, and grease.

Fire ants migrate, seeking food, and may come from adjacent untreated areas and establish new mounds. Mating females may fly in from untreated areas too and begin a new colony. So look for fire ant mounds in neighboring lawns or nearby vacant lots. Fire ants also link their mound with underground tunnels that lead to one or more sources of food. Routes have been traced from distances of over 100 feet from a mound.

CONTROL. Since fire ants have such broad diets, it is hard to remove all sources of food. Nonetheless, plants which harbor aphids, which serve as a source of honeydew for ants, should be removed or the aphids killed by insecticides. Likewise, plants which produce a lot of nectar and which are being foraged upon by fire ants should be removed. As with many other ants, good food and waste handling will reduce the chances of fire ants foraging in buildings.

In general, non-chemical methods are ineffective against fire ants, and in the absence of chemical treatments people quickly learn to avoid nest areas. Applications of residual insecticides as perimeter treatments to soil and foundations help stop foraging ants from entering buildings.

Best results are achieved by treating the

nests. Spot applications should be made indoors where there have been any ant sightings. Nest treatment can be done by spraying, dusting, or drenching. Because of the deep gallery systems, drenching usually achieves the fastest and most reliable results.

Personnel involved in the drenching should wear rubber boots and clothing which fits tightly around the wrists and ankles. Drenching is best done when it is not too hot, or else the ants may be very deep in their galleries and less vulnerable.

TIMING APPLICATIONS. Several insecticides are available for fire ant control. These chemicals are most effective when the ants are active and concentrated in the upper portion of the mounds. These times are in the early morning and evening when it's cooler, and when wet conditions exist following rain.

An easy effective method is to drench the mound with a liquid insecticide diluted in water. Use a sprinkling can to thoroughly wet the mound and small surrounding area. To prevent ants from establishing new mounds outside the treated areas, follow the drench treatment with an area application.

If your area has been dry and hot for a long period, most of the ants will be below ground level. To draw them out, soak the soil around the mound with water before treatment. Whatever control method you use, it is important not to disturb the mound before or during treatment since this will cause the ants to move away from the chemical. — *Tim Weidner*



Between mowings, fire ants may establish small mounds in lawns.

PRODUCTS

(continued from page 50)

New grass seed cultivars in this year's LESCO catalog include: Dawn and Julia Kentucky bluegrasses; Cimarron turf-type tall fescue; Trailblazer, elite dwarf turf-type tall fescue, and Regency turf-type perennial ryegrass. Each cultivar is available from LESCO as certified and sod-quality seed.

Two new spreaders are featured in the expanding equipment section of the LESCO catalog — a gasoline-powered, hydraulic-driven spreader and the new LESCO Hi-Wheel Spreader. Additional calibration equipment, including a gauge and a professional granular applicator calibration kit are also now available.

Circle 105 on reader card

Wilt-Pruf Products, Inc. suppliers of Wilt-Pruf Anti-Transpirant for over 35 years, has redesigned its packaging and will introduce a stronger, brighter label for the 1987 spring season. Wilt-Pruf is an anti-transpirant for protecting plants when transplanting in spring and fall as well as for protection against winter winds and freezing weather.

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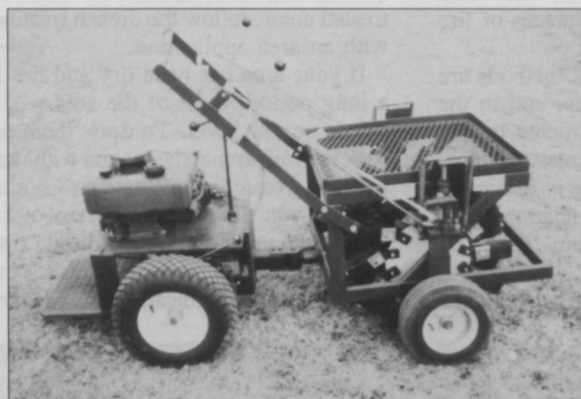
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COMING NEXT MONTH

In June, we will report on the aftermath of last year's media assault on the lawn care industry. Are the effects of the negative media coverage still with us? Find out next month. We will also bring you information on seed research and seeding home lawns. Stay tuned!

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