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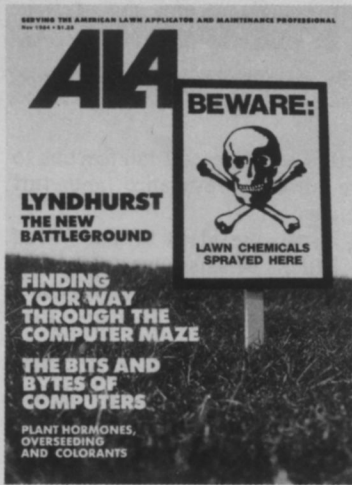
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ALA

NOVEMBER 1984
VOLUME 5 NUMBER 8

CALENDAR

Nov. 16

Hydraulic Sprayer Calibration and Application Clinic, Forest City Tree Protection Company, South Euclid, OH. Contact: Lauren Lanphear, Forest City Tree Protection Company, 1884 South Green Road, South Euclid, OH 44121; 216/381-1700.

Dec. 3-6

New Jersey Turfgrass Expo '84, Resorts International Hotel, Atlantic City, NJ. Contact: Dr. Henry W. Indyk, Soils & Crops Department, Cook College, P.O. Box 231, New Brunswick, NJ 08903; 201/932-9453.

National Fertilizer Solutions Association 1984 Convention, Cervantes Convention Center, St. Louis, MO. Contact: Dennis E. Brown, 8823 North Industrial Rd., Peoria, IL 61615; 309/691-2870.

Dec. 11-14

Pennsylvania Turfgrass Conference and Trade Show, Hershey Lodge and Convention Center, Hershey, PA. Contact: Christine E. King, Pennsylvania Turfgrass Council, P.O. Box 417, Bellefonte, PA 16823; 814/355-8010.

Jan. 6-8, 1985

The 15th Annual Turfgrass Conference, Center for Continuing Education, University of Georgia, Athens, GA. Contact: Gil Landry, 2400 College Station Rd., Athens, GA; 404/542-5350.

Jan. 23-25, 1985

25th Virginia Turfgrass Conference and Trade Show, Virginia Beach Pavilion and Tower, Virginia Beach, VA. Contact: J.R. Hall III, Agronomy Department, Virginia Tech, Blacksburg, VA 24061; 703/961-5797.

THE COVER

The public's "right-to-know" is an issue that has already come to a head in Wauconda, IL. This month's cover story concerns a similar situation unfolding in Lyndhurst, OH and what local pesticide applicators are doing to fend off regulation.

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Helminthosporium Leaf Spot of Kentucky Bluegrass

Clinton Hodges gives us recent observations on leaf spot disease.

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Publisher
Richard J.W. Foster

Associate Publisher

Maureen Mertz

Managing Editor

Tim Weidner

Assistant Editor

Vivian Fotos

Art Director

Charlotte Goerss

Production Manager

Fran Franzak

Circulation Manager

Amy Sheldon

Reader Service

Nancy Ingalls

Editorial Office

ALA

**4012 Bridge Avenue
Cleveland, Ohio 44113**

216/961-4130

Advertising Office

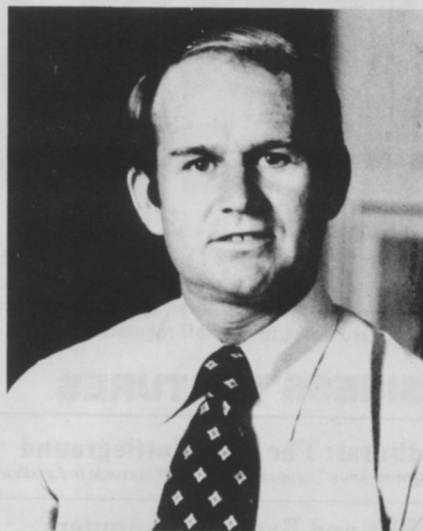
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**42480 Park Ridge Road
Novi, MI 48050
313/348-9636**

CONTRIBUTING TECHNICAL AUTHORS

T. Abernethy, Ohio State University
James Beard, Texas A&M University
Don Blasingame, Mississippi State University
Prasanta C. Bhowmik, University of Mass.
Bruce Branham, Michigan State University
Cynthia L. Brown, Tru-Green Corporation
Edward A. Brown, University of Georgia
Stephen Brown, New England Green, Inc.
Nick Christians, Iowa State University
Patricia P. Cobb, Auburn University
H.L. Cromroy, University of Florida
Karl Danneberger, Michigan State University
Peter H. Dernoeden, University of Maryland
Glenn Dudderar, Michigan State University
Gary A. Dunn, Michigan State University
Thomas W. Fermanian, University of Illinois
Ray Freeborg, Purdue University
T.E. Freeman, University of Florida
Stephen G. Fushtey, Agriculture Canada
Jean E. Haley, University of Illinois
John R. Hall, Virginia Polytechnic Inst.
Marc C. Hirrel, University of Illinois
Clinton F. Hodges, Iowa State University
Neal Howell, Iron Man Fertilizer Specialties
Richard J. Hull, University of Rhode Island
Norman W. Hummel, Jr., Cornell University
Noel Jackson, University of Rhode Island
John A. Jagschitz, University of Rhode Island
B.J. Johnson, University of Georgia
Keith Karnok, University of Georgia
Keith Kennedy, ChemLawn Corporation
E.L. Knake, University of Illinois
K.N. Komblas, Louisiana State University
Lauren S. Lanphear, Forest City Tree Protection
Phillip Larsen, Ohio State University
Leon T. Lucas, North Carolina State University
M.T. McElroy, Michigan State University
M.D. McGlamery, University of Illinois
Michael C. McKee, New England Green, Inc.
Landon C. Miller, Clemson University
William Mitchell, University of Delaware
Harry D. Niemczyk, Ohio State University
A.D. Oliver, Louisiana State University
Robert E. Partyka, Chemscape
A. Martin Petrovic, Cornell University
Daniel Potter, University of Kentucky
Richard C. Rathjens, Davey Tree Expert Co.
Eliot C. Roberts, The Lawn Institute
W.H. Robinson, Virginia Polytech Inst.
Patricia L. Sanders, Penn State University
Wayne Scheppele, Deere and Company
E. (Dick) Schmidt, Virginia Polytech Inst.
Mark Sears, University of Guelph
D.E. Short, University of Florida
John F. Shoulders, Virginia Polytech Inst.
Malcolm Shurtleff, University of Illinois
John R. Street, Ohio State University
Herbert T. Streu, Rutgers University
J.H. Strong, Strong Enterprises
Mike Tolley, Ohio State University
J.R. Vaccaro, Dow Chemical Company
Joseph M. Vargas, Michigan State University
T.L. Watschke, Penn State University

ALA PUBLISHER'S FEEDBACK



ALA's growth has been dramatic throughout 1984. Both editorial content and advertising volume have increased more than 40 percent over last year — circulation and readership have grown even more dramatically.

As we approach 1985, and expand to monthly frequency, it is appropriate that we evaluate our year's performance and lay the groundwork for continual growth and improvement of our publication. Although we are still in the evaluation and planning mode, I am pleased to announce the formation of an "ALA Editorial Advisory Board" that will be working closely with our editors to guide the expansion of our editorial content in the coming year.

Gordon La Fontaine, president of Lawn Equipment Corporation, Novi, MI, will provide us with input and direction from the distributor segment of our industry. In addition to his distribution responsibilities, Gordon serves as the executive director of the Michigan Turf Foundation and is a board member of the Michigan Ag Council.



Dr. William Meyer, president of Pure-Seed Testing, Inc., Hubbard, OR, will keep us abreast of developments in the turf seed industry. Bill is the leading independent turf seed breeder/researcher in the country — breeding perennial ryegrasses, Kentucky

bluegrasses and fine and tall fescues to improve disease resistance and turf performance.

Des Rice, president of The Weed Man, Ltd., Mississauga, Ontario,



Canada, is a very successful lawn care operator/entrepreneur with offices coast to coast in Canada and the northeastern United States. He is a three-year member of PLCAA's Board of Directors and an advisor to the Ontario Turfgrass Research Association. We look forward to his input on business management as well as practical field research.

Dr. Al Turgeon is vice president of Research and Technical Services at



True Green Corporation, East Lansing, MI. Al will bring to ALA his experiences and insights based on years of experience as professor and director of the Texas A&M Research and Extension Center. We also look forward to his advice based on his current ongoing business responsibilities in Technical Services, Research and Development, Training and Purchasing with True Green.

Dr. Joseph Vargas is professor of Botany and Plant Pathology at Michigan State University, East Lansing, MI. Joe

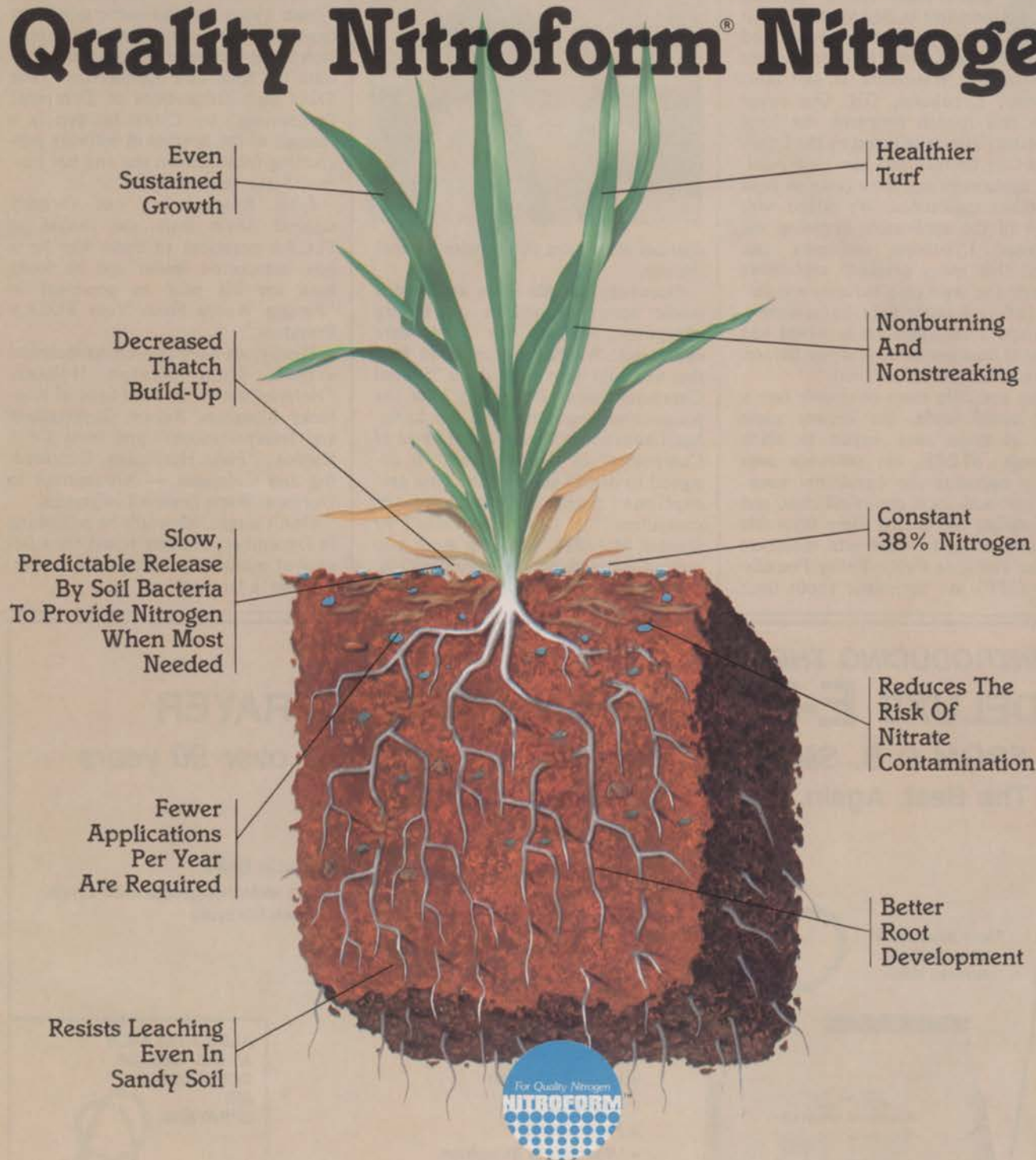


is one of the turf plant pathologist elite in this country and will bring to ALA his broad base of knowledge and experience as well as insights into the extensive research activities being conducted throughout the country.

We are very pleased that such distinguished professionals have committed their time and expertise to assist in the continued expansion of ALA in the coming year. Please join me in welcoming them to our masthead as members of our Editorial Advisory Board.

Dick Foster

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ALA INSIDE STORY

Right-to-know is a revered principle in this country, but it is a principle being used against lawn care applicators in places like Wauconda, IL and most recently, Lyndhurst, OH. Our cover story this month concerns the local regulatory efforts initiated by the Lyndhurst City Council and how local pesticide applicators are attempting to hold off those regulations. We talked with some of the applicators opposing the proposed Lyndhurst ordinance and found that many pesticide applicators outside the lawn care industry are getting involved in the fight. Several arborists and landscapers are involved and so far at least one structural pest control operator has gotten involved.

The pesticide users obviously face a long uphill battle, but already some rays of hope have begun to shine through. STEPS, the pesticide user group opposing the Lyndhurst issue, has met with local media officials, and as a result, has gotten some favorable press coverage. In Wauconda, members of the Pesticide Public Policy Foundation (3PF) are optimistic about their



chances of winning their lawsuit against the city.

Elsewhere in this issue we have a whole series of articles on buying computer systems for lawn care operations. We have so many in fact, that we could have made this a "Special Computer Issue" if it weren't for the preemptive importance of the Lyndhurst situation. "The Bits and Bytes of Computers" by Andrew Cohill is designed to dispell some of the false perceptions many people have of computers. "A Computer Fable" by Dennis Mahaffey will help steer you around some computer-buying pitfalls. In "Finding Your Way Through the

Computer Maze," Assistant Editor Vivian Fotos quizzes some computer experts to find out what *they* would look for in computer hardware and software for lawn care applications. "The Trials and Tribulations of Computer Programing" by Cathy Juntgen is a recount of the horrors of software programming from scratch she and her husband Steve went through.

John Kenney has just recently stepped down from the throne as PLCAA president to make way for a new association leader and he looks back on his year as president in "Parting Words From Your PLCAA President."

Finally, we have interesting technical articles from Clinton Hodges, "Helminthosporium Leaf Spot of Kentucky Bluegrass, Recent Observations and Interpretations;" and from Keith Karnok, "Plant Hormones, Overseeding and Colorants — Alternatives to Dormant Warm Season Turfgrasses."

Don't forget, we won't be publishing in December, but stay tuned for a full year of monthly publication next year. See you in January!

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In short, how it can improve your profitability by adding value to your existing customer base.



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Coming up with an effective disease control sales strategy is one thing. Carrying it out is something else. Our *Healthy Business Package* shows you how.

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One reason lawn disease treatment is an excellent business opportunity is that many homeowners don't even know that turf diseases exist. If you make them aware of the problem—and offer the solution—in your advertising, promotions and sales calls, you'll capture more than your share of this growing market. We can help.



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Before you start offering disease control to your customers, you have to be sure your employees know how to handle the job.

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ALA NEWS IN BRIEF

HMC VENTURES INTO HOMEOWNER MARKET

Lawn care operators best know HMC Inc. as the manufacturer of commercial equipment such as string trimmers, backpack blowers, chain saws and hedge trimmers. The folks at HMC hope their name will be as recognizable in the retail lawn care arena as they're vigorously marketing their Expand-It® system, a multi-purpose, hand-held consumer product. Homeowners can use the gasoline-powered unit as a weeder/cultivator, string trimmer/brush cutter, power blower, edger or snow thrower by alternating attachments.

According to Kathryn Takis, HMC advertising manager, the break into retail lawn care products is a relatively new venture for the company. "The bread

and butter of HMC's marketing picture has been the commercial products for a number of years," she says. But with the advent of products like Expand-It, she says homeowner products will "absolutely" be more important to HMC in the future.

"More and more people are buying homes now that the economy's getting a little bit better," Takis explains. "And more and more people are taking care of their own homes."

Although Expand-It is the crux of HMC's consumer product line, the company's entry into the homeowner lawn care field began with a hand-held electric blower and a hand-held electric weeder/cultivator in 1979.

HMC currently distributes its homeowner lawn care products through lawn and garden dealers.

RAIN BIRD ACQUIRES HAMMOND VALVE CORP.

Rain Bird Sprinkler Manufacturing Corporation, Glendora, CA, has acquired the assets of Hammond Valve Corporation, Hammond,

IN, according to Anthony LaFetra, president of Rain Bird. Rain Bird plans to continue the Hammond operation as a service-oriented manufacturer of quality bronze valves. Hammond Valve Corp. will market its broad line of residential, commercial and industrial valves through a network of distributors.

C.P. CHEMICAL MAKES RETAIL MARKETING MOVE

"C.P. Chemical has given the manufacturing rights to Growth Products, which is another division of C.P., to sell and market our Nitro 26 CRN (to the retail market)," says Cynthia Walker, marketing manager for C.P. Chemical, White Plains, NY. Walker says her company has become interested in the retail

garden center market after "getting quite a lot of inquiries" from homeowners and nurseries. The over-the-counter version of Nitro 26 CRN will hit the market in 1985 in quart or half-gallon containers.

LESCO CONDUCTS OPEN HOUSE AT NEW FACILITY

LESCO, Inc., will conduct an open house at its new Rocky River, OH, headquarters from 11 a.m. to 1:30 p.m. and 3 p.m. to 7 p.m. on Thursday, November 29, 1984. Located at 20005 Lake Road, Rocky River, OH, just west of Cleveland, LESCO's new headquarters is a two-story red brick colonial-style building with white columns. From the purchase of the building in 1983, LESCO gutted the inside of the structure and remodeled to accommodate an administrative and inside sales staff of over 70 persons.

The building previously housed an engineering firm. The move into the new headquarters began in

November, 1983 while work was being completed on sales meeting rooms, landscaping and parking facilities. The open house will include tours of the building, displays and informational presentations.

All individuals working in the green industry are cordially invited to attend the open house. For more information, contact Barbara Betz, LESCO, Inc., Rocky River, OH. Call 216/333-9250.



LESCO, Inc.'s formulating facility in Elyria, OH.

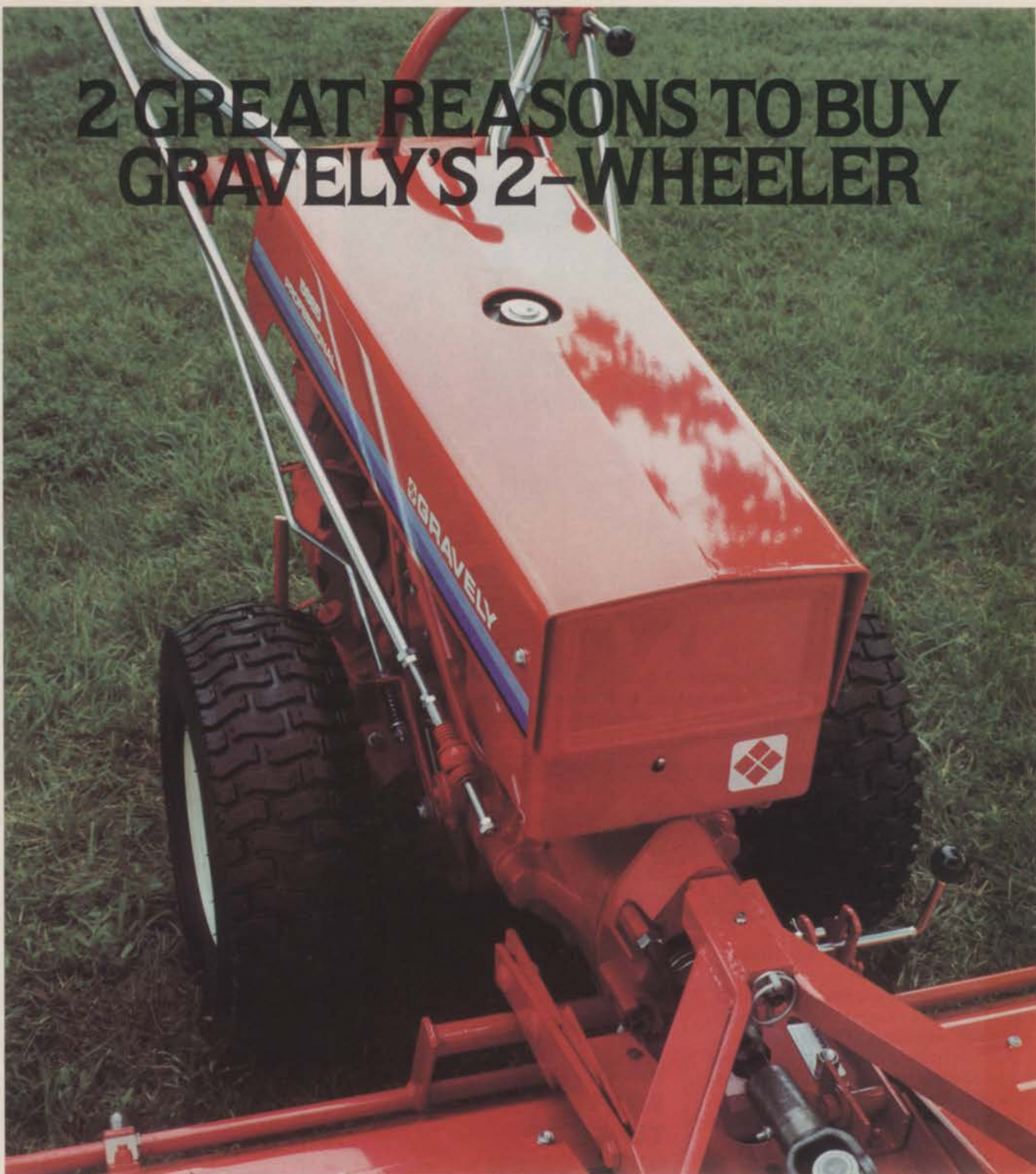
MASS. GOVERNOR PROCLAIMS "GARDEN WEEK" IN JUNE

To encourage productive use of land through gardening, this past summer the Honorable Michael S. Dukakis, governor of Massachusetts, proclaimed June 3-9, 1984, as "Garden Week." Supporters of Garden Week present at the signing of the declaration were Steve Simoni of Simoni's Flower Company, Norwood, MA and Ted Jones of Ames Lawn and Garden Tools.

The proclamation enhanced continuing efforts to recognize gardening as a wholesome national

(continued on page 16)

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NEWS

(continued from page 14)

pastime that benefits the environment and produces food of a high nutritional quality. Such efforts have resulted in Congress's declaration of June 2-8 as

National Gardening Week in 1985. For more information on how you can become involved with National Gardening Week in 1985, please contact Christie Lindauer, Marketing Administrator, Ames, Box 1774, Parkersburg, WV 26101.



Supporters of Garden Week, Steve Simoni (left) and Ted Jones (right), witness the signing of the declaration by Massachusetts Governor Michael Dukakis.

DOVE COMMUNICATIONS IS NEW AG AD AGENCY

Dove Communications, Inc. of Peoria, IL entered the advertising business in 1980, but the company really got rolling in January of this year with the appointment of a new top management team with a combination of 30 years of agribusiness and marketing experience. Since its management expansion, Dove has tripled its client list and more than doubled its billings during the first three quarters of 1984. Major clients include PCS Sales (Potash Corporation of Saskatchewan), Great Northern Equipment Company, Shissler GR8 Hybrids, Tabor Commodities (a subsidiary of ADM Corp.), Van Horn Hybrids, Inc. and the National Fertilizer Solutions Association (NFSA). The agency now serves over 20 agricultural and general business firms.

David K. Murray, president and co-owner of the firm, came into the business in 1984 from his previous position as CEO of the NFSA. Dove Communications is a full-service advertising and public relations agency, offering its clients professional services in all aspects of advertising production, marketing, graphic design and

communications. The company's new headquarters are located at Weatherwood Place, P.O. Box 3410, Peoria, IL 61614.

NATURALIST FIGHTS TO KEEP WILD LAWN

An *Associated Press* report from Kenmore, NY paints a portrait of the ultimate "environmentalist." Steve Kenney, resident of the Buffalo, NY suburb of Kenmore, went on trial on charges of violating three village codes regarding his 15-foot-square "lawn." Kenney, 30, said he has not mowed the lawn for several months for both environmental and civil rights reasons.

He said the lawn, which he started with \$35 worth of wildflower seeds, is more environmentally sound than

(continued on page 20)

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This pesticide is toxic to fish. Keep out of lakes, ponds, or streams. Do not contaminate water by cleaning of equipment or disposal of wastes.

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AGRICULTURAL CHEMICAL

Do not contaminate water, food or feed by storage or disposal.

NOTICE: Read the entire label. Use only according to label directions.

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NEWS

(continued from page 18)

clipped expanses of greenery that require large expenditures to create and maintain. "When one approaches my yard, they'll often see butterflies and birds hovering about it, something you won't see on the other lawns on the street," Kenney said.

"Beauty is in the eye of the beholder and I happen to prefer wildflowers to grass."

The village fathers suspect that butterflies and

birds are not the only wildlife residing in Kenney's primordial patch, so they have charged him with allowing "undergrowth and accumulation of plant growth, which are noxious or detrimental to health." The maximum penalty Kenney faces on the charges is 15 days in jail and a \$250 fine. He has said he will appeal any negative decision. Some lucky mowing maintenance operator in Kenmore may get the contract to level Kenney's jungle. Bids anyone?

THE ANDERSONS STRENGTHEN LAWN CARE COMMITMENT

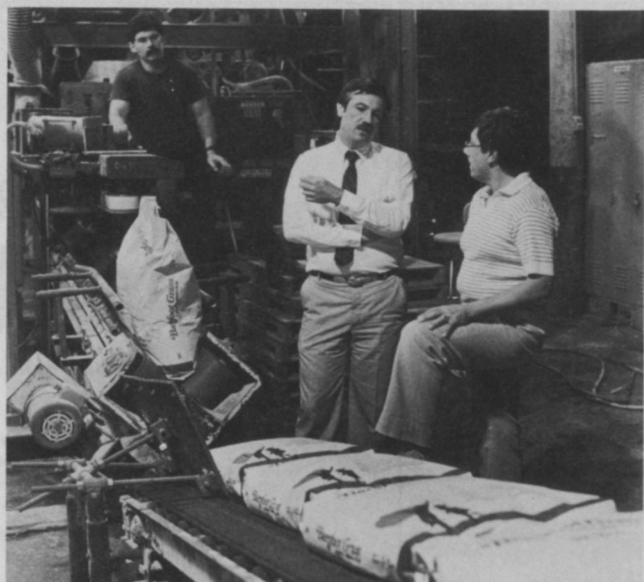
After 21 years in the lawn fertilizer business, The Andersons Lawn Fertilizer Division is now the fifth largest lawn and garden fertilizer manufacturer out of the 200 companies supplying the green industry, according to Ronald A. Meier, The Andersons' Lawn Division manager. Meier also says The Andersons' Maumee, OH plant has the second largest lawn and garden production capacity in the business, surpassed only by the company's Ohio neighbors, O.M. Scott and Sons.

The company produces over 500 finished products — fertilizers, insecticides, herbicides, fungicides and

combinations of these products. The Lawn Fertilizer Division distributes products in 35 states, with a targeted market in the Snowbelt from the Rockies to the Atlantic. About two-thirds of the company's output is



Ronald A. Meier



Gary Sautter (left), operations manager for the Lawn Fertilizer Division of the Andersons, discusses the packaging process with production manager, Lawn Fertilizer Operations, Naveed Ahmed.

sold to retailers and the company is the fourth largest mass merchant private label manufacturer in the United States, according to Meier. The remaining one-third of the company's output goes to the professional user segments, mainly lawn care operators and golf courses.

Meier attributes a great deal of the green industry's current prosperity to the growth of the residential lawn care industry. "Lawn care operators have greatly enhanced the public's awareness and joy in a healthy outdoor environment," Meier says. "While some volume has undoubtedly shifted from the retailer's shelf to the

lawn care operators, we believe the overall market has grown because of them."

FUMIGANT AND PHEROMONE SEMINAR THIS MONTH

On November 29 and 30, in Indianapolis, IN, Fumigation Service and Supply, Inc. and Insects Limited, Inc., will sponsor another advanced seminar at the Holiday Inn North. The purpose of this day-and-a-half meeting will be to update persons in the urban and industrial pest control industry, food processing industry, turf industry and the grain industry on the subjects of fumigation and pheromones.

This seminar will focus on new products, new fumigation techniques, a replacement for EDB and new methods of monitoring and controlling pests. It has been approved in several Midwestern states for continuing certification credit. For more information, contact: David Mueller or June Beasley at 317/846-5444.



The Andersons' Maumee, Ohio facility with administrative offices pictured on the left and the lawn fertilizer plant on the right.

ALA PLCAA UPDATE

Make a note on this month's required reading list to include the Professional Lawn Care Association of America's *Safety Manual*. The handy reference book is something all lawn care professionals should read and make available for their entire work force. Its convenient three-ring binder format has chapter tabs for easy access to specific information on subjects such as fire safety, emergency procedures, employee health plans, pesticide safety procedures, motor vehicle safety, safety inspection and much more. The booklet's notebook style also allows for the addition of supplements and revisions as state-of-the-art in safety changes.

An accident reporting and investigation section features sample reports for personal injury claims and pesticide spills. Other sample checklists, charts and bulletins are also included.

Specifically, the *Safety Manual* instructs lawn care professionals on work practices for maintaining safe facilities, services and equipment. In

the pesticide safety procedures chapter, the manual describes symptoms of poisoning due to cholinesterase inhibitors, phenoxy herbicides, arsenicals and other herbicides. It discusses how concentrated acids or bases should be handled, as well as how pesticides should be stored.

A shop and machinery safety chapter lists the do's and don't's of working

Specifically, the *Safety Manual* instructs lawn care professionals on work practices for maintaining safe facilities, services and equipment.

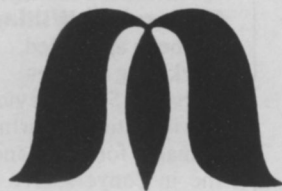
with power tools, and an employee health program chapter suggests housekeeping and personal hygiene practices for a safer environment.

Many other important topics are

included in PLCAA's in-depth guide. Copies of the *Safety Manual* are available to members for \$10; \$20 for non-members. Contact PLCAA, 1225 Johnson Ferry Rd. NE, Suite B-220, Marietta, GA 30067, 404/977-5222.

Hot off the press. The second booklet in the PLCAA Management Monograph Series is now available. Entitled "How to Avoid and Respond to Unions," the new guide can be obtained by contacting the PLCAA headquarters.

A new publication. The PLCAA recently launched a legal newsletter called *Legal Update Bulletin*. Authored by PLCAA legal counsel Richard I. Lehr, an attorney for Sirote, Permutt, Friend, Friedman, Held and Apolinsky, P.C. in Birmingham, AL, the publication will keep members abreast of the latest legal issues affecting them as businessmen, says Jim Brooks, PLCAA executive director. "This is not to take the place of their own legal counsel." The association hopes to publish the newsletter on a monthly basis. — *Vivian Fotos*



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ALA PEOPLE



Bob Freske

Last month, October 9, the industry suffered a great loss in the passing of **Bob Freske**, 54. Involved in fertilizers and chemicals most of his working life, Bob was president of Liqui-Land Corporation (Great Plains Association), vice president of Liqui-Lawn and president of NFD Transportation Company. A promoter of liquid fertilizers, Bob was the original Formolene® distributor and a true pioneer in the field.

Bob was friendly, out-going, had a great sense of humor and was well-liked by everyone who knew him. I can't help but recall when I

first met Bob four years ago; I thought he was the largest man I had ever met in my life. As it turned out, he was. But it was not just his physical size that made Bob a big man, Bob was big both inside and out. He lived his life much like his motto: "Imagination and Incentive Creates Ambition, Ambition and Action Creates Courage and Strength."

Bob is survived by his wife Lois, five children and three grandchildren. Sandy Nelson will continue to carry on the work Bob has started. The industry has lost a great leader, and I, like many of you, have lost a dear friend. — *Maureen Mertz*

Solo Kleinmotoren GMBH announces recent promotions and additions to its United States subsidiary, Solo Inc. **Wolfgang Emmerich**, currently the director of engineering for Solo worldwide, assumes the duties of president of the U.S. affiliate. **Archie M. Brown** has been named vice president and general manager. A company

veteran of four years, he was formerly director of sales and marketing.

Rita Wyatt was named vice president of finance. She joined the company in 1967 as comptroller.

Robert A. Morrison joined Solo earlier this year as director of sales and marketing. His experience includes eight years in the power equipment industry in sales promotion and marketing. And **Larry Stauty** was promoted to director of technical services. He joined Solo in 1979 after retirement from the Air Force.



Anthony J. Saia

Anthony J. Saia has been appointed

director-engineering for the Jacobsen Division of Textron Inc. Most recently he was chief engineer for the company. Prior to that, he was senior product engineer. A graduate of the Milwaukee School of Engineering with a bachelor of science degree in mechanical engineering technology, Saia is a registered professional engineer in Wisconsin.

Bill Tullos has been appointed district manager for the Turf Division of Rain Bird Sales, Inc. Prior to joining Rain Bird, Tullos was associated with Gator Pumping Modules, Inc. He also served as turf sales manager for Florida Irrigation Supply.

The Turf Division announces two other appointments. **Bob Scott** has been named Northern Florida district and area specifications manager and **Deborah A. Williams** has been appointed marketing services manager. Scott previously was irrigation department manager for Lawn and Turf, Inc. in Conyers, GA. He also has been affiliated with Crenshaw Sprinkler Company, Inc. in Norcross, GA, and has owned his own firm, Scott Irrigation in Atlanta, GA.

Williams most recently served as project director of Cardinal Management Associates, a Los Angeles-based consulting firm. She has a master's degree in business administration from the University of Southern California and a bachelor's degree in philosophy from the University of Southern California, Irvine.

Northrop King Company announces the addition of former ad agency vice president and account supervisor **Duane Knops** to their staff. Knops brings over 30 years of advertising experience to Northrop.



Jim Murphy, left, and **John Stout**, right, of Jayco Distributing were presented the Distributor of the Year Award by **Carl Johnson**, president, and **John Kurtze**, vice president of Sensation Power Equipment at the recent annual sales meeting.



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LYNDHURST

THE NEW BATTLEGROUND

BY TIM WEIDNER

The lawn care industry is under siege by a mixed bag of foes rallying under the flag of "environmentalism" — uninformed but well-intentioned citizens and their representatives, political opportunists and some borderline psychotics. The issue really extends beyond lawn care to affect all pesticide users and has its roots in the all-encompassing chemical phobia sweeping the nation. In the beginning there were the legitimate fears over groundwater contamination by toxic waste dump sites like the infamous Love Canal. Then came the controversial Agent Orange dispute, followed most recently by the EDB scare.

All of these incidents have fueled the general public's growing fear of pesticides and the lawn care industry's use of pesticides has been caught up in this chemophobic whirlwind. The anti-pesticide opposition has even attempted to draw a direct correlation between lawn pesticides and the larger toxic chemical picture with inferences that lawn care operators are virtually spraying Agent Orange on lawns. The furor over this controversy has been felt from one end of the country to the other, most notably in Wauconda, IL,



Dr. Roger Yeary (far left) addresses Lyndhurst City Council and local media.

but most recently in Lyndhurst, OH.

The fracas over the application of lawn chemicals in Lyndhurst, an eastern suburb of Cleveland, began early this summer. It is not entirely clear if the discussion was started by any particular person or group, but suffice to say that certain local anti-pesticide personalities have since made their presence known. The issue was first given a public airing at a Lyndhurst City Council meeting on July 23.

Lyndhurst meeting. For the most part, the issue was broached calmly and equitably by equal numbers of lawn care operators and Lyndhurst citizens in attendance at the meeting. Many of the major lawn care businesses, including ChemLawn Corporation and Davey Lawnscape of Kent, OH, had representatives from their firms in attendance. The 50-odd citizens were genuinely concerned about the safety of the pesticides in question, but for the most part, they were not overly emotional in the questions they asked of the lawn care operators and experts.

There were, however, some notable exceptions. Several times during the course of the evening, a man with a dog at the back of the council chamber, who looked like a Grizzly Adams clone, interrupted the proceedings with short bursts of loud, guttural gibberish. During a break in the meeting, ChemLawn's unfortunate manager of Regulatory and Legislative Affairs, Mark Beliczky, was cornered in the hall by a woman who raved that she could no longer step outside her house because

(continued on page 28)



Gitlin



Yeary



Newbauer

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LYNDHURST

(continued from page 26)

she had become so sensitized to the pesticides polluting her environment. Yes, the lunatic fringe was definitely in attendance that night.

The pesticide opponents who made presentations to the council were generally more reasonable in their comments. The council and audience heard statements from a doctor, an allergist, a veterinarian, a resident and a fish and game farmer. Fritz Newbauer, owner of Newbauer Fur, Fish and Game Farm in rural Geauga County, OH related his experiences with aquatic weed killers that also harmed his fish and told stories of raccoons killed by lawn pesticides. "Most of the raccoons I have caught on lawns that were digging up sod for grubs and worms, died with a nervous disorder within three to four days," Newbauer said.

The allergist, Dr. David Gitlin, came off sounding decidedly paranoid when he spoke of opinions from government employees that could not be trusted because government employees expected to one day be employed by chemical

companies. He said the government has lied to the public about the safety of a great many things. Gitlin also said the difference between 2,4,5-T and 2,4-D is not significant. But his main point was his distrust of chemical company experts because of a perceived conflict of interest. "Any expert employed by a company has never denounced his own company's product," Gitlin said.

Gitlin's suspicions about chemical company employees make sense out of context, but at the time he was directing them at Dr. Roger Yeary, ChemLawn's director of Employee Environmental Health, who had just finished making his pro-lawn pesticide presentation. ChemLawn, of course, does not manufacture its own pesticides and Yeary had even mentioned that his company had refused to use commercial pesticides in the past that did not meet ChemLawn's safety standards. Yeary drew upon his company's extensive track record in applying pesticides in 42 states, in 100 major metropolitan areas, to the lawns of 1.6 million customers.

"The most important thing to get across is that there has been a tremendous amount of poor information in

the press on pesticides in general," Yeary said. He cited an incorrect correlation drawn by the press between Agent Orange and the herbicide 2,4-D. Then Yeary made a comment that Gitlin may have taken personally. "There is a large number of self-proclaimed experts in toxicology who are disputing data," Yeary said. He said many so-called "experts" do not understand the concept of dosage as it relates to toxicity and many are far too liberal in their extrapolation of laboratory test animal studies to the human population.

Yeary emphasized the safe nature of lawn chemicals by stating that in the 13 years since ChemLawn started keeping written safety records, only one employee has been hospitalized for pesticide poisoning and that person had tried to commit suicide by drinking a chemical. "We found that out of 3,000 full-time and about 1,500 part-time people, we have only had 15 or 20 whom we have had to remove from the work place temporarily," Yeary said. "None of these people are sick, none of them require medical attention, it is just a precautionary procedure."

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WAUCONDA AND ELSEWHERE

While the local regulatory situation in Lyndhurst, OH continues to build, the similar situation in Wauconda, IL has taken a turn for the better. The Pesticide Public Policy Foundation (3PF) has retained the services of the internationally-known law firm of Sidley and Austin, Chicago, IL to represent 3PF members in a lawsuit against the Village of Wauconda. The suit claims the Wauconda ordinance is invalid because it is preempted by state and federal statutory law.

The suit asks that the town agree to hold enforcement of the ordinance pending the outcome of the suit. The deadline set by the law firm for a moratorium on enforcement of the ordinance is at hand and 3PF officials are optimistic about their case. "By the 24th of this month (October)," says 3PF Director Dave Dietz, "the city's lawyers will have to submit their answers to our complaint, after which we will go through the process of actually briefing the issues and going to trial."

A win in Wauconda could also turn the tide in Lyndhurst. "It will affect it in having established a precedent if we win that tells other local governments around the country that this type of regulation is not a legal activity for them to pursue," Dietz says. However, a victory in Wauconda is not legally binding in Lyndhurst. "In the strictest sense, it will not affect what the city of Lyndhurst can do. They can say that was Wauconda and that was a different federal circuit court, therefore we are not bound by what that court determined."

The bottom line is 3PF may have to take Lyndhurst to court as well. Lawsuits may be the answer to the problem of local regulatory action — if they can be taken far enough. "We hope at some point, maybe the Wauconda case will be it, we will battle that thing all the way through the system and try to get a nationwide precedent by having a case go up



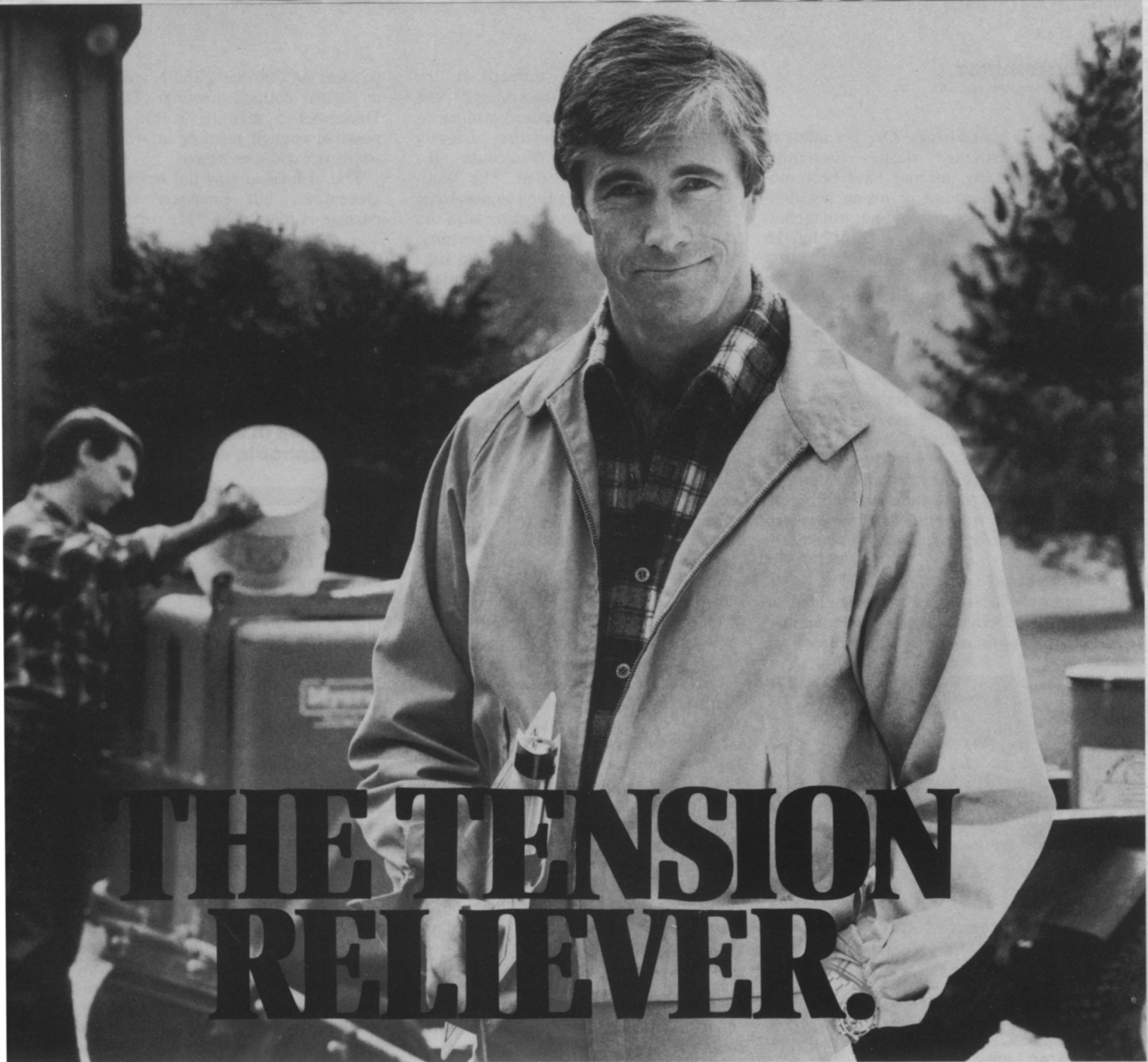
Dave Dietz

to the United States Supreme Court," Dietz says.

The Wauconda law suit has given pesticide applicators a chance to take the offensive for a change. "Pesticide users are on the defensive so often — reacting and responding to things done to them, that we think it is a nice change of pace to go out and vigorously support our point of view in a good forum and the courts are a good forum for us."

Going on the offense in Wauconda won't be enough though, with pesticide use legislation popping up all over the country. Dietz says 3PF is involved with pesticide use regulations in Maryland's Montgomery County, with state legislation introduced in New Jersey that would "absolutely shut down the industry," and with a Texas agricultural commissioner who is "looking at some rules that are just unbelievable."

There seems to be no shortage of bad news in the pesticide regulatory battle, but the signs point to a turn of the tide in Wauconda. — *Tim Weidner*



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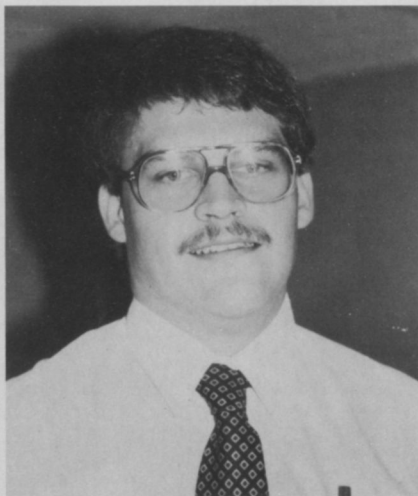
LYNDHURST

(continued from page 28)

Yeary stated his case for the safety of lawn pesticides quite eloquently. Unfortunately, he may have been eloquent to the point of losing his audience's attention. He did not use technical jargon to make his point, but he definitely looked and sounded the part of the corporate expert out to baffle the locals with high-minded rhetoric. During his presentation, one Lyndhurst resident in the audience muttered, "This guy's boring!"

Yeary's message may have been largely lost upon his audience, but one has to wonder if anyone defending pesticide use would not receive the same reception. The case could be made that the public has received such a massive dose of anti-toxic chemical editorializing in the mass media that they are prejudiced against any pro-pesticide message.

Proposed ordinance. The pro-pesticide message fell upon deaf ears at the July 23 Lyndhurst council meeting, and it continued to fall upon deaf ears



Lauren Lanphear

in other meetings throughout the summer and fall. On September 24, the council drafted a proposed ordinance loosely based upon the one currently being enforced in Wauconda, IL, though more complicated. The Wauconda ordinance requires commercial pesticide applicators to register with the village of Wauconda, apply for permits, post signs, maintain signs and be subject to daily fines of \$500 per violation. The drafted Lyndhurst ordinance would require registration of all pesticide applicators with the city, payment of a \$10 annual fee, registration of all pesticides used, residents who want to know what is being sprayed on or near their property must register themselves (for a \$5 fee) and the addresses of five contiguous properties.

This list of residential addresses would then be circulated on a monthly basis to the registered pesticide applicators. "If I see my client's address as one of the abutting properties," says Lauren Lanphear, vice president, Forest City Tree Protection Company, "then I am required to prenotify the person who is registered that I am going to be doing an application to their neighbor." As a tree care specialist with accounts in Lyndhurst, Lanphear is one of many pesticide applicators whose business will be affected if the proposed ordinance is passed. Lanphear says that prenotification of registered residents can be done in writing or through an oral message. If persons on the list cannot be contacted, the application can still be made, but the applicator must leave a written notice on the door informing the resident that a neighbor's property has been sprayed, according to Lanphear.

However, it is important to note that these stipulations are so far only sections of a *proposed* ordinance. The ordinance is scheduled to receive two more public readings for possible wording

changes on October 1 and November 5 at regular council meetings. Then the December 5 meeting is the earliest possible council meeting at which the ordinance could be passed.

The ordinance may not be passed in December, but Lanphear feels its passage is inevitable. "My own feeling

All of these incidents have fueled the general public's growing fear of pesticides and the lawn care industry's use of pesticides has been caught up in the chemophobic whirlwind.

is that Lyndhurst is going to pass something, politically, they have gotten themselves in so deep that they have got to do something now," Lanphear says. Local industry men plan to battle the final ordinance in court, but in the meantime, Lanphear says applicators are hoping for an ordinance they can live with. "The ordinance is probably approaching that," Lanphear says. "It is less obstructive than those written in the past. We still don't think it is the proper approach. We think any legislation should be done at the state or federal level."

STEPS. The "we" Lanphear is referring to are the local pesticide applicators doing business in Lyndhurst who have banded together under the acronym STEPS — Society To Educate Pesticide Safety. STEPS is currently a non-incorporated group made up of representatives from the lawn care industry, the tree/ornamental industry, the structural pest control industry, chemical manufacturers, public relations personnel and industry trade magazines. Lanphear is executive secretary of the group, which has plans for becoming incorporated as a non-profit group.

Lanphear says the current draft of the Lyndhurst ordinance does not limit enforcement to lawn and tree applicators, but the council has indicated that it does not plan to enforce the proposed ordinance for other kinds of pesticide applicators. Still, there is safety in numbers and so far at least one non-green industry businessman has seen the value in creating a broad base of pesticide applicators.

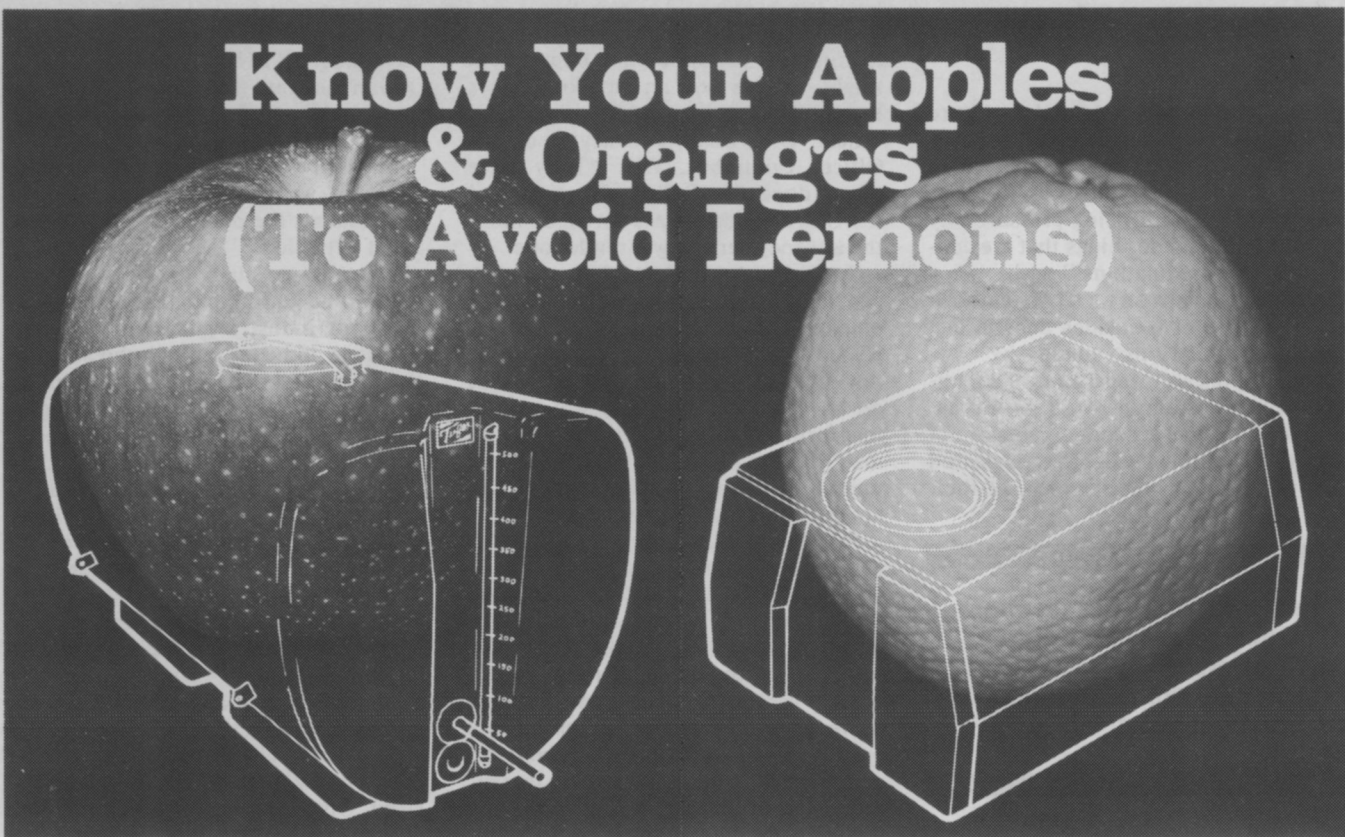
John Young, president of Speed Exterminating, Cleveland, OH, believes a communication network involving all pesticide users should be established. In addition to a united front, Young thinks it is imperative to

(continued on page 32)



STEPS members meet to discuss the Lyndhurst situation.

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LYNDHURST

(continued from page 30)

get the Ohio Department of Agriculture (ODA) working on behalf of the pesticide applicators. "Those people come free," Young says, "they don't cost us one penny. We are being pressured by a municipality to do things that are contrary to ODA regulations."

State government. ODA's authority in the use of pesticides does in fact cover applications made by any licensed applicator, regardless of whether the application is rural or urban. Anthony Logan, deputy director of ODA, Columbus, OH, has appeared before the Lyndhurst council, at their

The ODA is waiting on the attorney general's opinion and the attorney general is waiting on the ODA to ask for that opinion!

request, and indicated that the ODA feels local ordinances such as the one proposed for Lyndhurst is preempted by state law. However, at this point, expressed concern over a local ordinance interfering with ODA state-wide authority is about the only action Logan and the ODA can take.

"We are waiting for a finalized version of the Lyndhurst ordinance and action on the Lyndhurst ordinance which would put the new requirements into effect," Logan says. "At that point, there would be a legitimate controversy and we may seek the attorney general's ruling." Logan says his office has alerted the governor's office that some ODA action may be forthcoming, but if the final version of the ordinance does not interfere with ODA authority, ODA has no plans to contest the ordinance. But if the ordinance goes the other way and "requires significant additional conditions on the rights of licensed operators," Logan says the ODA will seek an opinion from the attorney general.

There is a state law on the books which clearly states that localities cannot attach additional conditions to the licensing criteria for pesticide applicators. "However, the Lyndhurst ordinance is primarily a right-to-know type ordinance simply requiring notification of the surrounding landowners," Logan says. "As such, it may require an attorney general's opinion to ultimately settle the issue."

The ODA is waiting on the attorney general's opinion and the attorney general is waiting on the ODA to ask

for that opinion! "Everybody has been hearing that the agriculture department might ask us for an opinion," says Robert Tenenbaum, public information officer, Ohio State Attorney General's Office, Columbus, OH. "They have never done that." Tenenbaum says if the ODA decides to ask for an opinion, the attorney general will render one.

Tenenbaum is reluctant to start the paperwork necessary to render such an opinion since the ordinance has not yet passed. "It would be a big waste of resources to start doing all the research on an ordinance that may not pass in that form or pass at all." He does recognize that the ordinance would be quite unique in Ohio. "We have never had anything that even comes close to it."

Even if the Lyndhurst ordinance is passed and is not contested, Logan does not foresee it creating a guideline for passage of similar ordinances in other communities all over Ohio. "We have seen these ordinances spread quickly across the state in other states, however, Ohio's preemption powers are so straight-forward that I cannot see a number of communities going that direction until there is some manner of (state) legislative change." Logan also speculates that such a legislative change in favor of local ordinances would have a difficult time getting adopted by Ohio's state legislature.

Logan recognizes the legitimacy of both sides of the Lyndhurst situation, especially in light of what he calls a "considerable increase" in the amount of the complaints related to lawn applications over the last year. Complaints that have funneled down to ODA about lawn misapplications have shown some concentration in the northeast quadrant of the state (where Lyndhurst

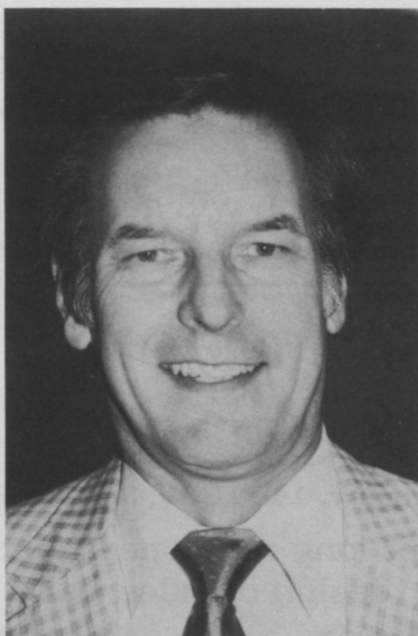
is located), but Logan says "there doesn't seem to be a great deal of localization beyond that. We have a four-person pesticide enforcement unit which will attempt to look into every complaint we have received."

Logan wants to emphasize that he understands the dynamics of the Lyndhurst situation. "There are a lot of chemically sensitive people out there who would go for very stringent restrictions on industry practices, but then there are industry people who seem to be hiding their heads in the sand in the face of what I view as a somewhat legitimate need of certain people to be notified of spraying practices. I certainly hope industry is active in the effort to keep this dialogue going and is willing at some point to offer some accommodations that will satisfy the needs of both parties."

Meet the press. Lanphear and his peers may make some of Logan's "accommodations," but not without a fight. STEPS has launched a concerted effort to win local media over to the pro-pesticide camp, or at least let the media know there is another side to the story. On September 5, the local NBC affiliate station in Cleveland did some "on-location" filming to capture the pro-pesticide story. First they did an interview at Lanphear's office with Lanphear and Dr. Thomas Fisher, chairman of the Entomology Department at the University of New Hampshire. Next they went to John Young's pest control office to interview him and go on a service call to a catering firm. The day of filming was distilled into a five minute television spot which Lanphear characterized as "an extremely good report."

"It covered the benefits of pesticides, the training required for users, the certification procedures the chemicals go through, the fact that homeowners use the same chemicals we use and yet don't have to follow labels like we do and that claims of pets dying need to be substantiated by toxicologists."

The same day, Lanphear and Fisher were also on a local radio program, a 30-minute call-in talk show. The next day, Lanphear and a group of pesticide experts met with the executive and managing editors of the *Plain Dealer*, Cleveland's daily newspaper. In the afternoon of that day, the same group met with the executive and assistant executive editors of the *Sun Messenger* and *Sun Press*, the two suburban newspapers that have given the most coverage to the Lyndhurst issue. "Our main goal was to show them there are resources out there for checking stories before they are written," Lanphear says, "so people will know the validity of claims and the industry's response."



John Young

(continued on page 55)

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THE BITS AND BYTES OF COMPUTERS

BY ANDREW M. COHILL

Many lawn care operators must suspect that there may be some benefits to owning a small business computer. If you have ever ventured inside a computer store, you have probably discovered that it is a formidable task to try to figure out just what kind of computer might be useful.

The lawn care industry does not fit the "standard mold" that most computer systems are designed around. Lawn care is service-oriented, has little or no inventory for re-sale, must keep detailed records about past work and depends heavily on scheduling expensive resources like spray trucks and personnel. Furthermore, many computer dealers and consultants do not understand the service nature of lawn care, and end up trying to sell systems that are poorly-tailored to the needs of the lawn care businessperson.

Despite the poor fit between some computers and the lawn care industry, there have been some pioneers that have been able to integrate a computer into their businesses. Few would admit that the job was easy.

It is a common belief that owning a computer will give you better control over paperwork. Most find, to their chagrin, that paperwork increases the minute the computer rolls in the door. For example, if you automate your billing, you may find that one of your applicator's sloppy sales receipts will bring the entire billing process to a halt, because the computer expects every piece of information to be correct. You can no longer pile those "bad" receipts in a corner until Friday. In order to use the system, you may have to enter data you never collected before, like customer numbers. And you may be buried in a blizzard of reports when all you want is a one-page summary.



Do not expect the computer to cut costs. If nothing else, you have the monthly computer payments to make now! Your costs may skyrocket in the first year you own the equipment. You will have to purchase all new statements and invoices, magnetic disks and printer ribbons. Office productivity may be lower until everyone adjusts to the new system, so it will cost more to do the same amount of work.

If there is a payoff in costs, it will be in succeeding years, when the bugs are out of the system. Then the computerized billing may enable you to absorb new customers without hiring extra office help. At best, the computer is a tool to help you manage costs better; it will not do the cost-cutting for you.

Some think that once the computer is delivered, fewer people will be needed to run the business. This myth is closely related to the one about lower costs. You may have to hire a new person to run the computer, because the person that has been doing your books for the past 25 years does not want to learn how to use "one of those computer things." If you cannot find someone on your office staff that is both interested and trainable, you have

no recourse but to hire someone. You will not be able to let anyone go right away, because it will take six months to a year to transfer all the accounting to the computer.

Another common misconception is that more time is available for running the business. If you have trouble keeping up with the paperwork now, expect even more trouble with a computer. In addition to managing the paperwork, you now have to manage the computer too. You have to make sure data is entered correctly; you have to order special supplies and paper; you have to train personnel to use it. The computer, in order to get useful information out, expects information to be fed into it at the right time and in the right order. This takes time. One good thing about the computer is that it may force you to become a better manager, but that means less time in the field checking a job or supervising work for a special customer.

One of the most common mistakes is believing that computers are cheap now. Expect to pay between \$5,000 and \$20,000 for a good system, including both hardware and software. It is possible that the software programs will cost as much as the hardware. By the time you add in the cost of training, the cost of the hardware shrinks by comparison. Many have been fooled by buying the hardware first, not considering all the attendant costs that must follow to complete the system. It is also difficult to put a price tag on the cost of the time required to train employees. While learning to use the computer, they are not doing their normal work.

Finally, it is not true that anyone can use a computer these days. Computers are irascible, stubborn and pig-headed about the way things are done. If you purchase a computer, you will learn more about them than you ever wanted to know. Computers are at the same point in development that cars were at during the era of the Model T. The Model T was a good car, once you got it started. But to start it, you had to adjust the spark, set the choke, spin the crank and curse it a few times. Expect to use all your best epithets on your computer. Plan to spend 10 percent of the purchase price of the system on training for yourself and for your office staff.

Preparing a RFP. There is a way to avoid many of the pitfalls and hidden costs mentioned above. If you are convinced that you need a computer, then you should consider preparing a "Request For Proposal" (RFP). In brief, this document is a snapshot of your business. You give the RFP to one or more dealers or consultants, and ask them to give you a written quotation on a system that is equipped to handle the kinds of business situations

outlined in the RFP.

Many potential buyers stop right here and never prepare an RFP, because they think they do not know enough about computer jargon, or lack the technical expertise to ask for the right kind of equipment. The point of the RFP is to describe your business to the computer dealer; it is not to describe what kind of computer you think you need. It is possible to write an RFP without having the word computer appear even once.

It is a common belief that owning a computer will give you better control over paperwork. Most find, to their chagrin, that paperwork increases the minute the computer rolls in the door.

If you are still concerned, imagine instead that you have to prepare a 10-page description of your business for your banker, to obtain a big loan. The information that you would put in that report is the same as the information that you would put in an RFP. There are four parts to an RFP.

The first part of an RFP is a short (two to three pages) description of your business. Keep it simple; facts and figures are not required at this point. Describe how your business started, how it has grown and your plans for the future.

The next step is to collect detailed statistics about your business. Talk to anyone in your company who collects or uses information. Your bookkeeper and accountant can provide you with information on how many customers you have, how many accounts payable you have, the number of invoices you mail each month and the number of statements you use each month. They can also tell you the size of your payroll, if you are thinking of automating that and the number of accounts in your general ledger.

Your secretary or clerk can provide you with information on the number of business letters you write each month and how many mailings you make to customers each year. Your lawn maintenance people can tell you how many jobs they handle in an average day, the number of billable services on an average invoice and the kinds of records they keep on each customer.

Once you have gathered all this information, group it into categories so that it is easy to understand. This will be four to 10 pages long and will form

(continued on page 36)

A FINAL CHECKLIST

To be especially useful, an office computer system has to do work for many people. When you set out to buy a computer system, make sure you keep these tips in mind.

1. The system should be multi-tasking — that is, capable of doing many jobs at once.
2. The system should be multi-user — that is, the same data-base is shared by several users.
3. The system must truly automate the office so you can offer quicker, more direct and personal service to your customers.
4. The system must help reduce errors in service scheduling and

billing.

5. The machine itself must be useable by people who are not computer experts.

6. The software must be upgradeable by people in your office, not outsiders.

Finally, you must understand the maintenance requirements and the risk of failure. What specifically would be done if the machine didn't work for several days? Find out about service policies before purchasing your new system, and make sure you get answers to all of your questions. A reputable computer sales representative will be eager to satisfy your inquiries. — *Bob Cohen*

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the second part of the RFP.

The third part of the RFP should discuss the kind of information you expect from the computer system. This is where many people get bogged down. The kind of information you want from a computer is not the same as discussing what kind of computer you want, or how it works. For example, if you would like a daily report that totals sales by industrial and residential customers, this is where you say that. If your accountant wants an aging of receivables on a 30-60-90-day basis, write it down.

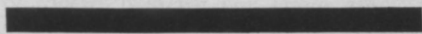
If you want job tickets each morning, sorted by geographic area, include it in this section of the RFP. Just remember that it is neither necessary nor useful to discuss how the system may produce these reports; your sole interest is in listing what the system should do for you.

The last part of an RFP is a cover letter that explains what you have included in the body of the document. You should also indicate here that you would like a written proposal for a computer system that will meet the requirements discussed in the RFP. Point out that your evaluation of the proposed system will include a point-by-point review of the items in the RFP. Expect that most companies will take two to four weeks to respond.

Evaluating the system. Disqualify immediately any firm that will not provide a written proposal; they are more interested in closing a sale than in developing a long-term relationship with

a customer. Compare each proposal that you received with your RFP. It is not likely that any system will meet 100 percent of your requirements, so you must establish which of your requirements are "critical." If you have to have both a "ship-to" and "bill-to" address on invoices, you will have to disqualify any system that cannot provide that, no matter what other "gee-whiz" features the computer has.

If portions of a proposal seem vague, or details are missing, do not be afraid to ask for more information from the vendor. This is best done with a letter, requesting a written response in return. Never rely on word-of-mouth promises like "it does all that, we just forgot to write it down." It is a recipe for



Many computers dealers and consultants do not understand the service nature of lawn care, and end up trying to sell systems that are poorly-tailored to the needs of the lawn care businessperson.



disaster. The thing that they "forgot" to write down will turn out to be something critical. If you have already purchased the system when you discover it lacks something, it will be very difficult to obtain adjustments.

Finally, once you have made a

decision, the vendor will probably have a standard contract for you to sign. Make sure that the RFP is referenced in the contract. If it is not, write in a statement indicating that the vendor warrants that the system will perform as specified in the RFP. It may also be worth spending the money to have your attorney look over the contract before you sign.

Summary. A computer is a large investment, in terms of time and money. You will make the transition to an "automated" office much more quickly if you invest that time in making a careful purchase, rather than in trying to make an ill-considered system work after you have already paid for it. If you are uncomfortable with the idea of introducing a computer in your business because of your own lack of knowledge, there is an alternative.

Consider purchasing one of the "personal" computers as an experimental system. A good one can be bought for about \$2,500. Buy a spreadsheet program and a word processing program with it, and use the two applications for six months to a year. You will be able to learn more about computers at your own pace, and you will gain some valuable insights into the kind of system you want for your business.

Andrew Cohill, owner of Human/Computer Consulting, is a systems consultant who specializes in the needs of small businesses. If you would like further computer consultation, write Andrew Cohill, Human/Computer Consulting, Box 822 - 280/87A River Road, Piscataway, NJ 08854.

COMPUTER BUYING TIPS

1) Try it out. There is no substitute for sitting down with a program for an hour or so in the store and trying to use it. Even if it is a complex system, like a complete business accounting package, you will at least get a feeling for how hard it is to learn, even if you cannot try every feature.

2) Read the documentation. The dealer should provide you with a demo copy of the documentation, or sell you a copy at a reasonable price (this cost is usually refunded if you buy the system). Take it home and spend a couple of hours in the evening reading through it. If you cannot understand the user manual, you probably will not be able to understand the system either.

3) Ask about making copies. Some software has a built-in lock that will not permit you to make back-up copies. This capability is absolutely essential, because it is very easy to accidentally erase your working copy of the software. Without a back-up, you may be forced to purchase the software again!

4) Ask about service. Like any piece of equipment, the computer will break down, sooner or later. Find out how repairs are handled by your dealer. Will someone come to your

office and repair it, or do you have to carry it in? What are the costs? Does the dealer keep a "loaner" machine in stock for you to use while yours is being repaired?

5) Contact other users. Ask the dealer for the names of customers with businesses similar to yours, and go visit them. Just calling them on the phone is almost useless, because you really cannot see how the computer is used. Someone may be thrilled by their XYZ computer, but they may only use it once a month to write a few letters.

6) Ask about installation. The dealer should be willing to deliver the computer to your office, set it and the printer up and demonstrate that they work before asking for payment. If they will not do this, try to find a dealer who will.

7) Discount graphics. Many computer systems now support color graphics, and the demo programs can be very impressive. However, the ability to make viewgraphs should not be a key factor in the decision to buy a computer. You have probably run your business for years without it, and you can probably continue to do without. Buy the system that provides you with the best financial information, or the best sales reports. Graphics features are expensive toys.

A Powerful, Anti-Pesticide Lobby is Substituting Scare-Talk for Science. You are the Target.

FACT: The overwhelming, supportable, verified conclusions of the scientific community find that pesticides are not an immediate, inherent, or significant danger to our society.

FACT: The obvious benefits of pesticides to mankind far outweigh any possible proven risk.

But sometimes facts aren't enough. A powerful, well-funded and growing coalition of self-appointed "public interest" groups are mounting an ever-accelerating attack on pesticides and their use. Lacking hard, scientific data to support their cause, they have substituted emotion, pseudo-science, and sophisticated media manipulation.

If they succeed, the result will be disastrous for our health and our economy. And if the use of pesticides is an important part of your business, you would most likely be out of business.

This is not scare talk. The threat is real.

Item: HR 3818, a proposed congressional amendment to FIFRA would devastate the pesticide registration process.

Item: Federal courts, by relying on National Environmental Policy Act technicalities, have banned governmental herbicide spraying.

Item: Recently introduced HR 5495 would tighten governmental procedures for changing pesticide tolerances and exemptions, and would authorize emergency action with respect to pesticides which "present an imminent hazard to the public health."

This threatening trend in national legislation, combined with the absolute explosion of state and local government pesticide regulatory efforts, could result in nothing less than an effective ban on pesticides.

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We must tell our story. We must reassert the benefits we gain from pesticides – disease prevention; pest-free hospitals,

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That's why we're asking your support of 3PF – The Pesticide Public Policy Foundation. 3PF was organized in September, 1983, by the National Arborists Association, the Professional Lawn Care Association of America, and other interested affiliates. The goals of 3PF are straightforward:

- To identify, inform, involve, and educate those of us who recognize that pesticides are necessary and safe to use for health protection, environmental enhancement, and our nation's economic growth.
- To combat federal, state, and local regulatory initiatives that unreasonably or unnecessarily impact pesticide development and usage.
- To get the facts to the decision-makers, the media, and the public before the emotional momentum building against pesticides overwhelms all opposition.

To succeed, we need your help. It's that simple. And we need your financial backing. The groups seeking to cripple pesticide usage have vast financial resources to draw from. If we are to have any chance against this juggernaut we must have sufficient funds to put up a fight.

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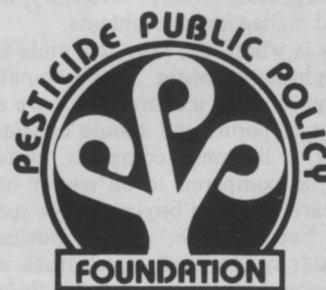
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A COMPUTER FABLE

BY DENNIS MAHAFFEY

Once upon a time, there was a lawn care company who needed a computer to manage their accounts and make a profit. They went down to their local computer store and purchased a computer. They plugged it in and expected it to solve all of their routing, invoicing, sales inquiry, inventory, billing and management problems.

This is where the fairy tale ends and the nightmares begin. When thinking about purchasing a computer, there are a series of points you should consider. Buying a business computer system might be compared to an owner of a lawn care business buying a new spray truck. For example, both a business computer system and a spray truck will cost several thousand dollars. Before you buy a spray truck, you have determined your business has grown to such a point, that in order to keep up with it, you need another truck. The same applies to a computer system.

You first need to determine if your business has grown to the point that

you need to hire another office employee. If this is the case, perhaps you should seriously consider a computer system. A computer system is an investment, while another employee is an expense.

Once you have decided that your

Remember, any computer system is only as good as the software you buy to run it. You can buy the nicest computer money can buy, but if you don't buy proper software, you have bought yourself a high-tech paperweight.

business needs a computer system, you next have to find the system that will best fit your needs. Coming back to the spray truck analogy, you would buy a truck that could be easily maintained, for which parts were easily accessible and which was big enough to do the job. Again, the same applies to a computer system. Uninformed

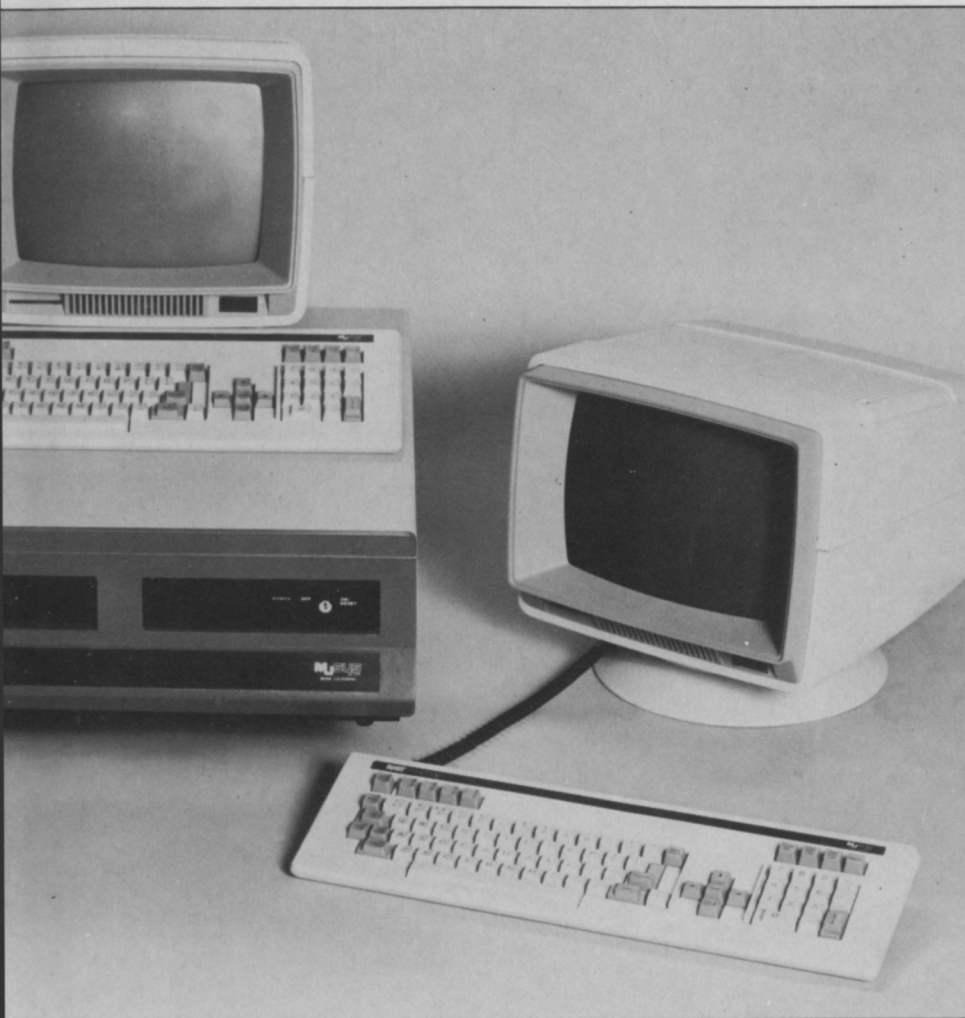
consumers often purchase a computer without investigating the kinds of software the system can run and if the storage capabilities are large enough to meet their needs. Many people are not even sure what they expect the computer to do for them.

As you might have noticed in reading this article, that I have used the terms computer system and computer — there is a difference. A computer system includes a computer, software (programs) and printer, all of which are vital components. Separately, these components would be worthless, but together they comprise a system to help manage your business better, easier and more profitably.

You should buy a computer that has ample software available and has a stable company behind it. In this new high-tech industry, there are various brands of computers, but only a small percentage of these companies will survive over the course of the next few years. Be sure that you will be able to purchase software later that you may discover you need or would like and that this software is available for your computer.

Another very important consideration is memory capabilities. This is im-





portant because if the computer does not allow for all your data to be stored or if it cannot all be stored on one type of device, the system will either not work or will become very confusing to the user.

You should consider the potential for multi-user applications. Many systems are designed only for single-users. This means that only one person can access the data stored on your computer system at a time. For the computer system to grow as your business grows, you need to be sure the software you buy has multi-user capabilities; more than one user can access the data at one time. Multi-user capabilities are dependent on how the software was written and what operating system the computer uses. This aspect of purchasing a computer deserves much consideration.

Remember, any computer system is only as good as the software you buy to run it. You can buy the nicest computer money can buy, but if you don't buy proper software, you have bought yourself a high-tech paperweight. When selecting software, keep in mind what you are doing by hand at the present. With your current office tasks in mind, ask for a demonstration of the comput-

er software and relate what you see in the demonstration to your current manual recordkeeping system.

Also keep in mind that training and support are very important features of a computer system. For a novice, computers can be overwhelming. You need to buy your system from a reputable company that offers on-site training. Be sure that all the people who will be using the system in your office are the people who will receive the training. After-the-sale support is also very important. If you run into a problem after the computer is on-line, you need educated and courteous people to turn to in your time of need.

Before you buy the software, take some time and look at the manual. The manual should be easy for you to understand. It should be comprehensive and complete. It should contain information on getting the novice ready to use the software, plus the advanced features of the system.

The printer is an integral part of your computer system. The printer is your means of getting data out of the computer and on to paper for you to study further. You can use your computer's printer to pull selected pieces of information out of storage

After-the-sale support is also very important. If you run into a problem after the computer is on-line, you need educated and courteous people to turn to in your time of need.

and print them. This way, you can compare numbers, check production and receive various accounting reports. Be sure your printer meets the requirements of your chosen software.

There are two basic types of printers. One is called a letter-quality printer and the other is a dot matrix printer. A letter quality printer contains a print wheel similar to some typewriters and prints letters much like a typewriter. They are slow and expensive and unless you do a lot of out-of-the-office correspondence, you probably should look at a dot matrix printer. A dot matrix printer uses a mechanism that shapes dots into letters. These printers are much faster, less expensive and their print quality is fairly good. They would be useful if you intend to print mostly reports and inter-office correspondence.

I have attempted to outline some of the considerations you should have in mind when deciding whether you need a computer. Once you have made that decision, I have tried to suggest some questions you should ask your salesman. You will be spending quite a bit of money, so be sure the system will do what you want it to do, be sure you will receive training and support and perhaps most important of all, *use common sense.*

Dennis Mahaffey is co-owner of Carso Computing and has five years of experience in computer programming. His partner, Jim Carso, is also owner of Super Lawn in central Illinois. If you have any questions for Mahaffey or Carso, write Carso Computing, P.O. Box 143, South Vine, Camargo, IL 61919-9990.



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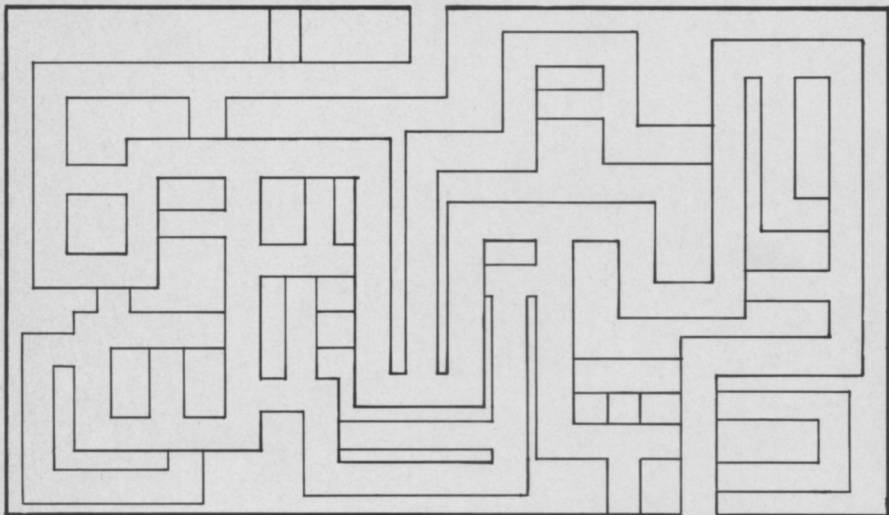
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FINDING YOUR WAY



THROUGH THE COMPUTER MAZE

BY VIVIAN FOTOS

Nowadays you can't watch the evening news, flip through a magazine, drive down the highway or listen to the radio without being smacked with a computer advertisement or two. You've been thinking about purchasing a computer for your lawn care business for some time now, but your head begins to throb every time you think of the proliferation of high tech products currently on the market.

With the massive number of computer systems available today, it's easy to sympathize with the lawn care businessman who wants to automate his operations without getting tangled up in the electronic wizardry of computers or mesmerized by all their beeps and whistles. But where does he begin?

First of all, you already know that selecting a computer system that successfully works is not like purchasing an electric typewriter with a correctable

ribbon for the office secretary. There's more homework, more time and more money involved in this investment. That's why it's important to know what you want from a computer before you

Ask the computer sales representative how easy it is to obtain customer files. Can they be retrieved from the system by merely typing in a last name? An account number? A phone number or address?

begin your shopping adventure. By making a list of the various functions you need your computer to perform, the better directed you'll be in your search for the appropriate computer system.

For example, a lawn care business requires excellent customer service, espe-

cially with telephone contact. You don't want a customer dangling on the phone while you spend lots of time sorting through files to get his record. Therefore, quick access to customer information and history is a *must*. Ask the computer sales representative how easy it is to obtain customer files. Can they be retrieved from the system by merely typing in a last name? An account number? A phone number or address?

How much data can be stored on the system? You may only have 500 customers this year, but consider your growth plans for next year. You don't want to outgrow your computer system just as you're getting the hang of its operation.

And most importantly, a lawn care computer system certainly should be capable of scheduling drivers and automatically invoicing customers. These are two of the primary reasons why lawn care operators invest in computer systems, so make sure these applications are offered by your prospective vendor's computer system.

According to Maris Franke, president, Practical Solutions, Worthington, OH, that's one of the biggest mistakes lawn care operators make when purchasing a computer. "They wander into their local computer store," he says, "get some guy that gives them a fancy demonstration on how he can do word processing on his computer and glosses over the fact that he doesn't have any software for lawn care companies." The salesman might have a billing program or simple accounts receivable package, Franke explains, but he doesn't have any programs to do truck routing, service calls scheduling or employee production statistics.

"Don't wander into a computer store, buy yourself an Apple II and then start looking for somebody who's got software that'll do lawn care. That's doing it backwards," he warns. "It's about as relevant to select your computer system based on the equipment manufacturer as it is relevant to select a spray truck based on whether it's an International Harvester, Ford, Dodge or GMC — all those people make good trucks, but that doesn't have anything to do with the spray gear and pumping mechanisms on the truck."

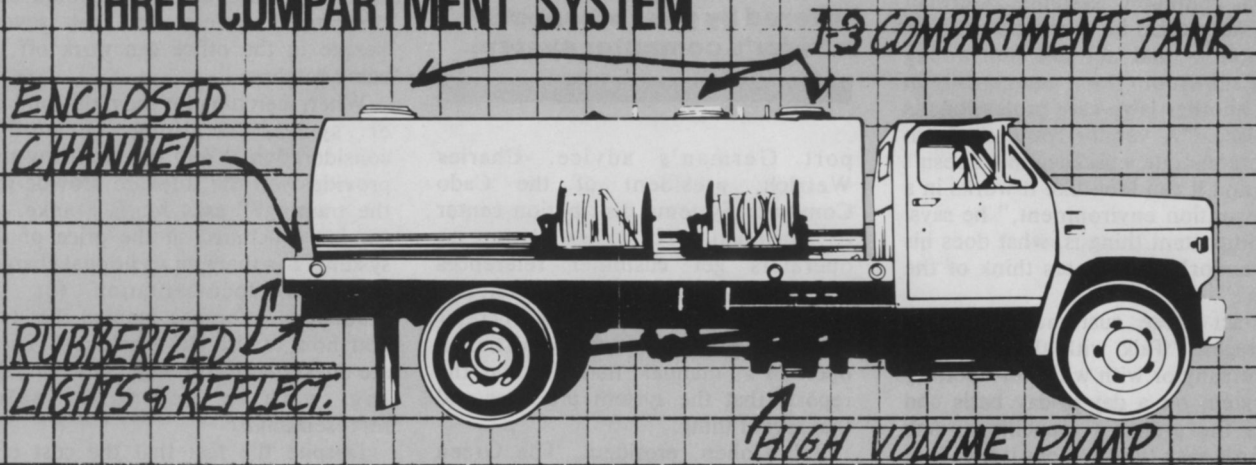
Franke strongly urges prospective lawn care computer buyers to thoroughly examine the software available in today's marketplace. "There's a myriad of different services that lawn companies offer," he says. "The software has to be adaptable to accommodate these services or it's not worth its salt."

Calvin German, vice president, Distribution Management Systems, Inc., Omaha, NE, agrees. "The impor-

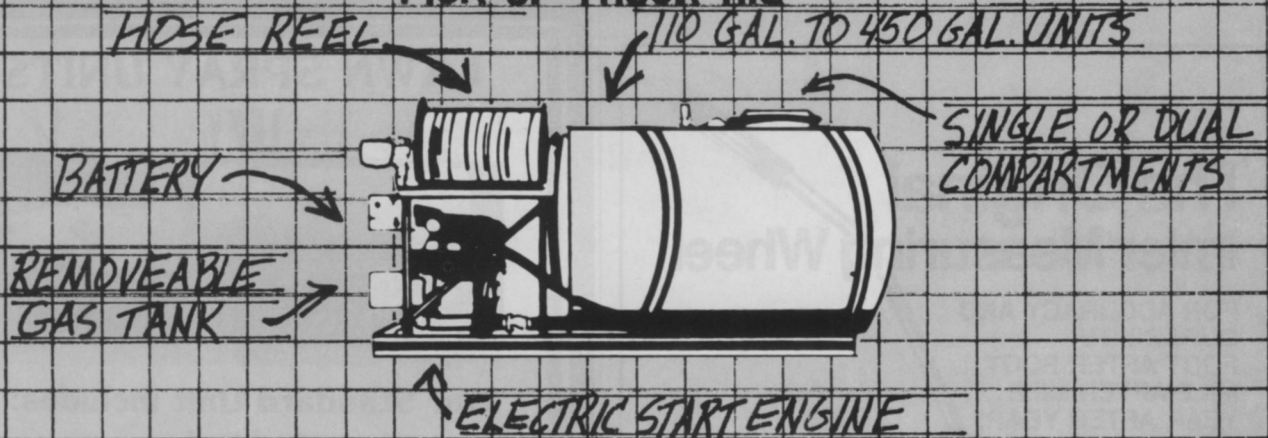
(continued on page 46)

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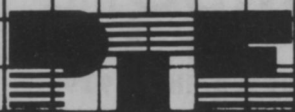
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THE COMPUTER MAZE

(continued from page 44)

tant thing is always going to be the performance of the software. Hardware is the biggest part of the cost of a computer system," he says, "but it should actually be the last thing that you look at. A lot of companies tend to look at hardware first and software second — that's your number one mistake."

Once a lawn care operator has studied various computer systems, German recommends that he sees the system in operation — and not just functioning on the showroom floor, but actually in use at another lawn care professional's workplace. "A vendor could sit down and demonstrate a package that doesn't work, and it can look like it works in a demonstration environment," he says. "The important thing is, what does his (the vendor's) customers think of the system?"

Contact those customers, German encourages. "Talk with the owner of the company or with whoever operates the system on a day-to-day basis and discuss the system's capabilities. Ask him if it's easy to use. Does it help him get control over his business? Does it provide the features that every lawn care company is looking for?"

Most computer system salesmen sup-

A lawn care computer system certainly should be capable of scheduling drivers and automatically invoicing customers. These are two of the primary reasons why lawn care operators invest in computer systems, so make sure these applications are offered by your prospective vendor's computer system.

port German's advice. Charles Wetrich, president of the Cado Computer Systems distribution center in Cincinnati, OH, suggests lawn care operators get customer references from a prospective vendor, as well as a copy of the manufacturer's operator manual. "We send interested parties an operator's manual that details the reports that the system produces and that sort of thing."

Bob Cohen, president, The Green Scene, Tarzana, CA, insists that his prospective customers see his system in operation before purchase. "It's necessary to see the hardware and soft-

ware working together, working with people using it."

He also advises lawn care operators to purchase a system that can be used by several people at a time. "Most of the systems that new fellows are getting are often the single-user, personal computer-type systems which do calculations for a single person," Cohen explains. "But the system has to be a working tool for everybody in the business and not just specific individuals such as an accountant. It should be a multi-user system so that several people in the office can work off the same database."

When searching for the right computer system, training is another consideration. "Will the company that provides you the software provide you the training?" asks Maris Franke. "If so, is it included in the price of the system or is there an additional charge? Is there documentation for the product, a reference manual that tells you how to use the product?" These are questions you should ask when talking with a computer sales representative.

Despite the fact that the cost of a computer system has dropped dramatically over the past several years, purchasing a computer is still a substantial investment. According to Franke,

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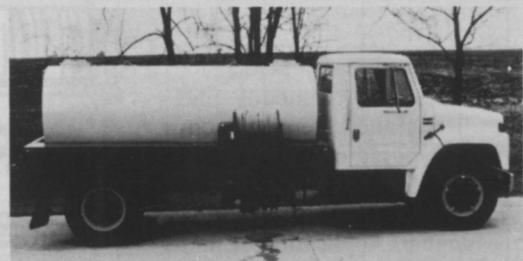
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his computer system includes a keyboard, cathode ray tube and hard disk that holds up to 7,000 customers and costs \$11,500. "So it's a significant investment," he says. "One that you should spend a lot of time looking into."

Another caution when it comes to price, he forewarns, "Make sure you don't get lowballed. That's a common occurrence with computers." It's kind of like buying a car that's \$9,500, he

Once a lawn care operator has studied various computer systems, German recommends that he sees the system in operation — and not just functioning on the showroom floor, but actually in use at another lawn care professional's workplace.

explains, and all you get is a stripped down automobile with black sidewall tires, a 6-cylinder engine, no automatic transmission and no air conditioning.

In other words, says Franke, when you're quoted a price find out *exactly* what it includes.

Bob Cohen expands on the monetary involvement. "It is expensive. You can buy a personal computer, get a few accounting packages, spend almost \$10,000 and have nothing. To have an operating, four-user computer system with software, I feel a lawn care operator will have to spend \$30,000," he says. "If they're not prepared to spend \$30,000, they are not going to get something that's going to work for them."

Out of the \$30,000 figure Cohen quotes, \$15,000 covers the cost of the software packages necessary to computerize a lawn care business. However, he says, a lawn care operator can buy software for \$5,000. He'll just spend another \$10,000 in time and aggravation to get the programs to do lawn care applications, he adds.

If you're thinking about purchasing a computer system for your business, now's the time to hit the marketplace. Attend conferences and see systems demonstrations by the exhibiting computer manufacturers. Visit other lawn care companies that currently have computer systems installed. Most lawn care professionals purchase their computer systems before the first of

the year, so they can load the system with their data and learn how to use the computer before their service season begins in March and April.

But before you even venture out on the computer circuit, remember to do

If you're thinking about purchasing a computer system for your business, now's the time to hit the marketplace. Attend conferences and see systems demonstrations by the exhibiting computer manufacturers.

your homework — know what you want your computer to do. Look at software first, then find your hardware. And make sure you see an on-site demonstration before you even consider opening up your checkbook. Since your computer is a sizeable investment, you want to be sure it performs the necessary functions required by a lawn care firm.

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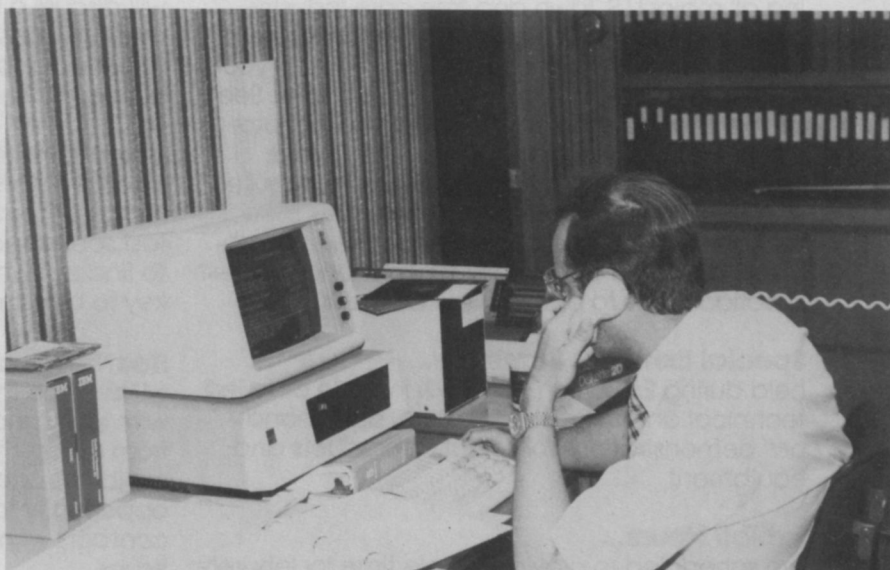
ALAN

THE TRIALS AND TRIBULATIONS OF COMPUTER PROGRAMING

BY CATHY JUNTGEN

In January of 1983, my husband Steve and I purchased a software package for our lawn care company, Emerald Green, Inc. in Fort Wayne, IN. Until that time we had done everything manually. Invoices were typed and all routing was done by using Rolodex® cards. Reports were figured manually, and receivables had to be kept manually. We did not want to hire an extra person part-time for the office, so we saw the computer as a way to save time.

We felt we had enough customers to justify the initial cost of purchasing a computer, printer and hard disk, along with a software program. But to our



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surprise, the software portion of the package was a bomb! As we started to use the program, we found numerous errors. We found ourselves placing long distance phone calls three and five times a day to the company we purchased the package from. The programmer at the software company was helpful, but every two or three weeks the company would get a new programmer as each succeeding programmer quit!

The reports in the program did not keep correct totals, nor would the sales tax total, or the routing work properly. Everytime we entered or deleted a customer, we would need to sort the program at the end of the day. This process would take one or two hours or more, depending on the number of customers entered. One day the program would not print invoices and the screen went blank; needless to say we had to hand-type all the information on the invoices.

In the middle of the summer all the transactions disappeared, thereby charging our customers who had prepaid and deleting those who were past due. Lucky for us, we kept manual records because we didn't feel confident with the software package. The program never did run statements for us, so at that point we hired our own programmer in Fort Wayne. He did his

The reports in the program did not keep correct totals, nor would the sales tax total, or the routing work properly. Everytime we entered or deleted a customer, we would need to sort the program at the end of the day.

best to make the system work until the season was over.

Because we had such a bad experience with our first try at buying someone else's software package, and since we felt we knew what our needs were better than someone who was not in the lawn care business, we set out to write a whole new software program from scratch. Following the programmer's suggestion, we sold our Apple IIe, and purchased an Apple III; we kept our printer and hard disk and started to work.

The odyssey begins. The first step was to get together with our programmer and show him what we wanted in a software package. Because he had worked on the first bomb, he knew what we did

not want! We tried to explain how our business worked so he would have a better understanding when writing the program. We went through each step together, making sure all possible problems were taken into consideration.

Price maintenance was established first. We set up a screen where we can enter the square footage and then the price, based on what type of application the customer is to receive. This information can be altered in case of a price increase and will change each customer's price automatically, if instructed.

After setting up the price maintenance, we layed out the customer maintenance portion of the software program. This is the heart of the system. Everything you need to know about each customer is under customer maintenance. We listed the customer code and delivery sequence. Customer maintenance includes the customer's address, mail-to address if different, telephone numbers (work and home), map code, route, statement information, if they were tax exempt, the number of applications with instructions, square footage, cost and the date applied.

We made a section for special treatments, as we do dethatching, aeration, seeding, fungus control, etc.

(continued on page 52)

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COMPUTER PROGRAMING

(continued from page 51)

Our program sorts each customer as they are entered, thus saving you time. We had to have a place to delete a customer, or make them inactive if past due. Under each customer's data is an open invoice display. This tells us year to date totals in sales, what amount is past due and how many days past due. The invoice display also lists the invoices if open and any finance charges due. We can modify customer information if needed, and run a hard copy listing of the customers data. At the end of the year, all special treatments will be cleared and all regular treatments will go from being applied to not applied for the next season.

The most difficult item was how to handle the receivables. In our business we offer a pre-payment plan in order to generate income early in the year. If the customer prepays he gets a certain percent off. The main problem was telling the computer not to charge the customer at the year end for this discount amount. When entering the pre-payment, we allowed for a discount amount to be entered. This allows all the invoices to show a zero amount due through the end of the year on all regular treatments. Under receipt mainte-

Because we had such a bad experience with our first try at buying someone else's software package, and since we felt we knew what our needs were better than someone who was not in the lawn care business, we set out to write a whole new software program from scratch.

nance we can enter a credit if an invoice was printed and the customer decided not to take the treatment, or if the square footage changed and the dollar amount was less. A hard copy is printed of all checks or credits or discounts before it is updated into the customer's files. This prevents any errors from occurring by checking the total on the hard copy before the files are updated.

Another feature is the customer list selection. Routing is important in the lawn care industry, as it saves time, wear and tear on equipment, gas and thus, money. By routing customers as close as possible in one area, a truck

may only drive a few miles and is able to produce more. We can run a customer list by delivery sequence for regular treatments or a list for special treatments.

Another option, is a list in alphabetical order by using the customer code. Perhaps you are interested in a list by route (a certain area of town) which can be broken down further by requesting regular or special treatments. There is even a selection for a list by route and application type only. The main thing to remember when entering your customers into the computer program, is the program can only route customers from the information you enter. Therefore, it is up to the person entering the customers to organize the routes in delivery sequence and in street order. Your program will then route properly and save you time in the long run.

Computerized invoicing. All of the invoices are printed by computer. We simply enter the delivery sequence numbers for those customers we want to treat, the square footage to be treated, the date the lawn will be treated, what route and round and the application type. The first invoice number is listed and if any special comments are needed, we simply type them on the screen and they print onto

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Turf Care Products
1891 Spring Valley Road
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YOUR MID-WEST SUPPLIER

HIGH QUALITY TURF PRODUCTS

Customized Dry Fertilizers
Fertilizer + Benefin or Dacthal
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Crab-Spray 10%
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Milorganite Extra Professional
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Quality Spray Equipment



HOME OF THE SHARP PENCIL BUYS!
Write 28 on reader service card

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AND ASK FOR BILL

the invoice. If it should rain or someone needs to mow and we cannot treat their lawn on the day the computer dated the invoices, we have an option to change the date information.

The month-end process includes the running of statements. One of the first steps is to delete closed invoices (invoices that have payments). A list is run giving the customer code, name, invoice number, date, invoice amount, check number and amount. After the files are updated, past-due adjustments are made and finance charges are calculated. A list of those customers past-due and the amount of interest due is also printed. After completing the above steps, we were ready to run statements.

We have the option of printing statements with a balance less than zero, equal to zero or greater than zero. We also have a cut-off date, as there is no need to mail a statement to someone who was recently treated. At any time, a report can be run showing the outstanding dollar amounts and the number of customers who are current, 30, 60, 90 or 120 days past due.

We are still working on a number of reports. One is a daily entry in which we can keep track of mileage, number of cancels, number of lawns sold, number of lawns measured and the

number of service calls. The report also lists production dollars, square footage and the number of accounts treated for regular or special treatments. The report can be run in scheduling sequences of a day, a week, a month or a year, depending on the starting date and ending date requested.

We plan on adding an inventory program so we will know how much product is in the warehouse at any given time. This would also tell us how much product was used. We talked about a payroll or accounting program, but those items can be purchased through other software packages.

We hope to have everything completed by the end of 1984. So far we have been very pleased with our programmer, and have to say it is wonderful having a program that works the first time! It is our goal to market the system, but before we do, we want to verify that everything is in working order. We feel this is a good program for anyone with 500 customers or more. We don't plan on asking an outrageous price for the program since hardware alone is quite an investment. We plan to adjust the program for an IBM computer since the number of independent software programs are much better if you wanted to use your system for other functions.

Lessons learned. We have learned

at least one thing from purchasing a bad program. No matter who is selling the software package, insist on seeing the system work. I'm not talking about one or two hours, but spend one or two days in an office where you can see invoices printed, reports made, the way the computer files are set up and how the information is entered. In fact, ask to sit at the computer and enter some information because there is nothing better than hands-on experience. Only then will you know if the system is what you need now and in the future.

Also, check out the hardware and be sure the software will run on a system you can purchase in your area and get repaired easily. Remember, everything looks good in a brochure, but does it work? Protect yourself and spend the extra time and money in checking out the program in person and ask all the questions you want. After all, you're the one paying for the system. Steve and I learned the hard way and lost a lot of money in the process. If we can prevent someone from making the same mistake we did, then it has all been worth the struggle.

If you would like more helpful advice from Cathy and Steve Jungten, write them at Emerald Green, Inc., 2207 Skyhawk Drive, Fort Wayne, IN 46815.

1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12' 13' 14' 15'

MEASURING WHEELS

39.95^{EA}

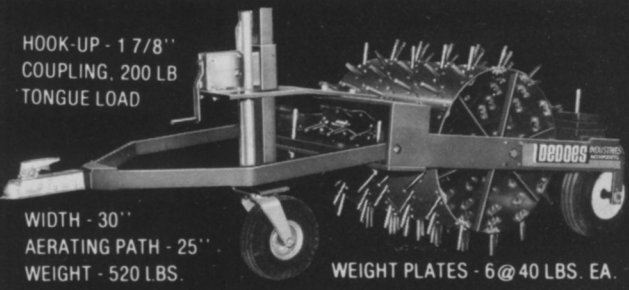
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HOOK-UP - 1 7/8"
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WIDTH - 30"
AERATING PATH - 25"
WEIGHT - 520 LBS.

WEIGHT PLATES - 6 @ 40 LBS. EA.

Specify Dedoes Model 3078

This rugged, low cost unit features solid steel construction, our patented hinged tine, and an adjustable transport wheel and jack. The Model 3078 can aerate 55,000 sq. ft. per hour at 5 m.p.h. producing a standard 287,500 holes per acre, 2 1/2" to 3" deep. More tines can be added to produce up to 479,000 holes per acre if needed. An additional 5 weight plates can be added to obtain proper tine penetration.

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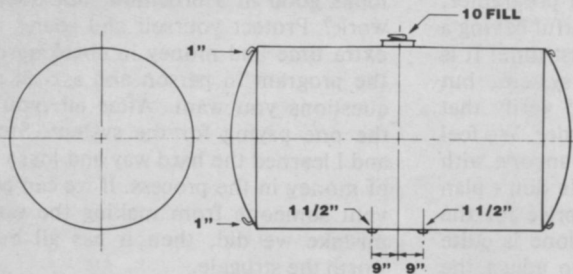
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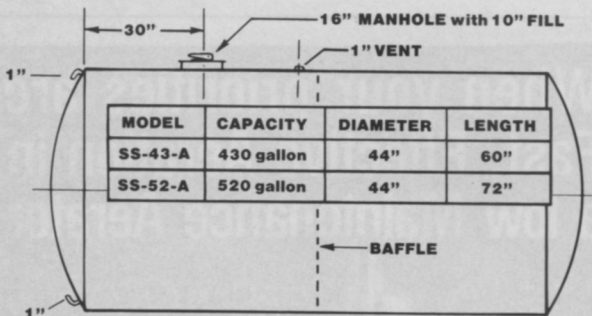
STAINLESS STEEL



SPECIFICATIONS:

430 to 520 GALLON CAPACITY

Constructed of type 304 stainless steel — equipped with standard openings as shown



SPECIFICATIONS:

830 to 1600 GALLON CAPACITY

NON-PRESSURE MILD STEEL TANKS

MODEL	CAPACITY	DIAMETER	LENGTH	GAUGE
NT-55	550 gallon	48"	72"	12
NT-75	750 gallon	56"	72"	10
NT-100	1,000 gallon	48"	128"	10
NT-120	1,200 gallon	56"	114"	10
NT-150	1,500 gallon	56"	144"	10
NT-200	2,000 gallon	64"	144"	3/16"

NON-PRESSURE MILD STEEL TANKS

SINGLE - DOUBLE & TRIPLE COMPARTMENT TANKS ARE AVAILABLE. SPECIAL DESIGN TANKS WILL BE QUOTED, SO PLEASE CALL!

LYNDHURST

(continued from page 32)

Lanphear is happy to report that the meetings with the local press officials has had a positive effect on the flavor of local reporting. Before the meetings, stories appeared featuring graphic depictions of death by pesticides, like the following woman's tale of the death of her cat published in the *Plain Dealer*. "I found him two houses away, dead, with a thick, yellow substance oozing from his mouth...The day before...I observed a truck spraying the neighbor's lawn." Now, however, Lanphear says the press is taking a second look at the pesticide issue. "They have been a little more neutral and not emphasizing so much the other side's points."

Still Lanphear is afraid that the press may have already done irreparable damage. "When this is all over and maybe we have won the fight in Lyndhurst and we don't get local legislation written, people will remember picking up the paper for eight weeks with reports of cats dying and people swelling up." Even if the ordinance does not pass, Lanphear fears this whole episode may have cost him some customers.

Conclusions. The entire industry might well consider what effect the situations in Lyndhurst and Wauconda are having on their livelihoods. The operators in Lyndhurst and Wauconda know what local regulatory action in those areas is doing to their businesses, but what effect are Lyndhurst and Wauconda having on the country at large? National media picks up on the major developments in both situations and transmits the news to the entire nation: Lawn chemicals may be hazardous to your health. Lauren Lanphear may have a good point; even if we eventually win the battles in Lyndhurst, Wauconda and the other regulatory "hot spots" cropping up all over the country, we could still lose many crucial potential customers and put a ceiling on the industry's growth curve.

CHEMLAWN STOCK TUMBLES

The recent Lyndhurst and Wauconda controversies that have plagued the lawn care industry with much notoriety and media attention have affected more than homeowners' emotions and activists' adrenalin glands. According to an article in *Barron's* magazine, the value of ChemLawn Corporation's stock has certainly been influenced by the current "Public's Right to Know" campaign. After ChemLawn shares climbed in the early part of September to a 52-week high of \$31.25, they plummeted, ending the week of September 17 at about \$25 a share, the report says.

Although ChemLawn stockholders are still mourning their recent losses, the company's chairman and chief executive officer, Jack Van Fossen, says the current pesticide heat "hasn't had any impact on our business." He adds that the company's third quarter earnings were "right on target."

According to the *Barron's* article, ChemLawn has lost \$9.5 million, or 98 cents a share, through the first nine months of fiscal 1984, compared with a deficit of 84 cents for the same time period in the previous year. "Sales are up," the article reports. "But expenses climbed even faster, in large part because of an intensified marketing effort."

Despite the beatings ChemLawn stock suffered in September, the shares "fetch around 15 times this fiscal year's estimated earnings." — *Vivian Fotos*

Before you buy any other machine that fertilizes, seeds, coreaerates and spikes, **READ THIS AD!**

Now there are **three** tough machines built to handle the grueling punishment dished out by today's lawn professional! If you need a machine to perform the functions of seeding, fertilizing, coreaerating and spiking, we offer three great solutions: the Lawn Maker, for seeding, fertilizing, spiking or coreaerating. Also, two sizes of self-propelled coring machines. There's just not enough room in this ad to tell you the whole story, but here are a few facts:



LAWN MAKER.

The all-in-one seeder/fertilizer/coreaerator for riding operation. Welded construction/Weight, 625 lbs./Seeds, fertilizes and aerates 4,000 sq. ft. in only 9 minutes/11 hp Briggs and Stratton electric start motor/Easy to transport/Variety of attachments/1-year warranty.



COREAERATORS.

Self-propelled walk-behind units coring up to 30,000 sq. ft. per hour. This unit comes in two sizes, 36- and 30-inch width, both machines give penetration of 2-3/4-inches using 5/8- or 3/4-inch tines. Five horsepower Briggs and Stratton standard or IC engines available.



NEW! TRANSPORT RAMP.

SALSCO INTRODUCES its new transport ramp for loading lawn care equipment onto trailers or truck beds. Each ramp weighs approximately 35 pounds and will hold in excess of 1,000 pounds. Each ramp can be positioned to accommodate the wheel base of any piece of equipment. We will sell the ramps for \$225 per set and immediate delivery is available.

A ramp is pictured in the photo at left.

Due to tremendous nationwide response, dealer inquiries now invited.

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To find out more about how you can turn a greater profit in seeding and aeration, call us collect today - 203-621-6764.

Write 29 on reader service card

SALSCO NOW OFFERS
IMMEDIATE DELIVERY
ON BOTH MODELS OF
CORE-AERATORS

Made-to-spec loading ramps
available for all models.

NOTES ON THE USE OF COMPUTERS IN THE LAWN CARE INDUSTRY

BY BOB COHEN



You may have studied horticulture or learned on the job, but now you're faced with the question of how to integrate "modern management" tools into your business. Why are you interested? Because the competition is interested, or you think they are.

The key word in searching for an understanding of the use of computers in business applications is the word *tools*. You're familiar with tools of lawn care. Tools are implements that aid what you do in your work. Tools are helpful if they improve the quality of the job or make the job easier to do. But tools have their limitations, too. They may break easily and have to be replaced; they are expensive to purchase and maintain; and they are too complex sometimes to learn how to use properly.

A computer is a useful tool only if it can be trained to do the work you do. A computer has to do work. The following are some of the tasks associated with

lawn care and the management of a lawn care operation:

1. Advertise for new business.
2. Schedule sales calls, route and evaluate the prospects' requirements.
3. Close sale and prepare service work-orders.
4. Fail to close sale and go to follow-up procedure.
5. Order chemicals and spray equipment (and parts).
6. Select customers for application and route each day's work.
7. Notify customers and prepare service billings.
8. Do applications and file record of application.
9. Follow-up unsold leads.
10. Handle phone calls — sales leads, customer complaints.
11. Follow-up past due accounts.
12. Do callbacks.
13. Educate customers on proper maintenance procedures.
14. Pay employees and self.
15. Report to government agencies, pay taxes and payroll deposits.
16. Pay suppliers.
17. Plan next service cycle and business future.

Some of these jobs can be automated and done with the help of a computer — an incredibly fast, accurate, but dumb "clerk."

Many of the computer-based systems I have seen advertised offer reports to management. Reports are items like customer lists, lists of accounts over 30, 60, 90+ days past due, quarterly projections of business for the next one, five, ten years. But unless you manage several branches, reports are just overhead items. They do no work! The work you need help with, for example, is:

1. Writing the past-due dunning notices, making all the selection criteria and not dunning customers that should not be dunned.
2. Writing the follow-up lead notices, including letters to prospects.

3. Doing your daily routine, automatically selecting the accounts for routing each day.

4. Computing the load parameters so each technician gets his share of work.

5. Detailing the service options available to them each season.

6. Billing or notifying another address if the account requires that to be done.

7. Searching your account files for references — locations, grass types, etc.

The computer has to be a working tool to more than one employee in the office. In fact, we should say the computer should be useful to *all* employees, not only office personnel. For example:

1. Our ROUTES program (in BASIC) screen-lists all the routes in which a requested community is done. It shows last date, upcoming service date and restricted days for each route. The same program will list any day's routes by just entering a single digit for number of day's routes. It does it in five seconds.

2. Our FIND program (in COBOL) will find any customer by phone number, last name, cross-reference name or route number in five seconds. It doesn't take a computer operator to get customer detail. All one has to do is type "FIND Smith."

3. Our PRINT programs (in PeachText) include welcome letters, cancellations letters, dunning notices and other forms that integrate account data to produce custom service notices and service work orders which include conditional words, phrases and paragraphs so that information is specific to each account.

4. We have four terminals at the office all working off the same database simultaneously. I have another terminal at home which communicates through a modem and phone line to the main computer at the office. This helps me manage my business, allowing me to audit the accounts and run periodic reports which take more time than would be justified at the office. For example, the dunning report, which we call PASTDUE, is run every three weeks. It writes dunning notices for insertion and mailing, totals and other details. The run time for 3,000 accounts is nearly six hours — so we do it overnight and it's ready the next morning for mailing. All the programs are available instantly, on hard disk, so there is never a need to load a floppy disk. Everyone has instant access to all the information and can work with the machine at any time — day or night. What a tool!

Bob Cohen is president of The Green Scene, Tarzana, CA. If you would like to talk computers with Bob, write The Green Scene, 5842 Tampa Ave., Tarzana, CA 91356.

PARTING WORDS FROM YOUR PLCAA PRESIDENT

Goodnight Mrs. Calabash . . . Wherever you are

BY JOHN M. KENNEY

As thousands of lawn care companies prepare to put 1984 to bed, I want to take a few public moments to offer a few private thoughts. A good friend recently asked me if I was sad that my time was up as the president of Professional Lawn Care Association of America (PLCAA), and without thought nor emotion, I quietly said, "Not at all."

The question had actually hurled me back in time, to my youth on farms where the natural cycles of life seemed to occur without much fanfare. Harvest to harvest, year after year, the remarkable measurements were yields per acre not the passage of time itself. Yield was the issue and yield is what has been brought home at PLCAA, too. New crops like the Management Monograph Series; the *Safety Manual* and the Public Issues Alert Committee are very satisfying. Greatly improved harvests in regional seminars; the *Technical Resource Manual* and *Turf Talks* newsletter are also examples of very effective farming. Winter crops such as Hospitalization Insurance programs; additional Management Monographs and winter workshop seminars hold promise for a great upcoming year, too.

But the two harvests that are filling the barns after this growing season are the 30 percent increase in membership and the 50+ percent increase in the Annual Conference and Show in Tampa. Perhaps this productivity by the PLCAA in 1984 is, in fact, truly remarkable, but I have personally experienced something that is even more fulfilling. And that is — working closely with executive director, Jim Brooks. He is one of the most selfless, determined and dignified professional people I have known. And when it comes to planting, cultivating and harvesting large yields, Jim is my personal choice for Farmer of the Year.



At this time of year at my house, we often discover our family thoughtfully studying the chevrons of Canadian geese that fly past us for warmer climates in the South. I remember, too, when I first learned of the complicated aerodynamics of their formations and of the difficulty that the leader has. One strong individual will lead for a while and then without regret, he will relinquish the role to another strong leader.

So too, at PLCAA.

John M. Kenney, president of Turf Doctor, Framingham, MA, relinquishes his position as PLCAA president at the 1984 Conference and Show, held November 11-15 in Tampa, FL.

Returning to
The Baltimore Convention Center!
For the fifth straight year
Excellent Accommodations
The excitement of the Inner Harbor
250 Exhibits

**MID-ATLANTIC
NURSERYMEN'S
TRADE SHOW, INC.**
JANUARY 16-18, 1985

For details contact:
Mid-Atlantic Nurserymen's Trade Show, Inc.
Perry Hall, Maryland 21128
Phone: (301) 256-6474

PLCAA TAMPA TRADE SHOW EXHIBITORS

The following partial listing of new products on display at the 1984 Professional Lawn Care Association of America Trade Show in Tampa, FL, November 11-15 is representative of the items featured at the show, but is not intended as an all-inclusive listing.

Bunton Company manufacturer two 22-inch aluminum deck compliance-type lawn mowers ideal for trimming work in small areas. Both self-propelled and push-type are available. The front wheel drive and large wheels make the self-propelled unit a highly maneuverable and easy to handle small mower. A new traction design allows free wheeling.

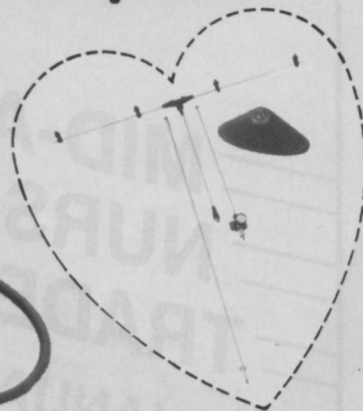
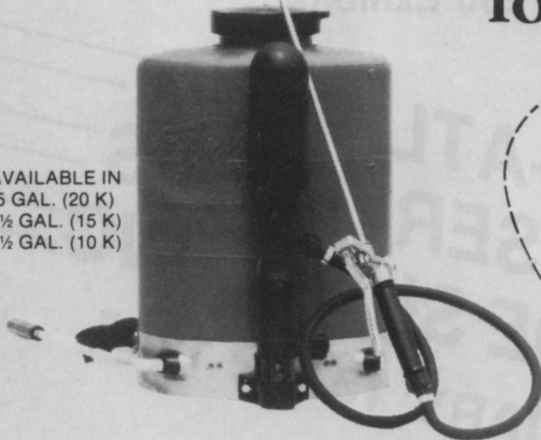
The heavy-duty 22-inch push mower has many of the same features normally found in welded steel deck commercial mowers, including rugged wheels on ball bearings with zerck fittings, crankshaft protector and combination positive or slip-type blade



We Made It Simple!

BIRCHMEIER has the Back Pack Sprayer for you —

AVAILABLE IN
5 GAL. (20 K)
3½ GAL. (15 K)
2½ GAL. (10 K)



- **QUALITY** — Built with Swiss clocklike precision.
- **LIGHTWEIGHT** — With the comfort of the user in mind.
- **ACCESSIBLE** — A durable self-lubricating and external pump assembly.
- **SIMPLICITY** — Insures cleanliness and longer wear. No tools necessary to disassemble and repair.
- **PRICING** — Here's one instance where you pay less for the best.

AT THE HEART—DURABILITY OF SERVICE

Technical data	FLOX 2½ gal.	IRIS 3½ gal.	SENIOR 5 gal.
Weight #	11	11.4	12.1
Tank Capacity	2.6 gals.	3.9 gals.	5.2 gals.
Max. Working Pressure	84 PSI	84 PSI	84 PSI

FOR MORE INFORMATION

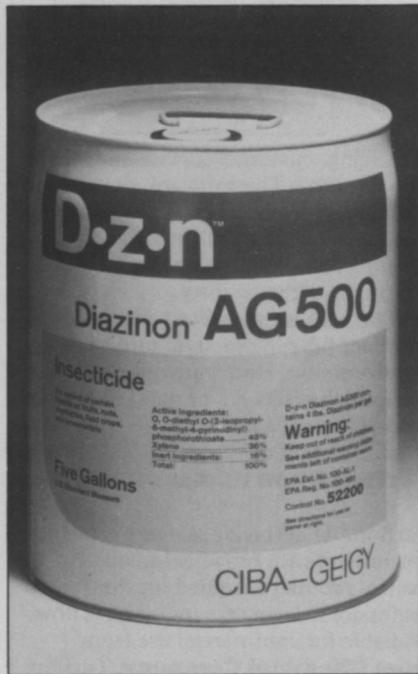
TREBOR CORPORATION

4047-A JONESBORO ROAD • FOREST PARK, GA. 30050 • 404-366-0957

driver.

Write 128 on reader card

Ciba-Geigy Corporation will soon add two new products, Triumph[®] insecticide and Banner[®] fungicide, to its professional product line. Three years of research has shown Banner to provide fast-acting, systemic control of brown patch, dollar spot, anthracnose, red thread, rust, powdery mildew and stripe smut. It is expected to be labeled for most turf grasses, except warm-season types grown in the Southeastern and Southwestern United States. Banner will be labeled in time for the 1985 use season.



Also under development is Triumph, a fast-acting residual for control of grubs, cutworms and other turf pests. The product will be formulated as a liquid, designed to penetrate thatch quickly for next-day grub kill. Triumph will hopefully be registered in 1985.

Write 129 on reader card

Classen Manufacturing offers two new Turf Plugger Lawn Aerators. The larger machine, the model 400, propels itself at a 24,000-square-foot-per-hour



capacity. The 400 is equipped with a 3-1/2 horsepower Honda engine and has four stainless steel tines driven into

the ground and removed at nearly the same angle to avoid soil compaction.

The smaller model 200 has the same features as the 400, but performs at half the capacity, at 12,000 sq.ft./hr. It has a three HP Briggs and Stratton engine and only two stainless steel tines. The model 200 has a folding handle and may fit into the trunk of an automobile.

Write 130 on reader card

Creative Sales, Inc. announces that EPA has recently approved an amended label for ACECAP Implants. Recent EPA approval authorizes: 1) New Mini-ACECAP Implants for use

in smaller trees as applicable to interior shopping malls, offices, etc.; and 2) additional host trees and insects



(continued on page 60)



PROFESSIONALS' CHOICE!
For Lawn Maintenance • Trees & Ornamentals • Pest Control

JD9-C SPRAY GUN - Operators' First Choice!



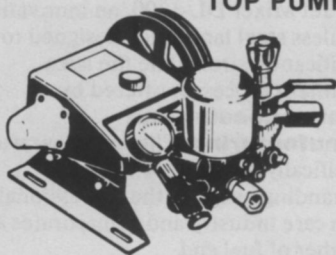
RUGGED ... BUILT TO LAST!

Most popular gun on market! Ends costly maintenance problems. Easily adjusts from mist to long distant stream. Great performer with pressure up to 1,000 PSI.

SPECIAL ACCESSORIES FOR JD9-C GUN

- 5 Tips for various flows and 2 flooding nozzles for Lawn, Nursery, Landscape uses.
- Adapter for JD9-C to use Spraying Systems extensions and nozzles.
- Heavy duty Rootfeeder for use with JD9-C Gun. Easily changed tips. Quickly puts fertilizer where wanted. Adjustable foot plate and handles. Rugged for heavy use.

TOP PUMPS - Sold in Country!

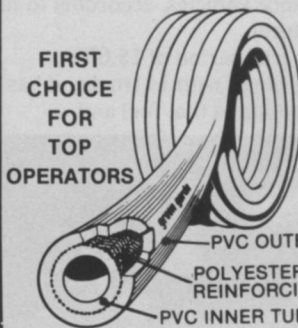


BUILT TO TAKE IT!

6 sizes - ranging from 3 to 35 GPM, 500 PSI Working Pressure. 3 plungers, triplex pumps. Not a diaphragm.

TWO RUGGED, BUT LIGHTWEIGHT PVC HOSES

FIRST CHOICE FOR TOP OPERATORS



NEW! PVC HOSE with 600 PSI Working Pressure
Lightweight PVC Hose with 600 PSI working pressure. Beautiful white hose with Green Garde stripe. Made to last to rigid specifications. Popularly priced.

PVC HOSE with 800 PSI Working Pressure
Very popular 800 PSI Hose, braided reinforced material - found on better trucks everywhere. No problem hose - won't kink or produce memory bend. Bright chartreuse color will not mark curbs or patios. All diameter sizes.

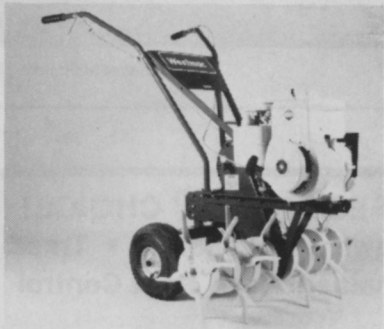
FOR MORE INFORMATION, CONTACT:

Green Garde, Division of Encap Products Company
P.O. Box 278, Mt. Prospect, IL 60056 Phone: (312) 593-6464

The WESTMAC®

"Money-Making Machine"

pays for itself in 2 days... then earns you \$44 per manhour!



PLUG AERATOR
32 SPOONS
60 HOLES PER SQ. YD.
NEW 1985 MODEL
(World's Fastest)

AS A PLUG AERATOR...... the Westmac cores up to 4", depending upon soil conditions leaving 60 holes per sq. yd. so water, air and fertilizer can penetrate through thatch to reach the roots immediately, to help build and expand the root system.

Very maneuverable, easy to operate and equipped with large pneumatic tires, the Westmac has a 5 HP Briggs & Stratton engine, with a chain and bearing transmission. It can plug aerate a typical 5,000 sq. ft. lawn in just 15 minutes - or less (straight runs - 750 sq. ft. per minute). Release the dead-man's clutch, and the Westmac stops instantly, without coasting. **Extra weight can be added.**

AS A MONEY MAKER...... the Westmac allows you to make 4 visits, and get paid for 5 for a 25% increase in gross income!

Assuming two visits per manhour, it can pay back its low cost in only 2 days! After that, each Westmac you own can mean an extra \$44 profit per manhour! (Based on \$27 charge per visit and \$10/hour for labor and overhead).

And if you act fast, you can make this extra profit now and for years to come. Get all the details, without obligation. Use the Reader Reply Card, the coupon below, or phone Jim Gourley at (414) 552-8911 and ask how Lawn Masters, Inc. successfully worked plug aeration into 98% of customers services.



Of course, we'd like to earn an extra \$44 profit per manhour. So rush all the details on the Westmac Plug Aerator to us, without obligation. (No salesman will call.)

Please Print

NAME _____
 FIRM _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____
 PHONE(____) _____
 No. of Trucks _____

Lawn masters

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 Kenosha, WI 53141

TAMPA EXHIBITORS

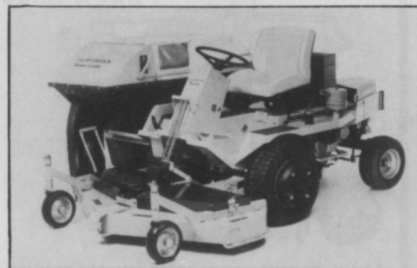
(continued from page 59)

controlled include bronze birch borer, thrips, cankerworm, etc.

Write 131 on reader card

Both diesel and gas engine models of the 1985 Cushman-Ryan Front Line® mower will be available in four-wheel versions. The four-wheel version is available as a factory modification, and includes two 16 X 6.5 8, 4-ply tires on a pivoting action rear axle that helps smooth the operator's ride on rough terrain.

The Cushman Grass Caddy® attachment and other Front Line accessories, including both the snow thrower and brush attachments, will work with either four-wheel or three-wheel versions. Gas engine models of the 1985 Front Line mower also feature a new 22 horsepower OMC engine. The new "222" engine boosts tractor power by 22 percent with a 35



percent increase in available power to the mower deck.

Write 132 on reader card

The Jet Mixer DL-1300, an innovative stainless steel tank truck designed to significantly streamline the lawn treatment process is offered by **Denver Leasing and Manufacturing**. The Jet Mixer was specifically designed to meet the demanding needs of the professional lawn care industry and incorporates a number of fuel and maintenance-efficient features not available with existing turf maintenance vehicles, according to the manufacturer.

After a trial period of 15,000 operating hours with 14 trucks, it has been determined that fuel and



maintenance costs of the diesel-powered vehicle have been almost half that of the standard gas truck. The tank system is installed on an International Harvester 1654

chassis. The power train is a low maintenance IH 6.9 diesel, coupled with an Allison 545 four-speed automatic transmission.

Write 133 on reader card

Distribution Management

Systems, Inc. recently introduced CLC1, an easy to use, innovative software approach to chemical and other lawn management services. CLC1 has enabled lawn care companies to take control of production,



invoicing, customer service and labor productivity. The software, developed over a three-year period, has been fully tested and successfully installed in leading lawn care companies throughout the country.

The package runs in a fixed disk, on-line, fully interactive, multi-user environment. Hardware options include the IBM XT or new IBM AT or Data General's full line of mini-computers.

Write 134 on reader card

Turflon® D herbicide, a new post-emergence broadleaf weed control product designed for the professional lawn care industry, is now available for commercial use from **Dow Chemical Company**. Turflon D is a versatile herbicide premix of one pound of triclopyr and two pounds of 2,4-D low volatile butoxy-ethyl ester per gallon of formulation.

Used in the early season for general weed control, the product will control the "standard" weeds, including dandelion, plaintain and clover, as well as hard-to-control species such as veronica. It can also be used later in the season for outstanding control of other tough weeds such as oxalis, ground ivy, wild violet and prostrate spurge. The herbicide is recommended for use on tolerant cool season turfgrasses such as bluegrass, tall fescue and perennial ryegrass.

Write 167 on reader card

A new fungicide product for roses and ornamentals from **Elanco Products Company**, liquid Rubigan EC® in pints, is now being evaluated under an experimental use permit (EUP). In roses and ornamentals, Rubigan is absorbed rapidly upon foliar application and moves with locally systemic action. The highly concentrated liquid EC

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TAMPA EXHIBITORS

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formulation does not leave residue on leaves and can be tank-mixed for control of black spot and other diseases.

Initial user response to the product has been enthusiastic, with superior performance noted especially on powdery mildew, according to the manufacturer. Rubigan is available under an EUP for use on turf in treating the five major turf diseases and for the management of *Poa annua*. For this purpose, it is formulated as a 50 percent wettable powder.

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Following a successful year in selective test markets, **Emerald Isle, Ltd.** will introduce Sand-Aid® nationally for the 1984 season. Like the company's companion product, Panasea®, Sand-Aid is produced from North Atlantic sea plants. Whereas Panasea is a liquified sea plant extract which is used primarily to strengthen root systems and improve stress tolerance in turfgrasses, Sand-Aid is a granular sea plant meal designed to be used as a soil conditioner to counteract compaction and also as a natural, organic constituent in topdressing mixtures to increase nutrient and

moisture retention.

It contains alginic acid. This natural carbohydrate, which makes up 26.7 percent of Sand-Aid's material analysis, creates an electro-chemical attraction between fine particles in heavy clay soils, causing them to aggregate into a more friable, less compacted structure. In light, sandy soils, where moisture and nutrient leaching can be a problem, Sand-Aid



acts as an emulsifier, forming a highly desirable porous aggregate — greatly increasing nutrient retention and substantially reducing water loss.

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Graham Lawn Care Equipment

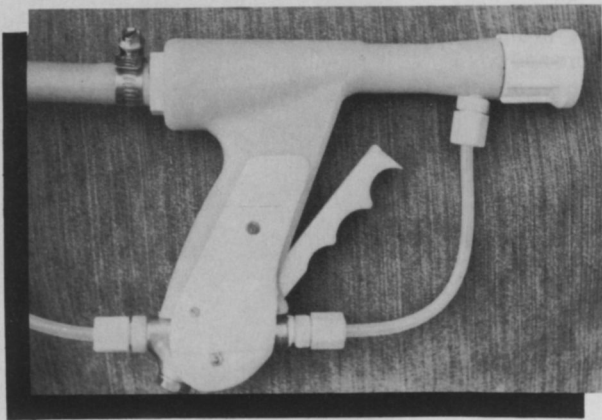
offers a complete line of vehicle spraying units with gallonage capacity from 50 to 1200 gallons. This unit is a 1200 gallon fiberglass unit mounted on a two-ton truck and is capable of spraying 400,000 square feet per fill. Tanks are available in fiberglass or stainless steel. A 100 or 200 gallon drop tank can be mounted behind the main tank for custom mixing of chemicals in the field. A flip of a valve can allow for low volume or high volume in either the main or drop tank.

All liquids flow through a double strainer system to insure a particle-free spray. Chemicals can be stored in a rugged steel tool chest mounted under the truck bed. An electric reel is mounted on the vehicle to allow for left or right side spray positioning. Mechanical agitation can be powered either by a PTO unit direct to the truck transmission of a fuel efficient Kohler auxiliary engine. All units carry a full one-year warranty.

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HELMINTHOSPORIUM LEAF SPOT OF KENTUCKY BLUEGRASS:

RECENT OBSERVATIONS AND INTERACTIONS

BY CLINTON F. HODGES

The most widespread and commonly recognized disease of turfgrasses in the North Central United States is "*Helminthosporium*" leaf spot. The pathogen responsible for leaf spot also infects roots, rhizomes, crowns and inflorescences of Kentucky bluegrass and

cline in quality. Under the appropriate environmental and cultural conditions, leaf spot can be severe and cause a rapid loss of plants.

The early symptoms of infected leaves are purple to black lesions that enlarge and develop a tan-colored center (figure 1). These symptoms are characteristic of leaf spot throughout the growing season. There are, however, other leaf spot symptoms that vary with season, culture and possibly with specific isolates of the

The early symptoms of infected leaves are purple to black lesions that enlarge and develop a tan-colored center. These symptoms are characteristic of leaf spot throughout the growing season.

other species used for turf. The leaf spot pathogen is active throughout the growing season and during mild periods of the winter.

The ability of the pathogen to attack most organs of grasses with varying degrees of severity makes effective control difficult and costly. Control is further complicated by the absence of any substantial and lasting resistance to the pathogen among cultivars. The continual activity of leaf spot in a turf ultimately results in thinning and a general de-

pathogen. One symptom variable is the development of a "halo" or chlorotic ring around the lesion (figure 2).

Halos are usually associated with virulent isolates of the pathogen and/or physiochemical stress of the host. Symptom variation associated with season falls into two categories; during warm dry periods rapid leaf blighting may occur due to a collapse and drying of infected leaves. During the cool, moist periods of spring and fall, infected leaves may become chlorotic and



Figure 1. Small purple-black spots that enlarge and develop light tan centers are an early leaf spot symptom.

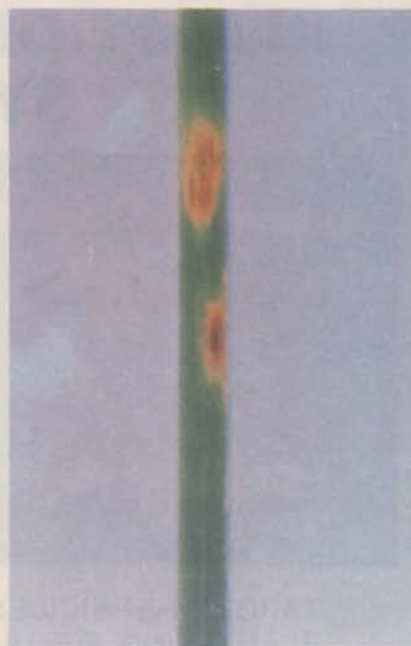


Figure 2. Some lesions may develop a circular chlorotic halo around the spot.

die slowly over a period of several weeks. The chlorotic symptoms of early spring and fall often result in a turf with green upper-story leaves and distinctly yellow under-story leaves (figure 3).

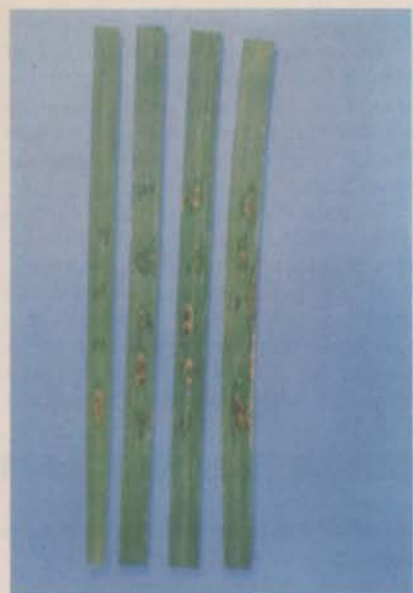


Figure 5A (above left) shows similar leaf spot development on the youngest leaf (left) and on the oldest leaf (right) in response to long days (14 h). Figure 5B (above right) shows short daylength (9 h) leaf spot development on two youngest leaves (right) as compared to same daylength effect on two older leaves (left).

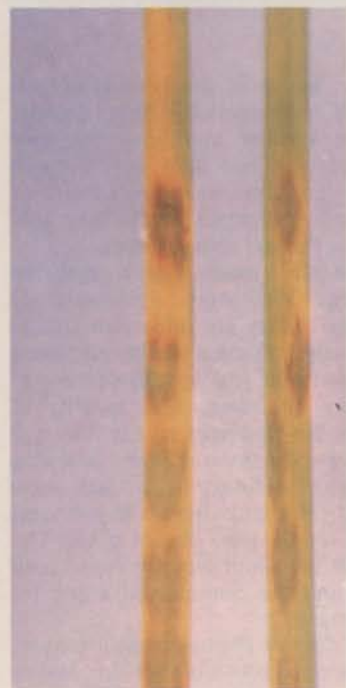


Figure 7 (left) Older infected leaves grown under normal atmospheric pressure may become completely chlorotic (left). Leaf tissue of the same shoots grown under one-fifth atmospheric pressure remain green except for the chlorotic halo surrounding the lesion (right leaf). Figure 6 (above right) The older leaves of the shoot will become completely chlorotic in response to a single infection point under conditions of short daylength and exposure to postemergence herbicides.

The environmental and cultural factors present during the development of leaf spot may have profound effects on the physiology of the host plant and consequently on the severity of the disease. The effects and interactions of leaf age, environment, culture and physiology have been the focal points of research on "*Helminthosporium*" leaf spot of Kentucky bluegrass at Iowa State University for many years. In this article, it is my intent to present our research observations on the effects of leaf age or senescence, daylength (photoperiod) and light quality, nitrogen fertility and pre- and post-emergence herbicides on leaf spot development and to provide some physiological insight into the development of

leaf spot symptoms.

Terminology. Before presenting observations on environmental, cultural and physiological factors affecting leaf spot, it is necessary to briefly address the present state of scientific and common terminology pertaining to "*Helminthosporium*"-induced diseases. Perhaps one of the greatest areas of confusion for both laymen and researchers concerned with diseases caused by members of the genus "*Helminthosporium*" has been a constantly changing terminology. The genus name "*Helminthosporium*" is used in quotes throughout this paper to recognize that it is no longer a valid scientific

name; however, it still represents the name most familiar to the turfgrass industry.

The nature of the pathogens within the genus "*Helminthosporium*" has been under study for many years by mycologists and plant pathologists and it is apparent that the numerous pathogens within the genus "*Helminthosporium*" should be recognized as members of the genera *Bipolaris*, *Drechslera* or *Exserohilum*. The genus name "*Helminthosporium*" has fallen victim to our increasing knowledge of the pathogens previously a part of that genus.

It has been suggested, however, the

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name "*Helminthosporium*" be retained as part of the common, or nonscientific terminology. The primary rationale for this is that "*Helminthosporium*" is a term with which the turfgrass industry is familiar and with which specific diseases are easily associated. The correct scientific terminology for the leaf spot pathogen is *Bipolaris sorokiniana*. Other older scientific synonyms are *Helminthosporium sativum*, *Helminthosporium sorokinianum* and *Drechslera sorokiniana*. For the purposes of this presentation, the common name "*Helminthosporium*" leaf spot, or simply leaf spot will be employed.

The leaf age factor. Observations on the effects of leaf age on the severity of leaf spot development on Kentucky bluegrass suggest that the natural aging process, and factors that may influence the aging process, are central to the severity of the disease. Perennial grass species characteristically produce and lose leaves in a relatively fixed pattern. The Kentucky bluegrass plant maintains three to four visible leaves per shoot under mowing; as an old leaf dies on the shoot, a new leaf is produced. The individual shoot may produce many leaves during the growing season, but only three to four visible leaves are present at a given time.

This pattern of leaf emergence and death is physiologically significant because each shoot possesses a complement of leaves that range from very youthful to old and dying. When leaf spot development is carefully examined relative to leaf age, it is observed that

subsequent to infection, the severity of disease development increases on each older leaf (figure 4). The leaf age-leaf spot severity relationship seems to be a natural relationship that is an evolutionary aspect of this host-pathogen relationship.

It is important to distinguish between infection and disease development in the relationship; leaves ranging from young to old are equally infectable, but the development of the disease after infection is more extensive on progressively older leaves. This relationship suggests that there is not an inherent

cent diseased tissue from its youngest to oldest leaf. Thus, the magnitude of the disease on the leaves of different ages may vary from one cultivar to another, but the progressive increase in disease severity from youngest to oldest leaves remains constant.

It seems that the physiological changes associated with the aging process of leaves are primary to the severity of leaf spot symptoms. The potential consequences of such a relationship may be far reaching in providing explanations for the influence of environment and cultural practices on leaf spot

When leaf spot development is carefully examined relative to leaf age, it is observed that subsequent to infection, the severity of disease development increases on each older leaf.

difference in resistance to infection by leaves of different ages and that the increase in disease severity on progressively older leaves is due to physiological changes in the leaves as they age.

The leaf age-leaf spot relationship also seems to transcend genetic differences in cultivars. For example, a given cultivar may characteristically have 10 percent of the tissue of its youngest visible leaf diseased at a given time after infection and its oldest leaf may have 30 percent of the tissue diseased at that same time. A second cultivar may have one percent and 10 per-

centage severity. Some of the stimulatory effects of photoperiod, light quality, nitrogen fertility and postemergence herbicides on leaf spot development may be the direct or indirect result of physiological changes in the host that influence the leaf aging process.

Daylength and light quality factors. Daylength (photoperiod) and light quality are important factors that clearly influence the development and severity of leaf spot symptoms of Kentucky bluegrass. The severity of leaf spot development on the different age leaves of a shoot exposed to a long daylength (14 hours or longer) show minimal difference from the youngest to the oldest leaf (figure 5A). The leaves of the shoot typically have small lesions and the noninfected tissue remains green.

Long days or photoperiods promote, or prolong, youthfulness in leaves which in turn seems to limit development of the individual lesions. This pattern of leaf spot development correlates with midsummer growing conditions when daylengths are long. Infected leaves can become blighted, however, most likely in midsummer under very high temperatures and drought. If temperatures are moderate and moisture is available, it seems that the long days may be the more significant regulatory factor influencing how the lesions develop.

When the infected leaves of a shoot are subjected to short daylengths (nine hours or less) disease severity on the two youngest visible leaves of the shoot is not different from that on leaves of the same age subjected to long days. Leaf spot severity on the two oldest leaves, however, is dramatically

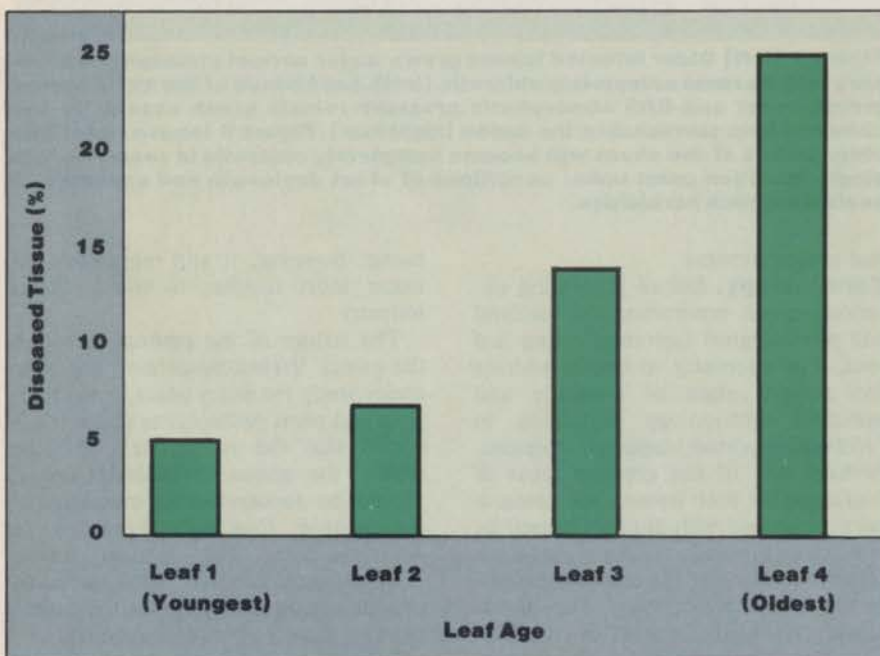


Figure 4. The aging process affects the severity of leaf spot in each leaf.

increased in response to short days (figure 5B). This pattern of leaf spot development correlates with symptoms observed in early spring or late fall and early winter.

Leaf spot symptoms during these periods of the growing season are often characterized by a turf with green young upper-story leaves and yellow, older under-story leaves (figure 3). The young leaves may be infected, but do not turn yellow. The older leaves may become completely chlorotic under short days in response to a single infection point (figure 6). Again, it seems that the mechanism responsible for the short daylength response is one of short daylength promotion of aging processes which are exploited by the leaf spot pathogen.

The potential function of long and short daylengths to sustain youthfulness, or to promote aging, and then subsequently limit or promote leaf spot severity is further supported by observations on the effects of light quality on the disease. When a normal light spectrum is enriched with blue-biased far red light, leaf spot severity is increased on all leaves of the shoot, but the disease is progressively more severe on each older leaf. This response to blue-biased far red light negates the effects of photoperiod; i.e., the disease becomes equally severe under long and short daylengths.

The significance of this response revolves around the physiological understanding that far-red light promotes aging processes in plants. Again, the increase in disease severity seems closely linked to the physiology of aging. It also is of interest that if a spectrum is enriched with red light, disease severity can be reduced on the oldest leaves of plants subjected to short daylengths. Red light may function to promote or sustain youthfulness in leaves. It is suspected that all leaf spot developmental patterns relative to light are influenced by hormonal changes in leaves of different ages. Far-red and red light are perceived and responded to by the phytochrome pigment of plant cells, and phytochrome to some extent regulates hormonal functions.

Nitrogen fertilization factor. No cultural practice has been studied or debated more than nitrogen fertilization and its effect on leaf spot (and on other "*Helminthosporium*"-induced diseases) development. It is the general consensus among turfgrass pathologists; that nitrogen fertilization can be promotive of leaf spot severity. From a practical point of view, it is probably wise for turf managers to reduce or avoid high levels of nitrogen during periods of stress or where leaf spot is a known problem.

Little is known about how nitrogen fertilization stimulates leaf spot. In-

creased succulence of tissue, depletion of soluble sugars and changes in amino acid content are some of the factors that have been examined, but there is no conclusive evidence that any one of these factors are of primary importance. Tissue succulence and amino acid changes in response to nitrogen fertilization provide little insight into disease response. A decrease in the soluble sugar content of plants of all types is a universal response to nitrogen fertilization; i.e., nitrogen stimulates growth and growth requires energy derived from carbohydrates (sugars) by means of increased respiration.

Many years ago it was observed that an increase in the severity of some plant diseases correlated with a decrease in sugar content of the host plant in response to nitrogen fertilization. From these observations evolved the concept of "low sugar disease," among which

crease in sugar in the two youngest leaves (greater than in nonfertilized plants) and a decrease in the two oldest leaves (less sugar than nonfertilized plants). There is no change in leaf spot severity on the youngest and oldest leaves, but disease severity decreases on the second youngest leaf (where sugar increases) and increases on the third, or next to oldest leaf (where sugar decreases).

These shifts in sugar content in response to nitrogen may relate to leaf aging processes. It is clear that the increase in sugar in the two youngest leaves is at the expense of the two oldest leaves. These changes would tend to promote, or prolong, the youthfulness of the two youngest leaves and accelerate the aging of the two oldest leaves. It is of interest that leaf spot responses occur only on the two middle leaves of the shoot. There is no clear explanation for this response, but it is



Figure 3. Leaf spot symptoms of early spring and late fall to early winter. The older, lower leaves become chlorotic in response to infection. The younger, upper leaves remain green when infected and produce lesions typical of Figure 1.

leaf spot was included. Much research has been conducted on the low sugar-disease interaction and it is generally true that leaf spot lesions are often larger on leaves with a lower sugar content. It has not, however, been possible to arrive at a direct cause and effect relationship between sugar content and disease severity.

Research conducted in our laboratory suggests that like daylength and light quality, the nitrogen fertilization-sugar content relationship may be related to the physiology of leaf aging processes. The soluble sugar content of a Kentucky bluegrass shoot decreases in response to nitrogen, but within the decrease, there is a redistribution of sugars in the leaves that results in an in-

probable that the sugar gain in the youngest leaf which normally imports sugar from older leaves, and the sugar loss from the oldest leaf which normally loses sugar, are not sufficiently changed by nitrogen fertilization to greatly change the physiology of the aging processes.

The sugar changes in the two center leaves, or middle-aged leaves, of the shoot may be adequate to either prolong youthfulness (second leaf) or to accelerate aging (third leaf) and thereby show differential disease responses. It now appears that the changes in sugar content in response to nitrogen fertilization may have a primary effect on the physiology of sequential leaf senescence

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HELMINTHOSPORIUM

(continued from page 67)

of the Kentucky bluegrass shoot, and the resulting prolonging of youthfulness or acceleration of aging has the primary effect on disease development. If this hypothesis should be supported in future research, it will present somewhat of a dilemma relative to explaining the effects of nitrogen fertilization on leaf spot severity; i.e., nitrogen appears to decrease the severity of leaf spot on the young leaves and increase it on the old leaves of the same shoot.

The herbicide factor. Herbicides of various types have long been known to interact with plant pathogens and plant diseases. The interactions range from inhibition to stimulation of patho-

cesses of the older leaves of the grass shoot and thereby predispose them to more severe disease development after infection. It also is of interest to note that all leaves of a Kentucky bluegrass shoot show a loss of soluble sugars when they are exposed to post-emergence herbicides.

Other physiological factors. The symptoms of leaf spot-infected plants during late fall and early winter (and occasionally early spring) are of special interest. It is during this time that leaf spot-infected turf shows distinctly green upper-story leaves and markedly chlorotic under-story leaves. The upper, young leaves are usually infected, but develop small lesions and the noninfected tissue remains green. The lower, older leaves will turn com-

ed leaves does not occur (figure 7). This response suggests that the ethylene may be responsible for the general chlorosis which is prevented by removing the ethylene under reduced pressure. The chlorotic halo surrounding lesions (figure 7) is not prevented and is believed due to a toxin(s) produced by the pathogen.

The importance of ethylene production and its potential involvement in chlorosis of infected leaves becomes significant when examined relative to other environmental and cultural factors. Of primary importance, is that ethylene contributes to aging processes in leaves which are beneficial to the development of leaf spot. The responses of leaf spot development to day length and light quality may be linked to ethylene. There is evidence that short day lengths and far-red light promote ethylene production in plants. The rapid yellowing of leaf spot-infected leaves under short days (typical of late fall) may be due, in part, to ethylene enhanced aging of leaves that is further exploited by the pathogen.

The increase in leaf spot severity in response to post-emergence herbicides also may be associated with ethylene. The herbicides 2,4-D and mecoprop are auxin-analogs and can mimic the function of natural auxin hormones in plants. Auxins are usually associated with youthfulness of tissues, but they have little effect on maintaining or restoring youthfulness to tissues that have started to age. Auxins may, in fact, promote aging in tissues that have already started to age by stimulating ethylene. When post-emergence herbicides are applied to a grass shoot, they stimulate ethylene which probably enhances aging of older leaves, and if those leaves become infected, they will rapidly become chlorotic.

One last piece of evidence for ethylene involvement in leaf spot development revolves around the physiology of the leaf spot pathogen. It is known that during infection of Kentucky bluegrass leaves, ethylene increases and is probably involved in development of the chlorosis of infected leaves. It is not known, however, where the ethylene comes from, i.e., the grass plant, the pathogen, or both. Recent studies (in press) have revealed that the leaf spot pathogen produces a compound known as 1-aminocyclopropane-1-carboxylic acid (ACC). ACC is the substance in plants that is converted to ethylene. Although the ACC is produced by the pathogen, the pathogen seems unable to convert it to ethylene. When the pathogen infects the plant, however, it appears that the ACC from the pathogen may be converted to ethylene by the grass plant. Therefore, it seems that part of

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The ability of the pathogen to attack most organs of grasses with varying degrees of severity makes effective control difficult and costly. Control is further complicated by the absence of any substantial and lasting resistance to the pathogen among cultivars.

gens and the diseases they cause. Pre- and post-emergence herbicides used on temperate-origin turfgrasses can influence leaf spot severity of Kentucky bluegrass. Such common pre-emergence herbicides as benefin, dacthal (DCPA) and siduron for the most part have little effect on leaf spot severity. Dacthal may slightly enhance leaf spot on the two youngest leaves of the shoot and siduron may cause some stimulation of disease on the oldest leaves. Both dacthal and siduron, however, seem to be of minor importance. Bensulide is the only pre-emergence herbicide of those examined that causes some stimulation of leaf spot on leaves of all ages.

The commonly-used postemergence herbicides, such as 2,4-D, dicamba and mecoprop (MCP), are clearly capable of enhancing leaf spot disease severity. Dicamba and mecoprop show a greater potential for stimulation of leaf spot than does 2,4-D. Like the observations on photoperiod and light quality, post-emergence herbicides seem to interact with the aging processes of leaves. Disease is stimulated on all leaves, but to a much greater extent on the older leaves and symptoms are typical of those produced in response to short daylength (figure 5B).

The non-infected regions of the two youngest leaves remain green, whereas the non-infected regions of the two oldest leaves become chlorotic. The auxin-analog post-emergence herbicides may enhance the leaf-aging pro-

pletely chlorotic with the presence of a single lesion (figure 6). In controlled studies, it has been observed that the rapid chlorosis of old leaves in response to infection occurs within a 24-hour period four to five days after infection. This response is suggestive of ethylene-induced premature senescence.

Ethylene is a gaseous hormone found in all plant tissue and is associated with fruit ripening, abscission, breaking of dormancy, flowering and modification of sex expression. The potential involvement of ethylene in senescence and disease physiology is of special interest in leaf spot development. When leaves of Kentucky bluegrass are infected by the leaf spot pathogen, the ethylene content of the tissue may increase more than four times the amount found in noninfected leaves. The greatest quantity of ethylene occurs 48 to 72 hours after infection and then declines. As soon as the ethylene begins to decline, the visible chlorosis of infected leaves is noticeable. It is believed that the rise in ethylene is responsible for the chlorosis, with the oldest leaves being most susceptible to the damage.

The fact that ethylene is a gas permits manipulation of its concentration by subjecting leaves to a reduced atmospheric pressure (vacuum). When leaves of Kentucky bluegrass are inoculated with the leaf spot pathogen and the disease is permitted to develop under one-fifth of normal atmospheric pressure, general chlorosis of the infect-

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PLANT HORMONES, OVERSEEDING AND COLORANTS

ALTERNATIVES TO DORMANT WARM SEASON TURFGRASSES

BY KEITH J. KARNOK

Winter dormancy of warm season turfgrasses was discussed in considerable detail in last month's issue of *ALA*. The sensitivity and progression of winter dormancy on two warm season species was highlighted. In addition, the effectiveness and potential use of a plant hormone-gibberellic acid in maintaining the green color of warm season turfgrasses during cool or chilling conditions was also covered. This article will briefly discuss the methods available for maintaining a green cover during the winter months, with most emphasis placed on the use of turfgrass colorants.

Presently, most home lawns in the South, which are warm season species, are allowed to go dormant and are consequently maintained during the winter months in the dormant or discolored state. This discoloration has been traditionally accepted by the homeowner. But should the homeowner have to settle for a discolored turf area? There are three potential alternatives: green colorants, overseeding with cool season species and plant hormones.

Plant hormones. Considering the third alternative first, the use of plant hormones in the fall to prolong green color has been of interest for many years. Research has shown that the plant hormone gibberellic acid (GA) when sprayed on the foliage of the turf can delay the onset of winter

dormancy. Green color and growth can be maintained for a significantly longer period of time when compared to turf not sprayed with GA. However, although GA can be purchased commercially for use on turf, there are some considerations the turf manager should be aware of.

First, warm season turfgrass species and even cultivars within a given species vary in their response to applied GA. Some species and cultivars appear to be very sensitive even to low rates of GA. The result is a possible enhancement of the onset of winter dormancy rather than a delay. On the other hand, with some species and/or cultivars, if high enough rates are not used, there will be little or no response.

In addition, the use of proper rates is important when considering the economics of the method. It's impor-

tant to find the lowest rate that will provide the greatest effectiveness (color and growth) for the longest period of time. In short, a great deal more research is needed in determining the effective rates of GA for the various warm season turfgrasses. Another factor that should be considered before using GA is that very low temperatures (32 degrees Fahrenheit or lower) following application may cancel any



Dormant bermudagrass: painted (right) vs. non-painted.



The dormant bermudagrass fairway above was sprayed with a colorant. Note the dormant, discolored rough areas. (photo courtesy Dr. W.R. Kneebone)

benefit or stimulation of the material on the plant. So the technique itself may be limited to specific times of the year and/or regions of the country.

Research has suggested one final consideration, in that forcing the turf to grow during late fall and winter may potentially increase the chances of winter injury or delay spring green-up. In conclusion, more research is needed in this area before it can become a standard management practice.

Overseeding. There has been much written about the practice of overseeding dormant warm season turfgrasses with cool season turfgrass species. Overseeding is an effective method used primarily on golf courses, athletic fields and commercial areas for maintaining a green cover during the winter. Overseeding is not a common practice on home lawns. The primary reason it is not is the cost and labor involved in establishment and maintenance. Overseeded turf must be watered, fertilized, mowed and sometimes treated with insecticides and fungicides. It is unlikely winter overseeding will become a common practice on home lawns.

Colorants. The third method used for maintaining a green cover during the winter months is through the appli-

cation of green colorants to the dormant turf. This coloring or painting technique has been used for several decades. The products which are available are usually have a latex or vinyl acrylic base. Once dry, they will not easily rub off the turf. In addition to

For example, the playing field of the Los Angeles Memorial Coliseum required the use of a green colorant just prior to the opening ceremonies of the 1984 Olympic Games. The use of a colorant was necessary to help cover the excessively worn turf which resulted from several days of rehearsal of the more than 5,000 participants in the opening ceremonies. In some regions of the country, lawn care companies have added a colorant to their winter weed control spray solution and/or to their application of pre-emergence materials on dormant warm season turfgrasses. The use of colorants in this case has been as an aid to the applicator in seeing his spray pattern. This tech-

It is very important to maintain a constant travel speed over the turf, being careful to watch the overlapping of each swath. Excessive overlapping, clogged nozzles or an improperly calibrated sprayer may result in varying degrees of darkness throughout the turf area. To avoid tracking, the applicator should apply the spray behind, rather than ahead of himself.

being used on dormant turf, colorants have been used to add color to cool season turfgrasses that go into summer dormancy due to heat and drought or to either warm or cool season turfgrasses discolored by fertilizer or pesticide application.

In some cases colorants are sprayed on healthy turf to enhance the green color or cover excessively worn turf.

nique affords a more uniform coverage of the turf area, resulting in better weed control.

However, the use of colorants on dormant warm season turfgrasses with the primary objective of providing a substitute green cover has had limited use. The primary turf areas which have utilized this method of providing year-

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PLANT HORMONES

(continued from page 71)

round green include: golf courses, cemeteries, commercial properties, athletic fields and to a lesser degree, home lawns. It is surprising that this management practice has not been used to a greater extent since some turfgrass managers, including golf course superintendents, who have used the technique feel it provides a very good substitute for live green grass.

There are some facts that one should consider before attempting to use colorants. First, there are several manufacturers throughout the country which supply colorants. More often than not, each material has its own characteristic color, ranging from greenish yellow to pale blue-green. Of course, the final color is dependent upon the rate used. During vigorous physical activity most of the products will slightly rub off the turf onto clothing (as live grass will), but to different degrees. Fortunately they will wash out (unlike many grass stains). Care should be taken when spraying around buildings and sidewalks since the fastness of the materials may result in temporary staining. Spray equipment, clothes and skin may also be temporarily stained.

There are several factors to consider

when applying turf colorants for winter color. First, the grass should stop all shoot growth before being treated. If a colorant is applied too early in the season, a burst of growth due to warm temperatures may necessitate mowing, thus loss of material on the cut leaves. Second, the turf should be mowed to a uniform height and all debris removed. The grass should be dry before applying the materials.

The spray equipment used can vary. Sprayers which can produce 30 to 60 psi have been used effectively. This pressure will provide small droplets which help give uniform coverage. Small, hand-held pressure sprayers are not recommended. Their small coverage and decreasing pressure oftentimes result in streaking of the turf area.

It is very important to maintain a constant travel speed over the turf, being careful to watch the overlapping of each swath. Excessive overlapping, clogged nozzles or an improperly calibrated sprayer may result in varying degrees of darkness throughout the turf area. To avoid tracking, the applicator should apply the spray behind, rather than ahead of himself. The materials presently on the market are non-toxic, however, children and pets should be kept off the area until dry.

Of course, a primary concern is cost.

Presently, the cost of the colorant alone (depending upon the product) ranges from \$3 to \$12 per 1,000 square feet. The ultimate cost of the material is dependent on the rate used, which is determined by the level of greenness desired. It is recommended that small test areas be sprayed at different rates before attempting to apply the material to a customer's property.

The wide use of colorants for providing a green cover on winter dormant warm season turfgrasses appears to be quite feasible for the lawn care industry. Certainly commercial properties show great potential. Most likely, the potential use of the technique on home lawns is dependent on the homeowner's attitude. Homeowners may have to be shown that there is an alternative to off-color dormant turf during the winter months.

Keith J. Karnok is assistant professor in the department of Agronomy at the University of Georgia's College of Agriculture, Athens, GA.

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Kurtz, K.W. 1981. Turf Colorants May Help You. *Park Maintenance* 34(6):6-8.

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TAMPA EXHIBITORS

(continued from page 63)

A new portable field identification macrocope is available through

Green Pro Cooperative

Services. The macrocope is a handy unit for making precise on-sight field diagnoses. It helps determine what kind of fungus diseases are attacking turf areas and plants, and allows the operator to make simple and positive identification of insect pests and diseases on all lawns, trees and shrubs. Only six inches long, the compact macrocope can also be used for estimating distances and tree heights. Options include a portable light stand and camera adaptor.

Write 138 on reader card

Nitro-26 is the most reliable liquid source of nitrogen for turfgrass management, according to its manufacturer **Growth Products.**

Nitro-26 is a methylenediurea (MDU-UF polymer) produced from only the highest quality urea. It is the only MDU liquid product available and contains only greater than 20 percent free urea. The product features controlled rate of nitrogen release, longer release period, no burn potential and reduced leaching and volatilization of nitrogen.

Write 139 on reader card

A riding aerifier with hydrostatic drive, is the newest addition to the line of professional lawn care products from **Hahn, Inc.** Powered by an 8 HP Briggs and Stratton

Industrial/Commercial engine and only 34 inches wide, this new machine aerifies a 30-inch effective swath at a rate of 53,000 square feet per hour. Designed for operator comfort and maximum productivity, this machine features finger-tip controls with an electric actuator for lifting and lowering the aerifier unit, four wheel stability and turf-protecting Terra tires.

Write 140 on reader card

Clifford B. Hannay and Son, Inc.

have introduced Portable Hose and Cable Reels which deliver reliable performance in grounds maintenance. Hannay Hose Reel models 1100 and 1200 and Hannay Cable Reel model 1300 are designed for portable use in grounds maintenance in stadiums, parks and recreational areas. The reels get hose and cable to and from the job fast, without piling, tangling, kinking or lugging. Pickup and storage are quick and neat, keeping hose and cable safely out of the way while minimizing wear and tear.

Write 166 on reader card

Hawkeye Chemical Company's

ALA

Slo-Release® is a flowable, storage-stable suspension of soluble methylene ureas (WSN), insoluble methylene ureas (WIN), low biuret urea and low salt index potassium. Slo-Release, an 18-0-1 fertilizer, mixes with other solution nutrients, insecticides and herbicides to make complete blends for custom lawn care spray applications. The product can be used on various turfgrasses during hot summer stress to avoid foliage burn. It can also be used in the early spring to provide moderate growth, reducing susceptibility to turf disease.

Write 141 on reader card

Impressive Products Inc.

advertises safe loading with their Load-Eze tail gate ramp for pickup trucks. The unit features all steel construction, fits regular pickup tail gate openings and uses original mounts with no modifications necessary on most models. The ramp can be



installed and removed easily by one person, according to the manufacturer. It weighs 135 pounds and has a 1200 pound capacity.

Write 142 on reader card

International Harvester offers two versions of its 6.9 liter diesel V-8 engine for lawn care truck applications. The most powerful is the 165 HP at 3000 RPM diesel with forged steel crankshaft with induction hardened journals and fillets. The engine features jet oil-cooled pistons with Ni-Resist top ring insert, positive valve rotators, replaceable exhaust valve seat inserts, induction hardened intake valve seats and a gear train with all-hardened gears. IH claims unaided cold starts to -10 degrees Fahrenheit. The less powerful 6.9 liter engine has the same features, but rates at 155 HP at 3000 RPM.

Write 143 on reader card

The Westmac® is the only plug aerator designed and proven for mass-production lawn care, according to its maker, **Lawn Masters, Inc.** Now available with the Westmac is a recently developed "Trail Hitch" that enables the unit to be plugged into the back bumper of any vehicle for towing, plus backing up without jack-knifing.

Once plugged into a vehicle, a high-speed swivel wheel drops down for safe transportation. Less than 60 seconds is required by your applicator to disengage the Westmac from your vehicle and be on the lawn. This eliminates the need for a tow-behind trailer, straps and/or a second man to lift the aerator on and off your vehicle.

Write 144 on reader card

Lebanon Chemical Corporation

has announced the introduction of Lebanon "Pro" Turf Insect Control with fertilizer 32-3-8. It contains 1.5 percent Oftanol for effective and long-lasting control of soil and surface insects. Plus, it is combined with a premium 32-3-8 fertilizer for extended feeding and more even distribution. This product kills insects plus fertilizes in one application, saving time and money.

Also new from Lebanon for the lawn care market is Green Gold 11-23-10 Seed Starter with Tupersan. This homogenous granular product contains Tupersan, an effective and safe crabgrass control product that permits grass seeding at the same time — most products require at least 60 days after application before reseeding.

Write 145 on reader card

Vorlan® is **Mallinckrodt's** newest, toughest turf fungicide. Enough experience has been gained with Vorlan on golf courses and in university trials, to confirm that it establishes new standards of performance, according to the company. The product delivers effective control against leaf spot, red thread, dollar spot and pink snow mold.

Write 146 on reader card

MCI AgSystems has developed a new nitrogen source technology for turfgrass fertilizers. In tests conducted at universities, interaction between the nitrogen-triazine components of the granular MCI® 55-0-0 fertilizer and certain herbicides with which it was combined, resulted in improved



AgSystems

herbicide efficacy. MCI fertilizers are homogeneous combinations of triamino-triazine powder and urea in the form of durable granules, with the

(continued on page 74)

TAMPA EXHIBITORS

(continued from page 73)

MCI 55-0-0 granule having an equal nitrogen contribution from its two components.

Write 147 on reader card

Nor-Am Chemical Company

covers the turf and ornamental market with four products. Nitroform ureaform is a slow-release nitrogen fertilizer, available in two formulations: Powder Blue®, a fine powder form and Blue Chip®, a granular form. Turcam® insecticide is



used by professional applicators to control pests on ornamental plants, trees, shrubs and turf. Deltic® insecticide is a fast-acting, long-lasting pest control formulation for outdoor control of fleas, ticks, mites, sod webworm, ants and leafhoppers. Prograss® is a selective herbicide used to control certain annual grass and broadleaf weeds that infest perennial ryegrass turf sites.

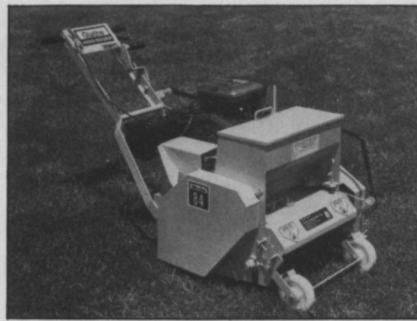
Write 148 on reader card

Northrup King Company's

Medalist Turf Products Division has added a new series of preformulated turf mixtures to their existing product line. The six products, Landscape Pro III, Overseeder III, Premium Sod III, Premier III, Super Pro III and Shady Turf III, utilize the agronomic strengths of varieties such as Adelphi, Rugby and Glade Kentucky bluegrasses, Delray and Pennfine perennial ryegrasses and Scaldis hard fescue.

Write 149 on reader card

The model 84 Aero-Seeder from **Olathe Manufacturing, Inc.** is a walk behind, self-propelled seeder/aerator using a 18 HP Briggs and Stratton engine with an electric start. With this unit, it is possible to aerify, thatch and seed at the same time. Depth of the blades is also adjustable to the size and amount desired for your particular application. Seeds are planted in six parallel grooves in the earth, three-inches on center, so the seeder "swath" can be



figured at 21 inches.

Write 150 on reader card

Perfco can increase sales by supplying beautiful four-color brochures and literature. Perfco specializes in producing high quality, four-color brochures at below-market prices. By eliminating the high cost of design and agency fees, the company has brought the cost of full color advertising within reach for many businesses.

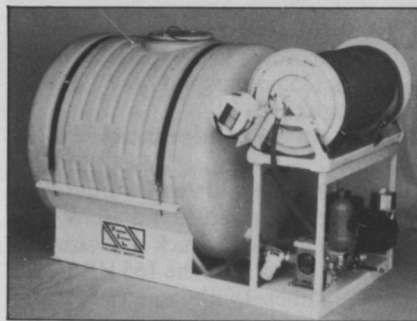
Write 151 on reader card

Professional Turf Equipment

builds rugged utility trailers suited for transporting aerification equipment or mowers. These trailers are equipped with a fold-down tailgate and can be built to your size specifications.

Write 152 on reader card

The PSI E-103 Lawn and Ornamental Spray Rig from **Pumping Systems Inc.** is designed for use by lawn care



operators, landscapers and nurserymen who require a spray rig with the full capability for spraying shrubs and trees up to 35 feet, root feeding, watering, complete lawn service and low volume herbicide applications. With a simple adjustment to the bronze pressure release valve and the change of a spray gun, the operator can vary his output from one gpm for low volume applications to 10 gpm for spraying trees.

The compact design of the E-103 rig enables the operator to easily slide the unit in or out of a standard pickup or van in order to free the truck for other uses. With pump, motor and hose reel all mounted at the end of the frame, the operator has maximum accessibility to his equipment for fast and efficient operation. This unit features a long-life polyethylene tank,

with gallonage indicator; 10-inch fillwell and jet agitator; pulsating dampner; bronze relief valve; nylon in-line strainer; oil-filled pressure gauge; brass shut off valve at tank; all mounted on a welded steel frame with full steel cradle.

Write 153 on reader card

Rockland Chemical's new

Measure-Up® line of products won a prize in the Hardware Industry Packaging Exposition sponsored by the American Hardware Manufacturers Association. This unbreakable plastic bottle allows the user to conveniently measure an accurate amount of chemical without using a secondary



measuring device, such as a teaspoon or scoop. The bottle has been molded from a special barrier resin for extended shelf life.

Write 154 on reader card

The O.M. Scott and Sons

Company has announced the introduction of a new ProTurf® Professional Rotary spreader with the unique Helical Cone, the precision mechanism that guarantees uniform product application — no matter what the particle size or density — every time. The spreader features curved and straight impeller fins to assure even particle distribution, 360 degree rotating agitator to encourage product flow and to prevent plugging, strong 14



gauge welded steel tubing for frame and ball bearings on axle and impeller shaft for better performance.

Write 155 on reader card

Smithco has built an entirely new line of custom designed sprayers for the lawn care industry. Important features include fiberglass or poly tank with a three-year guarantee, dependable diaphragm, piston or centrifugal pump and a side-mounted hose reel for easy operator access. Smithco will offer standard models and maintain flexibility to custom design sprayers for particular needs in the industry.

Write 156 on reader card

Snapper Power Equipment

announces the addition of a 16 HP lawn tractor to its line. Model LT16 features a 16 HP twin cylinder horizontal shaft engine for powerful, efficient, smooth



drive. The engine is also equipped with cast iron cylinder sleeves for longer life. Other standard features include tilt steering, a high back seat and an electric clutch. Optional rotary mowers available are the 33-inch Hi Vac, the 41-inch twin blade and the 48-inch triple blade.

Write 157 on reader card

“The” Wand is a unique idea designed for low volume spraying by **Spring Valley Turf Products**. The unit is made to attach to the ChemLawn gun and is designed so the spray nozzle is held about one foot above the ground with the spray directed ahead of the applicator. Several nozzles are available so you can apply a wide range of rates/1000.

Write 158 on reader card

New label registrations now allow application of **Stauffer Chemical Company's** Devrinol preemergence herbicide on established turf grasses in southeastern states. Devrinol is recommended for control of crabgrass and goosegrass in the following established turf grasses: bahia, bermudagrass, centipede, St. Augustine and fescue. Devrinol is also registered for control of annual bluegrass, barnyardgrass, common chickweed, foxtail, wild oats and panicum; and broadleaves such as redroot pigweed, purslane and groundsel.

Write 159 on reader card

Terracare Products Company tester was designed to be used with the

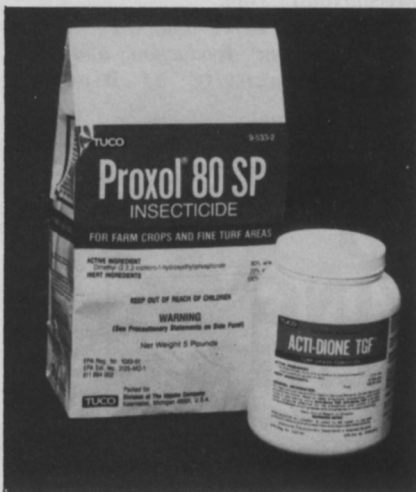


Terracare Aerators to show the hardness of the sod and help determine the best time to aerate. It has also proved to be very beneficial in other lawn and turf work.

Write 160 on reader card

TUCO Agricultural Chemicals

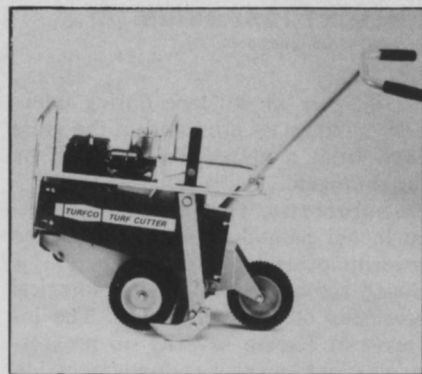
produces Proxol 80 SP, an effective insecticide for control of armyworms, sod webworms, cutworms and larval populations of various beetle species. One of the fastest-acting turf and ornamental insecticides on the market,



Proxol kills insects on contact and through ingestion. Sod webworms, cutworms and armyworms will be killed within 48 hours of application. Proxol provides lawn care people with an effective alternative to chlorinated cyclodiene insecticides. Insects resistant to chlorinated hydrocarbon products can still be controlled with Proxol.

Write 161 on reader card

A completely new, self-propelled sod cutter is now available from **Turfco Manufacturing**. The Model “A” Turf Cutter is powered by a three HP, industrial/commercial engine and cuts 12-inch wide and 3/4-inch thick sod at speeds up to 75 feet per minute. A five HP I/C engine and a blade for 1-1/4-inch thick cuts are available as optional items. The unit weighs only 140 pounds and is controlled by a



simple, single, clutch-lever.

Write 162 on reader card

Tyler Enterprises, Inc. is

introducing a new line of granular fertilizer called Greensward. Greensward is a custom-blended fertilizer sold in bulk or in bags and blended to your own exact specifications. The company will also continue to supply custom-blended liquid fertilizer along with a wide variety of turf chemicals.

Write 163 on reader card

UAP Special Products has three new products currently available. Dacthal WDG pre-emergent herbicide in a 75 percent water dispersible granule that safely controls 23 major grass and broadleaf weeds. Mec-Amine D post-emergent herbicide is the three-way compound that gives faster control of 33 major broadleaf turf weeds with minimum hazard to non-target species. DPD Ester controls tough-to kill broadleaf weeds, like spurge and oxalis, without repeated applications. Great for spot treatments.

Write 164 on reader card

Walker Manufacturing

Company is proving to fit the requirements of commercial landscape maintenance operations with quick maneuverability, built-in grass collection system, out-front mowing and yet fitting into the same tight space as walk-behind trim mowers. This



mower features either 36- or 42-inch cutting width, 11 HP engine, 6.7 bushel grass catcher with automatic full signal and zero turning radius steering via dual hydrostatic transmission drive.

Write 165 on reader card

HELMINTHOSPORIUM

(continued from page 68)

the increase in ethylene during infection is indirectly produced in the grass plant from a metabolite produced by the pathogen.

Conclusions. The research conducted in our laboratory suggests that the severity of leaf spot development is closely associated with the physiological processes of aging in leaves. The increase in disease severity on progressively older leaves is so fundamental to the host-pathogen interaction that it occurs irrespective of inherent susceptibility or resistance to the pathogen. Only the magnitude of the disease changes on leaves of different ages with variation in resistance. Many environmental and cultural factors seem to increase or decrease leaf spot severity by affecting aging processes. Little is known about the physiology of these interactions, but it is probable that redistribution of soluble sugar and the production of ethylene are factors that can influence aging processes.

Future research will continue to investigate the physiology of leaf aging processes and their relationship to the leaf spot pathogen. Should future studies confirm that ethylene is important in leaf spot symptom expression, there

may be some potential for interfering with its biosynthesis and reducing much of the chlorosis associated with leaf spot infection. Research involving physiological manipulation of aging processes, or manipulation of genetic factors responsible for the pattern of aging processes in leaves might also provide new approaches to containing the severity of one of the most widespread and troublesome diseases of turf.

Clinton F. Hodges is professor of Horticulture and Plant Pathology at Iowa State University, Ames, IA.

ACKNOWLEDGEMENT

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220 gal.

550 gal.

&

1400 gal.

PESTICIDES available in BULK:

Dacthal 6F • Trimec 899 • Trimec Ester (2,4-D + 2,4-DB + Dicamba acid)
Phenoban 801 • Amine 4# • MCPP 4# • Big Green Plus (Iron Sulfur)

CALL our toll free number **1-800-447-4131**

or write for further information.



Write 15 on reader service card

AMERICA'S BEST DEFENSE AGAINST CRABGRASS WEARS THE LESCO LABEL.

It's no secret that among America's top lawn care companies, more use Betasan® from Stauffer Chemical for preemergence control of crabgrass than any other herbicide.

And more companies buy Betasan as Lescosan, LESCO's name for America's best crabgrass defense. No crabgrass control is more efficient, longer-lasting or safer to existing turf.

What's more, Lescosan is available in easy-to-use liquid or granular form. In a

variety of formulations, both straight and mixed with fertilizer.

Plus you'll also get LESCO's famous delivery and follow-up service. All no more than a phone call away.

So for America's strongest defense, pick up the phone and call LESCO today. (800) 321-5325 Nationwide.

In Ohio call
(800) 362-7413.
20005 Lake
Road, Rocky River, Ohio 44116.
(216) 333-9250.

The LESCO logo is displayed in a bold, green, sans-serif font. The letters are slightly shadowed, giving it a three-dimensional appearance. It is positioned to the right of the contact information for Ohio.A large, detailed photograph of a crabgrass plant is the central focus of the advertisement. The plant has several long, thin, green blades and a central stalk with a developing seed head. The background is dark, making the green of the grass stand out. The plant is shown from a low angle, emphasizing its height and structure.

MORE COMPANIES WHO WANT BETASAN BUY LESCOSAN.

Lescosan is Betasan, a registered TM Stauffer Chemical Co.

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