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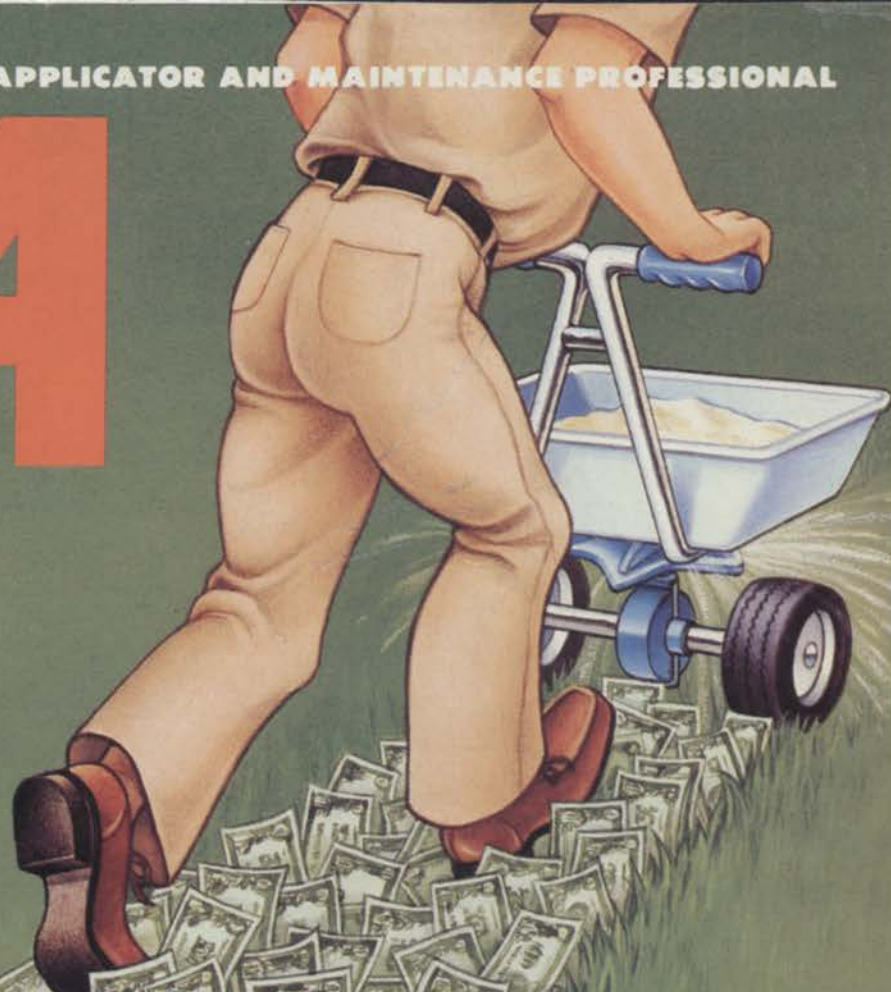
HARVESTING BIG PROFITS IN A GROWING INDUSTRY

TECHNICAL FEATURES:

VOLATILE NITROGEN
LOSSES FROM TURF

TURFGRASS
SCALE INSECTS

SHADE AND TREE
ROOT EFFECTS
ON TURF



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TECHNICAL FEATURES:
VOLATILE NITROGEN LOSSES FROM TURF
TURFGRASS SCALE INSECTS
SHADE AND TREE ROOT EFFECTS ON TURF

ALA

MAY 1984
VOLUME 5 NUMBER 3

THE COVER

The lawn care industry is still young, but it has outgrown infancy and has come into its own. This month's cover story addresses the phenomenal growth potential of the lawn care industry.

CALENDAR

May 3-5

Arizona Turf and Landscape Conference, Ramada Airport Resort, Phoenix, AZ. Contact: Rebecca Watral, Rita Sanders Agency, Inc., 432 E. Southern, Tempe, AZ 85282; 602/967-8714.

July 12-14

Summer Tri-Board, San Jose Hyatt Hotel, San Jose, CA. Contact: Bob A. Gouley, California Landscape Contractors Association, Inc., 1419 21st Street, Sacramento, CA 95814; 916/488-CLCA.

July 24-26

National Fertilizer Solutions Association 1984 Round-Up, Chicago, IL. Contact: Dennis Brown, NFSA, 8823 North Industrial Road, Peoria, IL 61615; 309/691-2870.

Sept. 30-Oct. 3

Society of Municipal Arborists 20th Annual Meeting and Trade Show, Sheraton Gardens Hotel, Freehold, NJ. Contact: Dave Shaw, local chairman, 20 Court Street, Freehold, NJ 07728; 201/431-7903, or Robert Miller, exhibits chairman, 7447 Old Dayton Road, Dayton, OH 45427; 513/854-1338.

Oct. 7-10

Professional Grounds Management Society 1984 Annual Conference and Trade Show, Marriott Hotel, Worcester, MA. Contact: PGMS, 7 Church Lane, Suite 13, Pikesville, MD 21208; 301/653-2742.

Oct. 18-19

Southwest Turfgrass Annual Conference, Las Cruces, NM. Contact: Dr. Charles Glover, New Mexico State University, Agronomy Department, Box 3Q, Las Cruces, NM 88003.

Oct. 30-31

Commercial Grounds Maintenance Short Course, Stone Mountain State Park, Stone Mountain, GA. Contact: Gilbert Landry, Jr., University of Georgia, Soil Testing and Plant Analysis Laboratory, 2400 College Station Road, Athens, GA 30605; 404/542-5350.

BUSINESS FEATURES

Harvesting Big Profits in a Growing Industry

The lawn care industry is growing at a faster rate with each passing year.

20

Beating Dead Beats

Lawn care businessmen have always had problems with bad debts, but there are ways to keep this problem to a tolerable level.

44

TECHNICAL ARTICLES

New Lawn Pest, or Mere Curiosity? Turfgrass Scale Insect

A turfgrass scale has invaded Ontario, but it is too early to tell if it is destined for pest status.

31

Shade and Tree Root Effects on Turf

Shade and tree roots can rob turf of essential growing elements.

34

Volatile Nitrogen Losses from Turf

There are a lot of ways turf nitrogen can volatilize — more ways than you might have thought.

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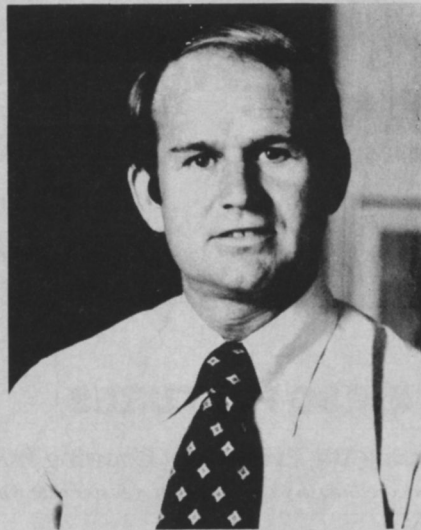
ALA PUBLISHER'S FEEDBACK

It should already be obvious to you that *American Lawn Applicator* magazine has undergone some dramatic changes in graphic appearance, issue size — and my face on this page. Changes that reflect new ownership and expansion of the leading technical magazine serving the lawn service industry.

On March 17, Maureen Mertz, former *ALA* editor and advertising manager, and I purchased *ALA*. Commencing with this issue, *Lawn Care Professional* magazine, which I founded in November, 1981, has been merged into *ALA*, resulting in a single expanded magazine to serve your technical and business information needs.

American Lawn Applicator was founded in May, 1980 as a technical journal serving the chemical applicator segment of the lawn service industry. Published on a bi-monthly basis to over 2,500 paid subscribers, *ALA* has gained recognition (in four short years) as the dominant source of technical research information for the rapidly expanding chemical lawn care industry. *ALA* has enjoyed an exclusive editorial position in the market, high quality readership and consistent growth in advertising volume.

Lawn Care Professional was introduced in November, 1981 with a business/management editorial direc-



tion and a 5,000 circulation. In 1983, its circulation was expanded to a 14,500 readership — encompassing the maintenance segment of the industry — making *LCP* the most widely circulated magazine in its field. *LCP* is also the first industry magazine to acknowledge — through broad-based circulation coverage — the growing trend toward the merging of chemical applicators and maintenance professionals into a single lawn service industry.

The merging of *LCP* with *ALA* represents the marriage of two complementary editorial products (a technical *ALA* and a business-oriented *LCP*) into a single, dramatically expanded editorial service. Combining their subscriber lists has resulted in a single magazine with the largest market coverage and largest paid circulation base of any magazine serving the industry.

ALA publication frequency for the remainder of 1984 will be expanded by two additional issues — publication dates will be May, June, July, September, October and November. Monthly frequency will begin with our January, 1985 issue.

Maureen and I are very excited about our plans for expanding our editorial coverage and services to you — our valued customers and readers. We look to you for input and support in our development of *ALA* and the opportunity to serve your technical and business information needs in the months and years ahead.

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Richard J.W. Foster

Associate Publisher
Maureen Mertz

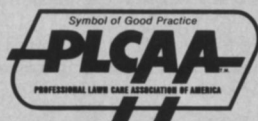
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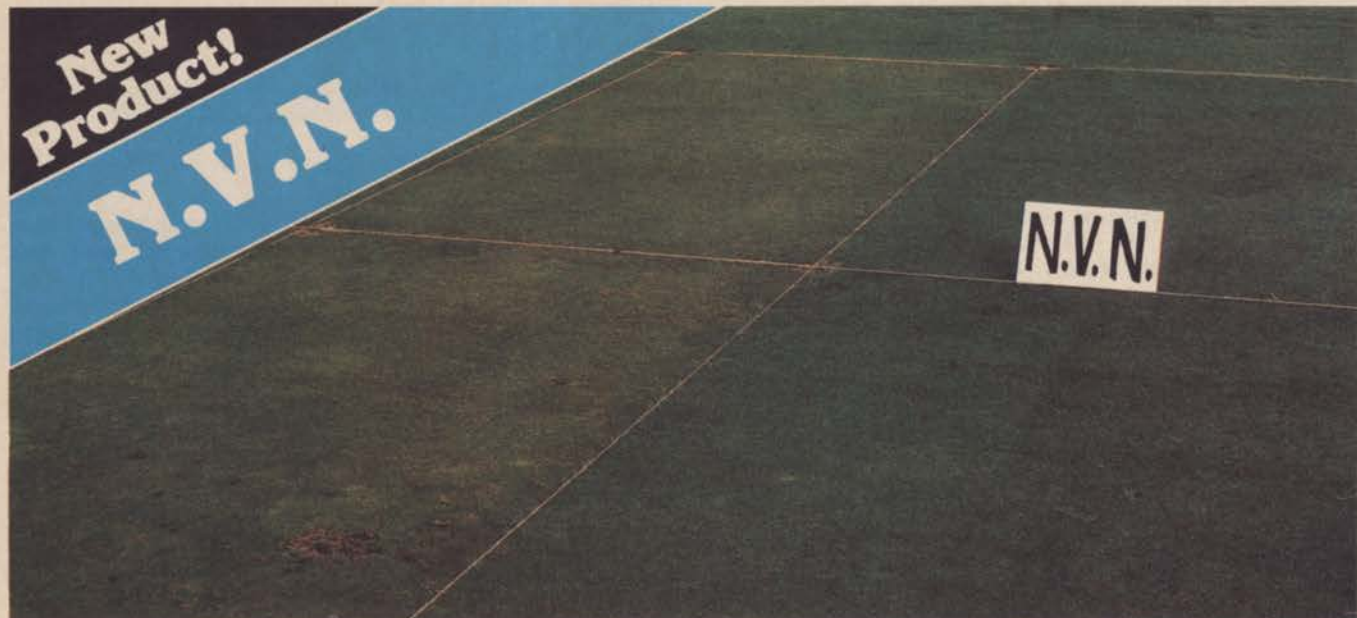


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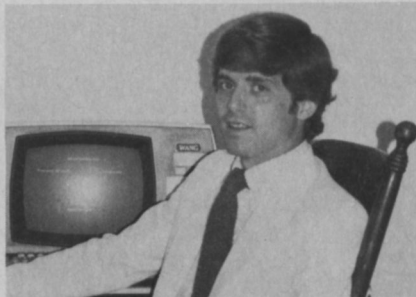
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ALA INSIDE STORY

The ever-changing lawn care industry is the subject of this month's cover story. The skyrocketing profit margins of lawn care businessmen around the country is an obvious indicator that lawn care is red hot, but we were wondering why this industry is growing so rapidly now. The industry continued to grow throughout the recent recession and everyone projects even greater growth now that the "good times" have rolled around again. When we contacted leading lawn care businessmen, they cited several reasons for this growth, ranging from a growing realization of the value of lawn care, to greater numbers of two-breadwinner households with more disposable income.

In conjunction with the cover story, we present a series of graphs illustrating the results of our survey designed to chart the growth patterns of lawn care businesses across the country. Also accompanying the cover story is a feature which addresses the fate of the



"one-truck" operator. In this story we talk with some small operators and probe their thoughts on what it takes to survive as a small businessman in the lawn care field.

Also in this issue is a business feature on "Beating Dead Beats." We talk with some leading lawn care businessmen who have gotten their bad debts under control and get some tips from a professional collections expert. In tandem with this story are sidebars on the Professional Lawn Care Credit Association of America and legislation affecting credit collections.

In every issue we will be presenting at least three technical lawn care features. In this issue we have an article from R.C. Shearman, M.P. Peterson and R.W. Wesely on volatile nitrogen losses from turf. The authors cover the factors that influence turf nitrogen volatility so that lawn care professionals will be better equipped to curb this phenomenon. In a second article, Leon T. Lucas discusses shade and tree root competition in lawns with suggestions for remedying these problems. Also in this issue is an article from Dr. Mark Sears on a turfgrass scale insect which has been discovered in Ontario and threatens to spread southward.

We hope you enjoy our first offering of business and technical articles. You can look forward to receiving more timely *ALA* features in future issues, aimed at making you a better-informed businessman in a growing industry!

Jim Weidner

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WARREN'S TURF OPENS ONE OFFICE AND CLOSSES ANOTHER

On March 1, Warren's Turf Nursery, Inc. in Crystal Lake, IL, opened facilities in Libertyville, IL to serve as a sales-yard distribution point for Warren's Sod, as well as other Warren's products. This opening will expand Warren's commitment to the Chicago and Milwaukee markets. Two full-time sales/servicemen are on duty at the facility.

Warren's will discontinue its sod-growing operations near Plymouth, OH. "The decision to re-deploy the considerable assets in use at Plymouth," says General Manager Mike Holmes, "to other areas of the country was a corporate decision aimed at maximizing return on stockholder investment."

The location was ideal for producing sod, according to Holmes, but it was just too far from the major markets of Cleveland, Toledo and Columbus. "This distance factor was no problem in the days of 20 cents per gallon of diesel fuel. Today, however, we are at a significant delivery cost

UNITED AGRI OPENS OMAHA OFFICE

The Special Products Division of United Agri Products recently combined their administrative and warehouse operations in a new centralized complex located in Omaha, NB. The new 20,000 square foot complex offers the tree and turf industry a centralized location for order processing and distribution. For further information call the new nationwide watts line: 1-800-228-0096; in Nebraska, call 1-800-642-8873.

disadvantage compared to several good competitors," says Holmes.

The company will continue to market its proprietary line of turfgrass seed and special products, including Trevira Spunbound® and T-7® spreaders through its distributor network in Ohio.

WHEEL HORSE PRODUCTS OWNERSHIP COMES HOME



John S. Munn (right), president of Wheel Horse and Robert F. Hawkins (left), vice chairman of the board, celebrate the company's ownership transfer.

John Munn, president; and Robert Hawkins, vice chairman of the board of Wheel Horse Products, Inc., announced the transfer of ownership from American Motors Corporation last summer. A small investor group, led by the management of Wheel Horse, put together a \$13 million financial package backed by the City of South Bend, IN and other Indiana financial institutions concerned with keeping the

LAKESHORE EQUIPMENT CO. IS NOW CALLED LESCO, INC.

After operating almost 23 years under the name Lakeshore Equipment and Supply Company, the venerable lawn care supplier changed its name to LESCO, Inc. on March 1. Lakeshore has had a LESCO Products Division for the past 14 years as a golf course sales unit and

manufacturing section. The name change, according to LESCO President James FitzGibbon, unifies the organization and facilitates identification.

LESCO recently moved into new offices at 20005 Lake Road, Rocky River, OH, following renovation and completion of manufacturing, formulating and warehouse facilities at Wellington, OH and Sebring, FL. LESCO also has warehouse and formulating facilities at Windsor, NJ, and a warehouse in Landover, MD. Ag Industries, Mfg., a division of LESCO, has a sulfur-coated fertilizer plant in Columbia, AL.

TENDER LAWN CARE ASSOCIATION FORMED

Tender Lawn Care, a company offering complete lawn care service to homeowners in Nassau, Suffolk and Queens counties of New York State, was established in January. Company President Arthur Katz says his firm serves most of Long Island, NY. "We are a group of former Lawn-A-Mat owner/operators, many with over 20 years experience in the field," Katz says, "and we have elected to form a new dynamic company that offers state-of-the-art technology for lawn care."

Katz says Tender Lawn is different from other companies because it is not staffed by "absentee owners" and is Environmental Protection Agency certified. "We're

(continued on page 14)

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(309) 944-4661

Indiana Seed Co.
Noblesville, Indiana 46060
(317) 773-5813

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(312) 356-9600

Turf Supplies, Inc.
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(313) 291-1200

UAP Products
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Columbus, Ohio
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NEWS

(continued from page 10)

offering a three-day maximum guaranteed recall to all our customers," Katz says. The newly-formed "association" numbers nine owner/operators servicing more than 10,000 Long Island homeowners. The company can boast over 50 trucks and 100 trained servicemen in the field.

ANDERSONS UPGRADE THEIR MAUMEE FACILITY

Two new fertilizer mixers and two production lines are now fully operational at The Andersons' plant in Maumee, Ohio. The company's completely modernized facility is in full swing and ready to produce the nearly 400 lawn care products its customers will be needing during the 1984



fertilizer season.

In response to increased demand for its lawn care products, the company began a major renovation of its existing plant in August, 1983, replacing older machinery with newer, more efficient equipment and updating the entire

facility to meet today's productivity needs and safety standards.

The modernized production facility gives the company the ability to manufacture products to specific order and to meet changing demands in today's marketplace. At one

time, customers purchased all the fertilizer lawn care products in early winter for use throughout the spring season. Now, however, a tighter economy has forced more and more people to buy lawn care products only as they are ready to use them.

(continued on page 16)

LV – A Better Way to Spray



PROVEN QUALITY: Spraying throughout the record-breaking heat and drought of 1983 proved beyond any question, the safety and reliability of Low Volume Spraying (rates of 1 gal./1000 sq. ft., including fertilizer).

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TRI-STATE KUDOS

Thanks for the fabulous article about Dial One of the Tri-State, Inc. Although I realize I am partial to the subject, the story was superbly written. I enjoyed reading it very much.

Thanks again, Tim, it was great working with you. Take care and have a great day.

*Michelle L. Amato
Adgraphics
Columbus, OH*

We're always willing to give great ideas a little coverage. Ed.

PUT US IN TOUCH.

I work for Evergreen Tree Service and Landscaping on Cape Cod. We have recently begun to handle the maintenance for large- and medium-sized condominiums. These people have shown interest in extras to enhance the grounds, such as barrel plantings, flower and bulb plantings and benches. We have several ideas, yet would appreciate any information or advice regarding this type of improvement.

We are also having a problem finding an inexpensive and effective broadleaf weed control. We are currently using Gro-Tone® 23-5-5 and 2,4-D MCPP® for spraying with a ground wheel. These products work well, but our customers can't afford the cost of application. We have certain other restrictions. We do residential accounts with plantings close enough to the lawn to cause leaf damage with a spray control. Granular products have to be applied on a wet lawn and need to be on the lawn for 24 hours without rain. Cape Cod's weather makes these restrictions very difficult to work around.

*Stephen Long
Evergreen Tree Service and Landscaping
Dennis Port, MA*

We hope the information we sent along will be helpful. Ed.

If you would like to comment on anything you have read in the magazine or have observed in the lawn care field, write: ALA, 4012 Bridge Avenue, Cleveland, OH 44113. ALA reserves the right to edit letters for reasons of space or clarity.

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NEWS

(continued from page 14)

OMC LINCOLN HONORS DEALERS

Cushman® and Ryan® turf equipment dealers across the country were honored recently for outstanding sales achievement in 1983. Fifty-one dealers were awarded "Quota-Buster" plaques by OMC Lincoln Sales Manager Dan Hedglin.



Among those honored for reaching or exceeding sales goals for Cushman turf equipment, Ryan turf equipment and Cushman Front Line® Mowers were: Watson Distributing Company, Houston and San Antonio, TX; Spartan Distributors, Sparta, MI; Southern Specialty Sales Company, New Orleans, LA; G.L. Cornell Company, Gaithersburg, MD; Kenney Machinery Corp., Indianapolis, IN; Storr Tractor Company, Bohemia, NY and Somerville, NJ; Debra Turf and Industrial Equipment Company, Hollywood, FL; Zaun Equipment, Inc., Orlando and Jacksonville, FL; Wesco-Zaun, Inc., St. Petersburg, FL; Tieco, Inc., Montgomery, AL and Tieco Gulf Coast, Inc., Pensacola, FL; Baker Vehicle Systems, Macedonia, OH; Illinois Lawn Equipment, Inc., Orlando Park, IL; L.L. Johnson Distributing Company, Denver, CO; The Magovern Company, Inc., Windsor Locks, CT; Wait Sales Company, Tulsa, OK; Champion Turf Equipment, Inc., Wichita, KS and Kansas City, MS; Boyd Martin Company, Salt Lake City, UT; Century Toro Distributors, Columbus and Cincinnati, OH; Southwest Toro New Mexico, Inc., Albuquerque, NM; Big Bear Equipment, Inc., Omaha, NB; Big Bear Turf Equipment Company, Eldridge, IA; Dakota Turf Supply, Inc., Sioux Falls, SD; Wilfred MacDonald, Inc., Clifton, NJ; Reinders Brothers, Inc., Elm Grove, WI; Hector Turf and Garden, Miami, FL; Associated Supply Company, Inc., Lubbock, TX.

ALA PLCAA UPDATE

1984 PLCAA REGIONAL SEMINAR SCHEDULE

May 16: Gainesville, FL, Gainesville Hilton, 2900 SW 13th St. Chairman: Nick Dennis, Pro Lawn, 904/737-8873.

June 19: Omaha, NE, Old Mill Holiday Inn, 655 North 108th Ave. Chairman: Chip Doolittle, Northern Lawns, Inc., 402/493-2252.

July 11: Wooddale, IL, Elmhurst Country Club, Wooddale Road. Chairman: Rick White, Village Green Ltd., 312/293-1036.

July 12: Livonia, MI, Livonia West Holiday Inn, I-275 and 6 Mile Road. Chairman: Don Benham, Benham Chemical Co., 313/624-3200.

July 17: Ft. Mitchell, KY, Holiday Inn South, 2100 Dixie Hwy., Interstate 71 and 75. Chairman: Paul Jacqueman, ChemLawn Corp., 614/888-3572.

July 19: Boston Heights, OH, Brown Derby Inn, 344 E. Hines Hill Rd. Chairman: Fred Haskett, Greenworld Lawn Service, 216/364-1142.

July 26: Rochester, NY, Rochester Hilton, 175 Jefferson Rd. Chairman: Dave Sek, Monroe Tree and Lands., 716/438-2900.

July 31: Monroeville, PA, Monroeville Marriott, 101 Mall Blvd. Chairman: Jim Walter, Specialty Spraying Inc., 412/539-3226.

August 2: Worcester, MA, Marriott of Worcester, 10 Lincoln Square. Chairman: Steve Evans, Turf Doctor, 617/879-4510.

August 7: Paramus, NJ, Treadway Inn, 601 From Rd. Chairman: Al Rumbo, LST Industries, 201/666-1333 or Bill Carey, Lawn Masters, Inc., 914/769-1256.

August 9: Frederick, MD, Sheraton Inn, I-270 and Rt. 85. Chairman: Gary Mack, American Lawn of Maryland, 301/662-6060.

August 14: Atlanta, GA, Holiday Inn Airport North, 1380 Virginia Ave. Chairman: Chuck Baird, Green Thumb Chem., Lawn Care, Inc., 404/944-8140.

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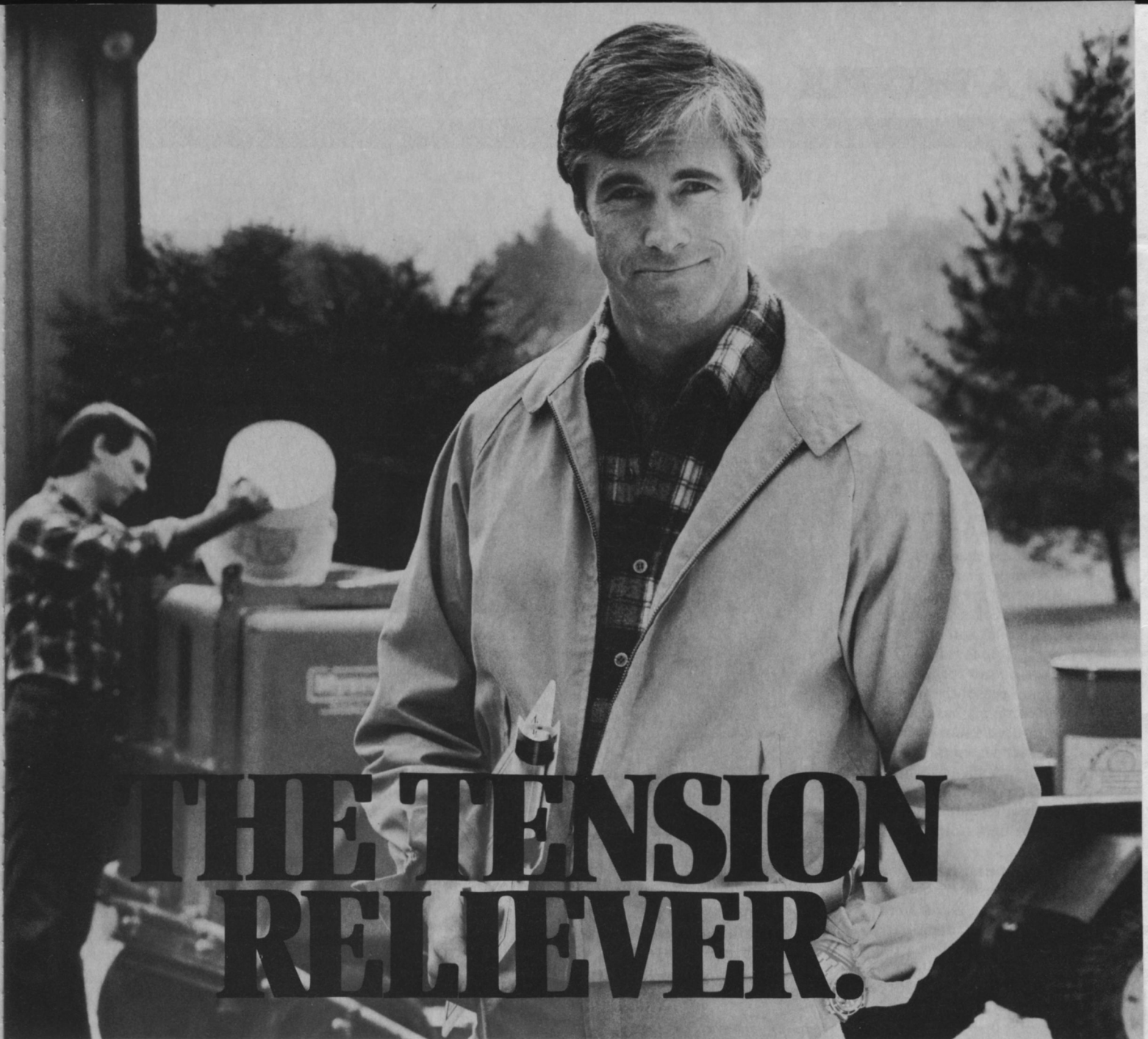
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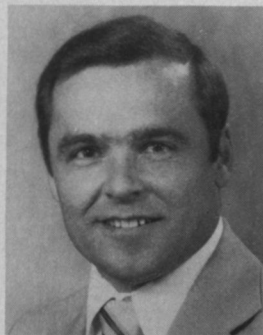
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Scott Weiler

Foley-Belsaw Company, Kansas City, MO, announces that **Scott Weiler** has joined the firm as product manager of their turfgrass related product line. Weiler will be directly responsible for all Foley-Belsaw turf products that are presently in the line. The company has recently introduced a new in-frame automatic lawn mower grinder. Weiler will also head-up the company's turf-related Sales and Service departments.

John Bozarth, long time district sales manager for the Cushman Division of OMC Lincoln, died January 2 in Shelby, North Carolina. Bozarth joined OMC Lincoln in 1965 and worked



The 1984 Ohio Turfgrass Foundation Board of Directors were elected at the Ohio Turfgrass Conference and Show held in Cincinnati, Ohio. (Front row, left to right) Gary Stewart, president elect; Tom Baker, past president; Bill Burdick, president; John Street, executive secretary; Gary Rasor. (Top row, left to right) Frank Bowman; Jim Sharp; Rick Boehm; Bob Yarborough; Paul Jacquemin, treasurer; Ted Pasko; Ed Odorizzi, vice president; Doug Halterman; and Rick Kucharski. Gene Probasco is not pictured.



John Bozarth

with company-operated stores until 1968 when he joined the marketing division for Cushman turf equipment.

The New York State Turfgrass Association awarded the John Cornmann Scholarship to **Lyman Lambert**. The Cornmann scholarship was established to encourage outstanding undergraduate students at Cornell University. The recipient must be a student of turfgrass management and selection is based on character, scholastic record and financial need.

Lambert is majoring in Floriculture and Ornamental Horticulture with a minor in Turfgrass Management.

Micron Corporation's chairman of the board, Edward J. Bals, announced the decision of the board of directors, to accept the resignation of **Frank X. McGarvey**, as president, effective January 9, 1984. McGarvey, who will pursue other interests in his venture, Agricultural Marketing Corporation,

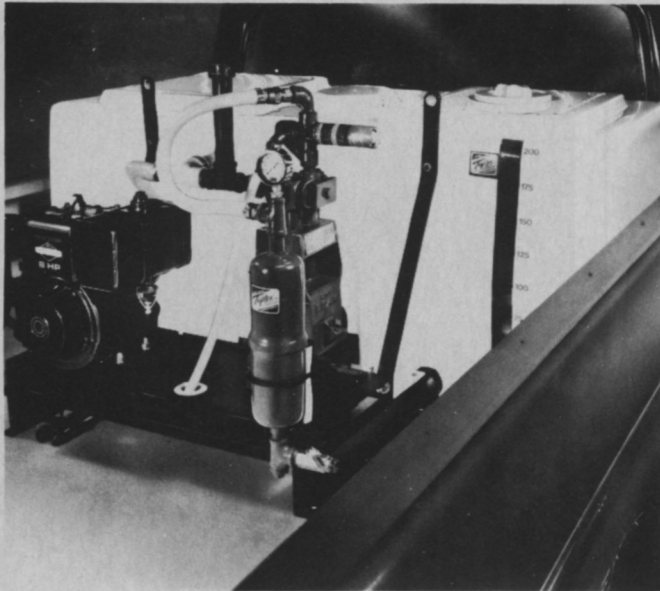
remains a stockholder and in an advisory capacity with Micron.

David H. Snell, former agricultural chemical marketing executive with Uniroyal and Union Carbide, has been appointed acting president and chief executive officer and elected director of Micron. **Frank W. Badey**, a vice president of Micron, was elected director as well. Micron Corporation is a Houston-based manufacturer of controlled droplet application spraying equipment, used principally for applying pesticides.

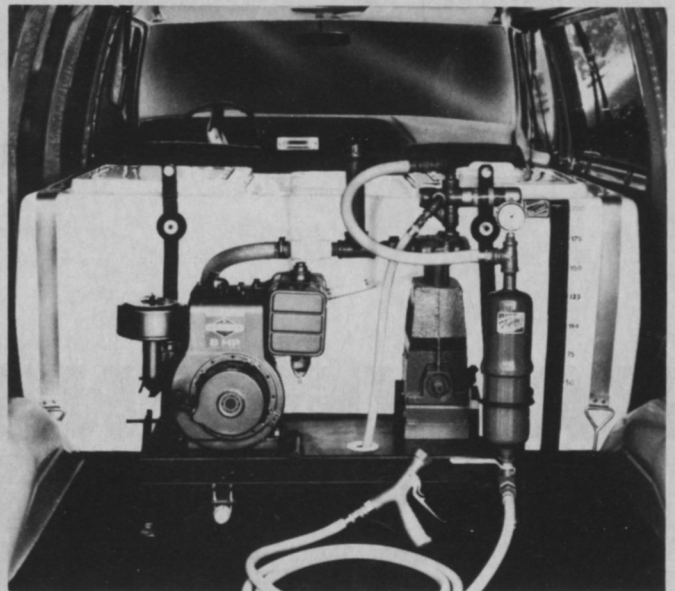
Gibbs Landscape Company, formerly Green Brothers Landscape Company, is pleased to announce its corporate officers: **Jim Gibbs**, president; and **Barry Stern** and **Bob Slingluff**, vice presidents. Gibbs offers both residential and commercial services based on a "design/build" concept.



Steven Willand, Inc., Fairfield, NJ, was named Ransomes, Inc. "Distributor of the Year." Presenting the plaque is Rowland R. Lehman (right), executive vice president of Marketing, Ransomes. Accepting the plaque is Steven Willand, Jr. (center), owner and president of Willand, and Bill Rapp (left), sales manager of Willand's Turf Products Division.



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PC200 gallon spray unit shown here through rear door of van.

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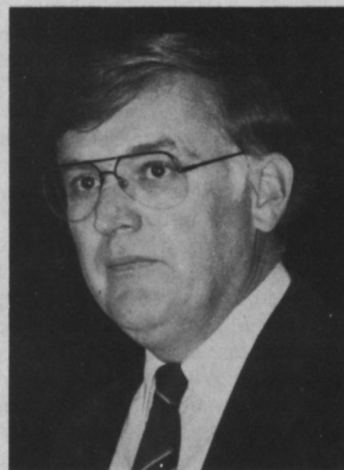
BY TIM WEIDNER

The lawn care industry is growing at a faster rate with each passing year. This is especially astounding since 1983 was considered by many to be a very tough year for small businessmen. Although small businessmen in general suffered in 1983, lawn care businessmen seemed to rise above the challenges of the recession. In fact, the lawn care businessmen we talked to felt 1983 was a year of above-average growth, even during the toughest economic year in the last 40 years!

Lawn care businessmen experienced growth while other small businessmen were going under because they counteracted recessionary effects with aggressive marketing. Aggressive marketing is the hallmark of this industry. And no one knows this better than Jack Van Fossen, president of the largest lawn servicing corporate entity, ChemLawn Corporation, headquartered in Columbus, OH.

To give you some idea of how ChemLawn weathered the recessionary storm, the company's revenues in 1978 totaled \$63,653,000. By 1983, its total





Jack Van Fossen

revenues had grown to \$227,700,000. That is 28.5 percent compounded annual growth over a five-year period. In just one year, from 1982 to 1983, ChemLawn's revenues grew by 24 percent with only two percent average price increases, which means it was real growth!

ChemLawn's success has inspired the masses. "You are seeing a lot more entrants into the lawn care industry simply because they have seen a company like ChemLawn be successful at it," Van Fossen says. "Success happens to breed a lot of competition."

Success also happens to breed a lot of imitators. ChemLawn has set the standard for professional imagery in this highly visible industry. ChemLawn's presence is so pervasive that homeowners expect to see a spotless, rust-free vehicle driven by a uniformed technician when they call for any lawn service.

ChemLawn is really a microcosm of the lawn care success story. The fact that a corporation the size of ChemLawn can sustain a growth rate in the 30 percent range makes a strong statement about the growth potential of this industry. When the company incorporated in 1969, it claimed gross sales of \$218,000. ChemLawn has increased that figure by 1,045 times. Astronomical sales progressions like this are being achieved by large and small lawn care companies nationwide.

Every major lawn care market in the country is dominated by two or three large, regional firms with gross annual

LAWN CARE IN THE CORPORATE EYE

The kind of companies entering a growing market says a lot about the growth potential of that market. The fact that lawn servicing is attracting some large corporations that have not shown much interest in service trades in the past indicates how big business views the potential of the lawn care industry. Heavy hitters like Na-Churs Plant Food and Sears are making bold new commitments to a future in lawn care.

Na-Chur's Plant Food Company, headquartered in Marion, OH, has leaped into lawn servicing with both feet. Jack Van Fossen, president/CEO of ChemLawn Corporation, says ChemLawn is not overly worried about competition, but Na-Chur's plans to give the number one lawn service company more competition than it has ever faced. Peter D. Moore, manager of Lawn and Garden Care at Na-Chur's, says his 37-year-old company plans to be the second largest lawn servicing company in the United States within the next five years.

"We are willing to accept ChemLawn's statement about the \$4.5 billion potential market," Moore says. "We see the market at somewhere into 20 to 30 percent penetration, that means there is a lot of room for number two." Moore believes ChemLawn is actually aiding in Na-Chur's bid for the number two position. "We don't see ChemLawn as our real competition, because they are really helping to create the industry," Moore says. "They are bringing customers into the marketplace."

Na-Chur's intends to exploit this marketplace with agronomic services never offered by a major "lawn care" company before. Na-Chur's is offering homeowners agronomic consultation; lawn and ornamental service; and do-it-yourself gardening and houseplant products. "We have two of the largest soil labs in the United States and eight or nine regional agronomists around the country," Moore says. Most people familiar with the company think of it as a manufacturer of liquid fertilizers, but Moore says the company has always been service-oriented.

He says lawn servicing is a "natural fit" for Na-Chur's because of the company's established network of bulk material facilities and 2,000 sales people coordinated from the Marion office. The Ohio branch offices Na-Chur's has opened in Marion, Lima, Findlay and Columbus are already doing a booming business, and Moore predicts similar success stories for nationwide offices that will open over the next few years.

Moore says the lawn care market is now prime because the recession has faded and households with both spouses working have a renewed interest in real estate. "The baby boom generation is buying houses again and we are trying to service that need," Moore says. The market may be ripe, but Moore predicts a race for the coveted number two service company position. "I see the market winnowing-out and I think there will be four or five major companies," Moore says. "That is what our marketing people are telling us."

One company that would no doubt like to be among the four or five at the top is Sears, Roebuck and Company, headquartered in Chicago, IL. The company that has long dabbled in service concessions like dental clinics, tuxedo rental and grave monument construction, once again offers lawn service through store concession booths. A Sears spokesman tells us that his company's lawn servicing concessions are beyond the test marketing phase, but he adds that "...it appears it will be a slow growth."

Sears has begun its "slow growth" into lawn servicing with three established store concessions in Atlanta, GA, Billings, MT and Minot, ND. The company spokesman assures us that a fourth is on tap for Cleveland, OH. Lawn care is a natural for Sears. "It is just another extension of our merchandise offerings and services," the spokesman says, "another growth area we offer to the customer as a convenience." Sears currently offers landscaping and sprinkler installation through its HIPS program (Home Improvement Product Services) available at larger stores.

Now that companies like Sears and Na-Churs have gotten on the bandwagon, the future seems bright indeed for lawn care. One can only wonder who will be next to take the plunge. Maybe ITT has its eye on a few lawn care operations! — *Tim Weidner*

sales of over a million dollars. These regional operations vie with ChemLawn for lawn care market supremacy on a market by market basis. In the northeastern section of the Midwest, ChemLawn has to contend with companies like Davey Lawnscape Services of Kent, OH and Leisure Lawn of Carrollton, OH. To give you an idea of the kind of competition ChemLawn is up against, Davey has experienced 500 percent growth from 1978 to 1983.

Doug Baker, president of Leisure Lawn, says his company's annual gross revenues have grown from \$2 million in 1978 to \$6 million in 1983. "We are in enough large markets that we have staying power," Baker says. Leisure Lawn is firmly entrenched in markets like Dayton, Columbus and Cincinnati, OH; Chicago, IL; and Ft. Wayne, IN. By having branches in several major metropolitan areas, companies like Leisure Lawn and Davey can still register overall business growth even if one or two of their markets happen to be falling behind. Although they don't have ChemLawn's sales volume, companies like Leisure Lawn, Davey and Lawnmark Associates have growth momentum equal to ChemLawn's.



Marty Erbaugh

Recession-proof. The success of the lawn care industry in the face of the recent recession has led some industry observers to call it "recession-proof." Marty Erbaugh, president of Lawnmark Associates in Peninsula, OH, thinks the recession-proof nature of this industry can be attributed to his belief that most markets are no where near saturation. Erbaugh says 10 years ago anybody with ambition could have built a million dollar business in lawn

(continued on page 24)

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THE FATE OF ONE-TRUCK OPERATORS

The lawn care market may be growing by leaps and bounds, but not everyone may be equipped to take advantage of this growing market. Many believe that the lawn care businessman who remains a "one-truck" operator is destined to fail in this market. Many of these small businessmen will contest the issue, but the small business acquisitions made by some large regional operators speak for themselves. Small business buy-outs by large businesses are standard fare in the best of economic times, but the recent recession gave an indication of how close to the redline many small businessmen operate their companies.

In Ohio, at least two lawn care businessmen noticed a rather unusual number of small, "one-truck" operators going out of business. Gordon Ober, general manager of Davey Landscape Service in Kent, says he has received at least five phone calls and letters in January and February from small companies interested in selling out. The number of contacts is not as significant as the timing of the calls. Ober usually gets these messages in October or November.

Like Ober, Doug Baker, president of Leisure Lawn in Carrollton, OH has also received overtures from small operators interested in selling out. Baker says Leisure Lawn acquired six

Many believe that the lawn care businessman who remains a "one-truck" operator is destined to fail in this market.

small companies in recent months after they went out of business. "That is quite a few acquisitions for us or anybody else," Baker says. "It would have to be considered a shake-out for the smaller guys." The acquisitions were made all over Leisure Lawn's market Cincinnati; Columbus; Chicago; and Ft. Wayne, IN.

There is no question that the recession was hardest on small operators, but just because the recession indicated that the smallest of small businessmen tend to be the most financially fragile, does not mean that the entire group is destined to fail. At least that is the way small lawn care operators like William Schaeck, owner of Chem Green in Tustin, CA, view the situation. "If I didn't feel there was a place for us in this market," Schaeck says, "I wouldn't have entered it a year ago."

Schaeck believes the small operator is here to stay, but only if he continues to grow. He says constant growth is necessary just to keep pace with busi-

ness costs like normal customer attrition. Schaeck's business is not growing quite as fast as he had hoped, but he anticipates having at least four trucks in the field within the next two to three years. A virgin market and the mild southern California weather, which keeps him in business year-round, have fueled Schaeck's optimism for future growth. He says his only real competition is a local ChemLawn branch and two other sizeable operators.

Ed Packebush, owner of Lakes Lawn



Doug Baker

GROWING INDUSTRY

(continued from page 22)

care and some of that potential is still present.

Erbaugh says he experienced growth with Lawnmark in 1983. In fact, he forecasts 30 percent compounded growth over the next three years. Lawnmark and the rest of the industry is still growing because consumers perceive lawn care as a real economic value, according to Erbaugh. "Consumers are used to paying a plumber or an electrician \$25 before they do anything," Erbaugh says. "We provide a full season of high quality home service which generally costs less than a January electric bill."

Lawn care is also descending the socio-economic ladder. "The word has traveled out of the higher income neighborhoods into all residential neighborhoods." Not only is it

spreading, but Erbaugh believes homeowners are beginning to perceive lawn care as a necessity. "Lawn service is taking on the character of a utility service."

Some lawn care businessmen are enhancing the image of lawn care as a necessity by offering complete lawn maintenance services. James Mello, owner of Nice 'N Green in Downers Grove, IL says his business grew in 1983, but he is especially pleased with the way his horticultural sidelines have grown. "I have seen a real increase in some of the services I have offered — aerifying, slit seeding and tree work — they are growing at a higher rate than lawn spraying," Mello says.

In the years between 1978 and 1983, Nice 'N Green has more than doubled the number of customers it services. However, Mello says his business growth slowed to 20 percent compounded over the last two of those years. The slowing growth of his customer base is at least partially due to

the increased number of services he offers. Mello intends to increase his revenues by getting more money for more services from his existing customers, rather than adding new customers.

Like Erbaugh, Mello believes this industry is only recession-proof as long as there are markets which remain unsaturated. Commenting on the Chicago metropolitan area, Mello says Chicago lawn care operators haven't felt the recession so much because their market is still growing. He feels that saturation will eventually occur since there are several companies with over 100,000 customers. When the number of big companies grow, the market will approach saturation and if the recession builds again, the operators will feel it. "We are still growing so damn much that we don't feel recessions," Mello says. "It isn't such a recession-proof industry, as it is such a young industry."

While the industry was in its infancy



Gordon Ober

Nutra Turf in Milford, IA, says the future looks bleak for small lawn care operators unless they have three things working in their favor. "You can survive if you are in the right location, manage your money well and have the right kind of people working for you," Packebush says. The "one-truck" operator may even have a marketing advantage over the large regional or national

A homeowner who intends to have a lawn service for over five years had better hire a small company because a big company will not modify its treatment procedures to conform to the changing needs of the lawn.

firms. Packebush says he can give his customers the personalized service the big companies cannot. "Customers don't like to be just a number on a computer."

Some small operators believe the biggest advantage they have over large operators lies in the quality of the service they offer their customers. "If the small lawn care operator is interested, he can do a better job than the big guys," says David Dereu, owner of Dereu Skelgas and Lawn Care of Geneseo, IL. Dereu says the big operators are more interested in creating a mass-produced lawn care product.

Dereu would even go so far as to say that a homeowner who intends to have a lawn service for over five years had better hire a small company because a big company will not modify its treatment procedures to conform to the changing needs of the lawn. He says homeowners with large lawn service companies can expect to fall into the

"three-to-five year syndrome" which results in excessive thatch build-up and necessitates an extensive renovation program. Many large companies do not offer the labor-intensive renovation work, but Dereu says they can afford to lose customers after five years because they can easily pick up new customers.

Although many small operators feel they can top the big companies in service, most will agree that the big companies will always dominate the lawn care market. Glenn Sidder, owner of Eradico Lawn Care Company of Ferndale, MI, believes the "one-truck" operators entering the market will have to grow into two- or three-truck operators if they want to survive. Sidder perceives a need for the type of service offered by the small operator, but he says large companies will eventually capture 75 to 80 percent of the total market.

Since most industry experts believe the lawn care market has only reached 20 to 30 percent penetration, the bottom line here is the vast potential customer base still unexploited by large and small lawn care companies. Even if the large companies grab 80 percent of the market, the remaining 20 percent still represents several million potential customers to the small operators. Besides, full market penetration is still decades away. Between now and then, a lot of "one-truck" operators will undoubtedly become "multiple-branch" operators! — *Tim Weidner*

during the late 1960s and early 1970s, Mello says lawn care got its foot in the door by underpricing retail lawn care products that were available at the time. Several years ago, the major retail brands began to market their lawn seed and fertilizers through the discount stores at "loss leader" prices, but commercial lawn care had already won-over a sizeable share of the homeowner market.

Saturation is unquestionably a factor in the industry's growth, but Jerry Faulring, president of Hydrolawn in Gaithersburg, MD suggests that perhaps saturation is not quite the finite state we always thought it was. "What we used to think of as a saturated market hasn't even arrived yet," Faulring says. "In Cleveland, for example, they thought that market was saturated five or six years ago and everybody is continuing to grow. We are not really positive about what is full saturation."

Even in areas approaching saturation, Faulring says companies are



Jerry Faulring



James Mello

GROWING INDUSTRY

(continued from page 25)



"The price of this service hasn't changed materially in the last 12 or 13 years, because of the competition." — Don Burton, president of Lawn Medic, Inc., Rochester, NY

still growing because they have improved their marketing programs. "Most lawn care companies are finding ways to increase their sales within their own customer base. Growth is continuing even though you might find a given market or two where the new account load is not increasing that dramatically."

Both Mello and Faulring say they have not really considered taking any recession fighting measures. With a business increase of 440 percent from 1978 to 1983, Faulring hardly has to worry about tightening his belt. "In terms of pricing issues and things like that, we talk about it now and again, depending on a given market, but it hasn't stopped us from raising prices or opening new markets. In fact, we opened Allentown (PA) last year, which is the home office for Bethlehem (Steel) and Mack truck, two companies in big trouble."

Hydrolawn had good success in Allentown, according to Faulring, and although he couldn't speak for the other operators in his market, he says his customers have been spared the effects of the recession. "They are not the people who are going to be in trouble when hard times hit." If any place was hard-hit by the recession, it was Detroit, where Faulring heard of a lawn care operator who was growing at high rates, even during the height of the auto crisis. "That is a good indication that the people we serve are not always going to be affected by the recession." On the recession-proof question, Faulring has to hedge and say "...the industry is recession-resistant, I don't know if it is recession-proof."

Faulring says lawn care has been "recession-resistant" and continues to grow because homeowners want to give up some of their property maintenance chores. He says homeowners would also like to avoid the hazards associated with using chemicals. Peer pressure can also generate an interest in lawn care service. "We used to go into a community where there wasn't a significant amount of lawn service, and it was easy to go in with one inquiry slip in hand and walk away with eight customers." Everyone wanted a beautiful lawn like the guy next door with the lawn service. Since there are a growing number of households with both spouses working, Faulring also believes homeowners may be more able to afford a lawn service, but have less time to do lawn work themselves.

Rising homeowner expectations are also a factor, according to Don Burton, president of Lawn Medic, Inc., Rochester, NY. Burton says homeowners are becoming less enchanted with the results they have been getting with materials they have applied

themselves. But most important is the ongoing value of lawn service. "The price of this service hasn't changed materially in the last 12 or 13 years, because of the competition," Burton says. "It has kept the price to the homeowner depressed."

PLCAA power. Homeowners have come to expect not only better lawn care results, but a heightened sense of professionalism on the part of their service company. To meet homeowner expectations, today's lawn care companies must project a professional image, which means an immaculate truck and equipment, technicians practicing good customer relations and company brochures which inform as well as promote sales.

This quest for professionalism is one of the needs served by the lawn care industry's national association, the Professional Lawn Care Association of America (PLCAA), based in Marietta, GA. PLCAA Executive Director Jim Brooks says the association has contributed to the lawn care industry's growth through its member services, regional seminar programs, the annual conference and educational material it has published. The growth of the PLCAA itself is indicative of this industry's growth potential.

"We are growing at a rate of about 35 percent per year," Brooks says. "We are hoping that by the end of 1984 we will have 600 company memberships." Association membership stands at about 500 right now, but a recent surge in growth momentum suggests that the 600 mark will be attained soon. In the last 12 months the PLCAA has gained approximately 180 members, according to Brooks.

PLCAA membership is growing in diversity as well. When the association was established in 1980, the membership was primarily composed of lawn spray companies, today there are many total lawn maintenance companies enrolled in the PLCAA. Mowing maintenance professionals have contributed to the PLCAA's growth, as indicated by the growing number of mowing equipment representatives in attendance at the PLCAA's annual conference trade show.

The association's annual conference is also growing steadily. Last year's conference in Cincinnati, OH drew a record 1,400 attendees, counting the exhibitors in attendance. "As the membership grows," Brooks says, "we are looking for more growth in the conference and show." Brooks predicts this year's November 11-15 conference in Tampa, FL will set a new attendance record. He says the Tampa conference should break the 1,600 attendance mark.

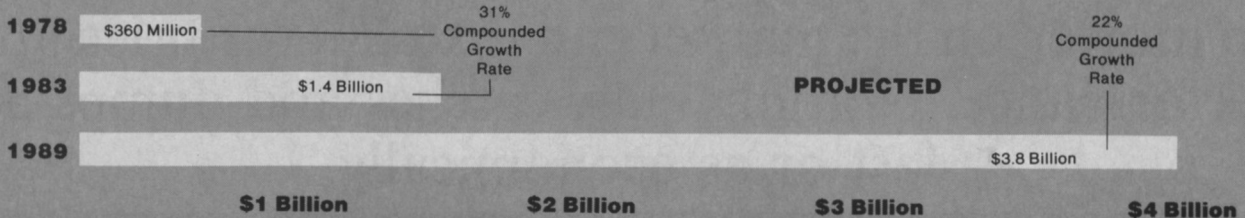
(continued on page 30)

In preparation for this month's cover story, ALA surveyed the Professional Lawn Care Association of America's membership to chart the personal growth profiles of a typical group of lawn care businessmen. The survey respondents confirmed our belief that the lawn care industry is growing at an incredible rate with reports of

phenomenal five-year compounded growth rates. Many took the liberty of expounding at length upon the virtues and vices of their industry by attaching company stationery filled with commentary! We could editorialize further, but we would rather present this graphic distillation of the opinions of your peers on the state of the lawn care industry.

LAWN SERVICE INDUSTRY

Service Revenue Growth and Five-Year Projection



LAWN SERVICE INDUSTRY

Compounded Annual Growth 1979 to 1983

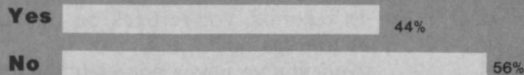
PER COMPANY
DOLLAR VOLUME



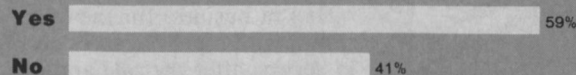
It is remarkable that any industry could record an average growth rate of 31 percent during the tough recessionary years from 1979 to 1983. It is important to note that this average covers a wide range of individual business growth rates, in most cases depending on the size of the company. The smaller companies' average 43 percent five-year growth rate may have accounted for thousands of dollars in personal growth, but ChemLawn's 18 percent growth for the same period meant millions of dollars of growth over previous years.

MARKET SATURATION BY 1989

100,000 Population
or Smaller

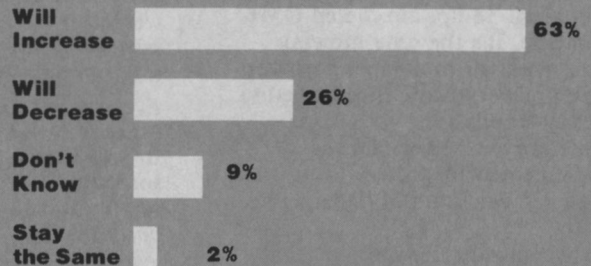


Markets Over
100,000 Population



Though the numbers are fairly close, it is clear that a solid majority of our survey respondents believe there will not be market saturation in small population centers, while an equally solid majority believe there will be market saturation in larger population centers by 1989.

FRANCHISING



Most of our survey respondents also believe there will be an increase in lawn care franchising by 1989. The nine percent of the respondents who could not answer this question probably indicates a regional disparity in franchising popularity. In some areas franchising may be just catching on, while in other areas it has been booming for years.

What makes the Cushman Grass Grooming System worth the investment:

No mower on the market can match it for price and performance. Nothing cuts, catches and dumps as fast or as economically.

The problem with most mowers is that no matter how fast they cut, your work slows to a turtle's pace when it comes to cleaning up the clippings.

That's why we created the Cushman Grass Grooming System. With it you can cut, catch, dump and resume cutting without interruption.

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And at the heart of the Front Line is a rugged, 18 hp, air-cooled OMC gas engine. It's the only mowing engine built for multi-speed work — lugging power at low speeds, agility at faster speeds.

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The Front Line is 1200 pounds of gutsy engineering.

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Underneath are 3 blades of machine-sharpened, hot-formed steel.

The floorboard is diamond-plate steel. And the 6-gallon fuel tank is made of terneplated steel.

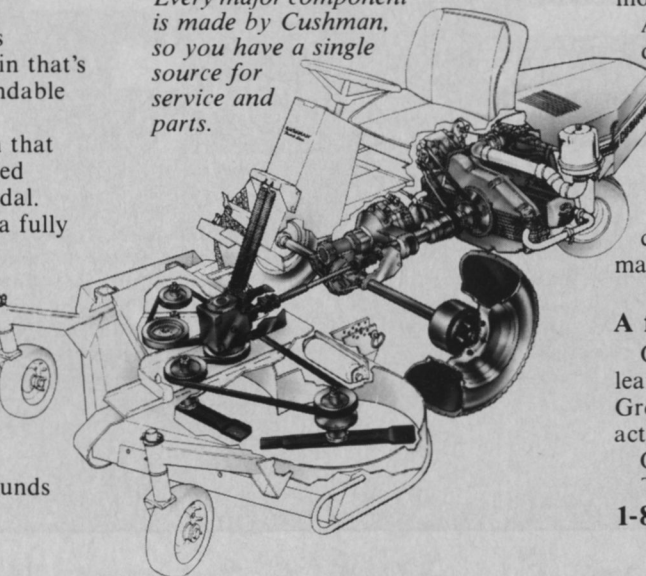
But the Front Line is not just built to last — it's also built for results.

The blades are positioned so that their cutting swaths overlap slightly, leaving no uncut strips of grass.

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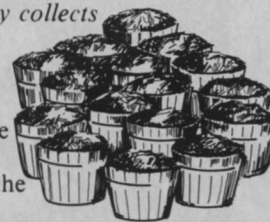


Dual traction assist pedals provide a tight, zero turning radius.

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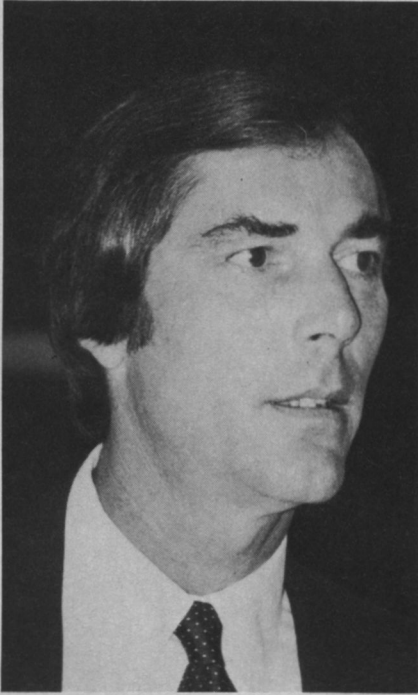
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GROWING INDUSTRY

(continued from page 26)

“Growth in the South has been based not only on more people, but a lot of those people have moved from the North where they had the lawn care experience.” — Jim Brooks, executive director, Professional Lawn Care Association of America



As the person with perhaps the best vantage point in the industry, Brooks can also make some observations about the lawn care industry in general.

He says more people are computing the cost of do-it-yourself lawn care and finding they cannot do the job as cheaply as a professional. Since lawn care spray trucks have such high visibility, Brooks says the service has become something of a status symbol. Suburbanites want their neighbors to know they can afford a lawn service.

In addition to its value as a status symbol, homeowners realize that a well-maintained landscape can increase their property value by as much as 25 percent, according to Brooks. Lawn care has also benefitted from a shift in regional demographics. “Growth in the South has been based not only on more people, but a lot of those people have moved from the North where they had the lawn care experience,” Brooks says.

Lawn care may be growing, but so are the forces which have aligned themselves against this industry. Lawn care businessmen and other pesticide applicators have had to deal with government regulation in the past, but in the last couple of years there have been dramatic changes on the regulatory front. The “New Federalism” of the Reagan administration has distributed the former singular federal regulatory authority to 50 state and 80,000 local governments. Each of these 80,000-odd governmental bodies can enact laws which could affect the application of lawn care pesticides.

Pro-pesticide coalitions have been established to meet the challenges presented by the multitude of governmental bodies and the citizens’ groups that encourage their regulatory actions. Two new pesticide-user groups are of special interest to lawn care applicators: the Pesticide Public Policy Foundation, Inc. (3PF) and the National Coalition for a Reasonable 2,4-D Policy. 3PF was formed last September and has the support of PLCAA and the National Arborists Association. The foundation’s stated objectives are to organize interested parties at the state level, bring people together for mutual assistance and give direct consultation regarding local issues.

These user groups are already embroiled in the job of putting out local regulatory brush fires. Chemical contamination incidents unrelated to the lawn care industry have fueled the public’s fear of pesticides and resulted in some 200 pieces of pending local legislation that could have dire consequences for this industry, according to Brooks. Local regulatory stipulations currently on the books or pending at this time include, 30-year records of transactions, prenotification of all property owners adjacent to lawn care customers, posting of warning signs prior to pesticide applications and state and local bans on 2,4-D and other pesticides.

Conclusions. In spite of local challenges to the industry’s right to use pesticides, the lawn care industry seems unstoppable. There are presently 8,000 to 12,000 companies involved in lawn care, depending upon the classification of the services they provide, according to Brooks. In 1982 these companies accumulated gross sales of \$1.85 billion — a 23 percent increase in gross sales over the previous year. In 1982, eight million residential lawns were receiving lawn service, but according to Brooks’ research, eight million is only 20 to 25 percent of the potential market. Even by conservative estimates, 70 percent of the lawn care industry’s potential market remains untapped.

But what has created the lawn care growth phenomenon? There are a lot of factors involved, but the industry men we interviewed all cited lawn care as an outstanding value to the homeowner, in relation to other services retained by homeowners. The industry may have experienced a recent surge in growth simply because it has taken several years for the rank and file of suburbia to become aware of lawn service value.

Aggressive marketing tactics to improve market penetration continues to be the key formula for business growth. Some companies continue to go after more customers to expand their customer base, while others are beginning to offer more turf care services to draw more revenue per customer.

But the bottom line is the phenomenal growth experienced by virtually every businessman committed to a future in the lawn care field. Reports of personal growth of 300 percent and higher over the last five years are almost typical. The lawn care market has emerged in the last five years as a highly viable growth industry with high long-term growth potential. Today it is recognized as the “hot” turf market with growing influence and power in the turf industry.

NEW LAWN PEST OR MERE CURIOSITY? TURFGRASS SCALE INSECT

BY DR. MARK SEARS

In recent years, throughout much of southern Ontario, lawn care personnel have reported small, obscure insects infesting turfgrass. The insect's scientific name, *Lecanopsis formicarum*, does not give any clues to its description or behavior. It has yet to be given an appropriate common name, but it is related to soft scale insects. It is oval in shape and somewhat hemispherical, with piercing mouthparts that allow it to feed on grass sap.

This scale apparently arrived in Ontario in the late 1970s from Europe where it has been collected, but is not very common. How it arrived in Ontario is still unknown, but it currently can be found in most urban areas of southern Ontario. It seems to be most commonly found in areas that have been sodded in the past five to seven years, possibly indicating its method of dispersal — in sod that is produced and distributed over the entire province.

Description. The mature insect is light tan to yellow in color and about five millimeters (mm) long. It has a broad, yellow dorsal stripe along its back. Like all insects, these scales have six legs, as well as antennae and a small beak which contains fine piercing stylets that allow the insect to feed on plant sap. Very few other features are apparent.

While feeding on the stems and crown of the grass plant, the insect secretes loose flakes of wax that partially cover its body. Only females have been found, and they can produce eggs without mating, a feat which is not uncommon



Adult turf scale.

in this group of insects. When females begin to produce eggs, they create a cottony mass of silk-like wax. The female produces a large number of eggs and dies immediately upon depositing them in the cottony mass.

A small mobile stage called a crawler hatches from the egg and moves about on the grass plant searching for a suitable place to settle down and feed. The crawlers are red in color, and because they are so numerous, they cover the grass blades and cause the grass to appear red. Later stages become sessile and settle down on the plant to feed for the remainder of the season.

These small scales are salmon-pink in color and are hidden under the leaf sheaths. Scales develop slowly during the rest of the year and eventually reach maturity the following spring. During this time the salmon-pink scales turn a

SCALE INSECTS

(continued from page 31)

Eggs produced by female and deposited in silken mass.

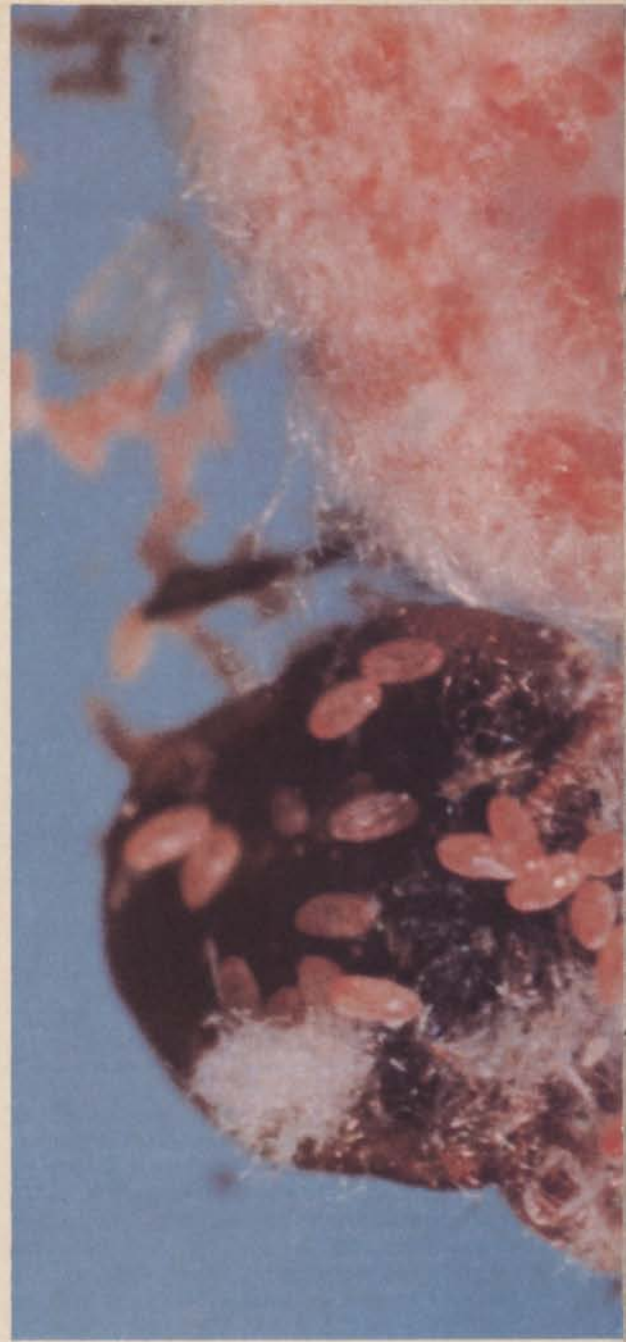
Cottony mass of silk extruded by female.



yellow-tan color and grow in size from less than 0.5 mm to their fully developed length of 5 mm.

Life history. The life cycle of this insect is quite simple and all stages are found feeding on turfgrasses. Mature nymphs pass the winter attached to the lower portion of the crown near or below the soil line. As temperatures rise in the spring, they move to parts of the grass plant above the soil, but remain quite concealed. When they reach the adult stage in late April and early May in Ontario, they become more active and may move onto leaf blades where they are visible to the casual observer. There may be as many as five scales per 10 cm² (500 per square foot) at this time.

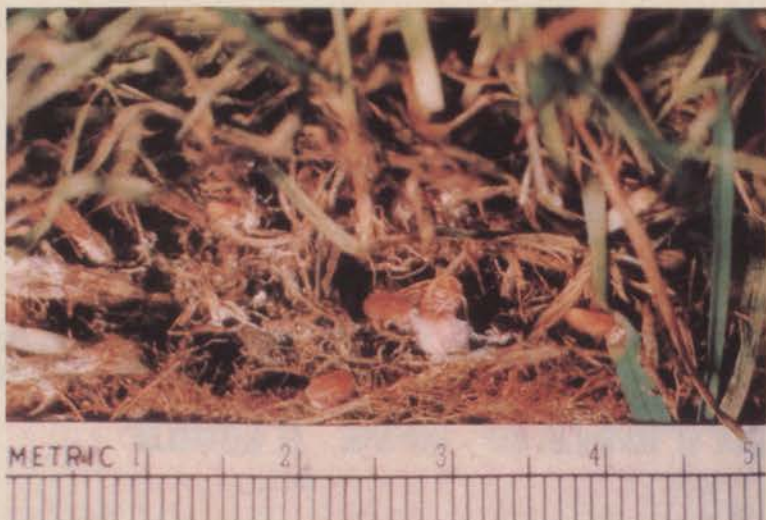
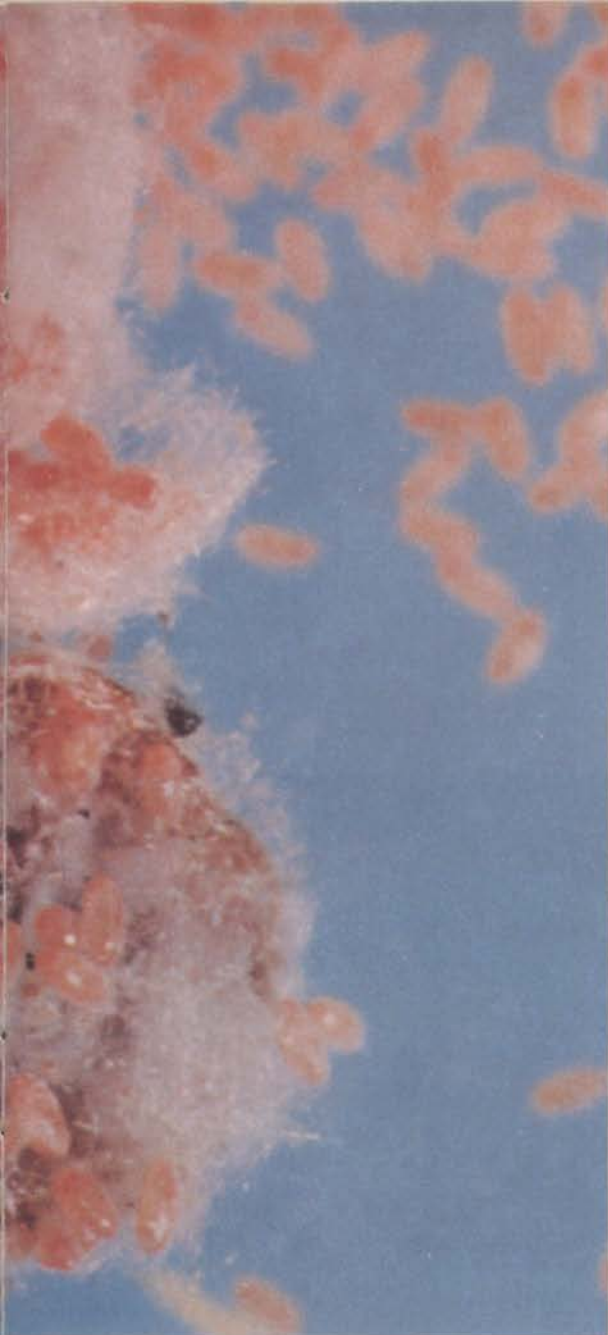
They often attach themselves to the shoes of people walking on infested turf, and may also get distributed by birds in a similar manner. Eggs laid in masses of cottony wax are also readily visible from late May through June. Each female is capable of laying 70 to 170 eggs, and when these



hatch, an amazing phenomenon associated with these insects occurs.

From data taken at one study site in Guelph, Ontario during 1983, there were an estimated 200 to 300 eggs per 10 cm². When these eggs hatch, small reddish crawlers emerge and move to the leaf blades in great numbers. For example, if all the eggs hatched, there would be 200,000 to 300,000 crawlers per square meter or approximately one billion per acre. When crawlers are abundant, homeowners become aware of the situation and are understandably upset. Their backyards become inhospitable for a few days while the crawlers are abundant. Clothes drying on the clothes line, become covered with crawlers and crawlers blow through window screens onto draperies.

Following this period of activity, the scales settle down to feed on grass stems in relative obscurity. Less than 10 percent of the crawlers become established on grass and these are hidden under leaf blades. They overwinter as mature nymphs that have migrated to the lower portion of the grass crown or even into the root



Mature nymphs moving into thatch zone during the fall.



Mature scale nymphs on lower crown of bluegrass plant in early instar.

system. Thus a single generation is completed each year.

Host plant preference. Infestations of scale insects have been found on perennial bluegrass, *Poa praetensis* and on red fescue, *Festuca rubra*. Scales have not been found on annual bluegrass, *Poa annua*, or on creeping bentgrass, *Agrostis palustris*. Host suitability is being investigated in the laboratory at the present time and future field evaluations are being planned. It appears that this insect is not very host-specific, but more likely, will be attracted to turfgrass habitats that produce optimum survival conditions through physical conditions such as heavy thatch or high nutrient levels.

Control. As yet, completely successful control procedures have not been devised. The insecticides diazinon and chlorpyrifos, which are most commonly used by homeowners and the lawn care industry, are not always consistent. Variable results have been obtained when these materials have been used at nominal rates on lawns infest-

ed with these scale insects. The occasional lack of control may be due to improper timing of the application, or to other factors, such as lack of moisture or heavy thatch at the time of application. Specific recommendations for control will be the object of investigation this summer.

Introductions of insects from overseas which feed on crop or ornamental plants often result in the rapid spread of a new pest species. In this case, this scale insect has spread rather widely throughout Ontario, but no reports have been confirmed of its being collected from other provinces or from the United States. Awareness and surveillance by researchers and by industry personnel will provide early warning of the presence of this new insect in areas where it has yet to be reported. By that time, however, sufficient information regarding its ability to cause damage and methods of effective control should be available.

Dr. Mark Sears is an associate professor in the Department of Environmental Biology at the University of Guelph, Guelph, Ontario, Canada.

SHADE AND TREE ROOT EFFECTS ON TURF

BY LEON T. LUCAS

Too much shade is often a problem in home lawns and other turf areas. Competition for water and nutrients, by tree roots, is usually associated with shade problems.

Shade causes several different effects on turfgrasses. The major effect is usually reduced light intensities. Also, the quality of light that reaches turfgrasses under trees is of lesser quality than that found in open sunlight. Other changes in shady environments are moderation of temperatures, higher humidities, longer periods of leaf wetness, reduced air movement, lower or higher soil moisture levels and higher levels of carbon dioxide. More carbon dioxide for the grass may be a positive factor, however, it is not enough to overcome the effect of reduced light intensities.

The type of trees in the lawn affects the amount of shade produced. Trees with branches high off the ground allow higher quantities of light with a wider range of light waves to reach the turf. Dense trees such as oaks and maples allow very little sunlight through their canopies. Turf with satisfactory quality can often be obtained under pines with branches high off the ground, but not under trees with low limbs and dense canopies. For enough light to reach the turf under trees such as oaks, the limbs must be high enough for light to come under the trees in the morning or afternoon.

Reduced air movement under trees keeps the relative humidity higher and turfgrass leaves remain wetter for longer periods. The temperatures in shade usually are not as high during the day as nearby open areas. Conversely, the temperatures at night in shade areas are not as low as adjacent open areas. Soil moisture levels may be higher from reduced evapotranspiration rates or may be lower during dry weather from root uptake of the soil water.

When light intensities are too low, turfgrass plants produce fewer leaves, and those which are



(Below) A good tall fescue lawn in partial shade 10 years ago. The trees were smaller and enough sunlight came through and under the trees to grow a good turf at that time.



(Above) The same area as shown in the first picture 10 years later. The trees have enlarged and a hedge was planted which caused too much shade and reduced air movement in the area. The fence on the left and the swing set on the right are about the only things to indicate that this is the same area. The alternative of using shade-tolerant plants and mulch was used in this lawn rather than trying to grow turfgrasses.



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SHADE AND TURF

(continued from page 34)

produced are longer and more succulent. Also, fewer roots are produced. Turf quality declines when the compensation point for light is passed. In other words, the plants use more energy than they produce from photosynthesis when this level of light is not maintained.

These factors, that result in weak plants in combination with higher humidities and longer periods of leaf wetness, encourage the development of some diseases. Diseases such as brown patch, rust and powdery mildew are often more severe in shady environments. These diseases are often the final factors that cause poor-quality turf in shady environments.

Shade removal. There are several ways to deal with shade problems. The shade can be removed, shade tolerant grasses can be planted, ground covers or mulch can be installed, or the homeowner can learn to tolerate and expect poor quality shade turf. Shade can be removed by cutting down trees or pruning to remove lower limbs and thin the canopy. The idea of selective shade removal may be more acceptable to the customer than whole tree removal.

When shade is being removed, examine the area carefully and selectively remove enough limbs or trees to provide good light intensities for at least six hours a day. The site must be examined in the morning, at noon and in the afternoon on a sunny day to determine what shade should be removed.

Turf alternatives. You may want to suggest new landscape designs to the homeowner, using shade tolerant plants such as azaleas, or ground covers such as ivy, periwinkle, lirope or others adapted to your area. Mulches such as bark, pine needles or leaves can be used to develop attractive landscapes. Turf maintenance companies should be willing to suggest these alternatives to produce the quality landscape you and your customer desire. If these shady spots are not high traffic areas, alternatives to turf are often less expensive in the long run and more attractive.

If your customer wants turf, turfgrasses such as ryegrass or tall fescue may be planted annually in the fall under deciduous trees shortly before leaf fall. The grasses will grow in the fall and winter (in southern climates) and in the spring. Leaves must be removed frequently for the grass to grow. The grasses may die in the

You may want to suggest new landscape design to the homeowner, using shade tolerant plants such as Azaleas, or ground covers such as Ivy, Periwinkle, Lirope or others adapted to your area.

Other changes in shady environments are moderation of temperatures, higher humidities, longer periods of leaf wetness, reduced air movement, lower or higher soil moisture levels and higher levels of carbon dioxide.

summer and will have to be replanted in the fall. Some of the red fescues, bluegrasses and newer tall fescues are more shade tolerant than other grasses and may survive throughout the year.

Under heavy shade, the quality may be poor. Under partial shade some of the bluegrasses and ryegrasses may give acceptable turf quality. The warm season grasses in the southern United States will not grow well in shady areas. St. Augustinegrass is the most shade-tolerant of these grasses.

Spreading shade. Homeowners often say that they used to have good quality turf in some areas, but now they cannot grow grass there. Shade in a landscape with trees increases with time as the trees enlarge. Trees grow, and often hedges are planted, that produce more shade and reduce air movement more each year.

Tree roots often compete with the turf for moisture and nutrients. If sufficient light is present, tree root competition may be overcome with extra irrigation and fertilization. Turfgrasses growing in shady environments may actually use less fertilizer if tree roots are not taking nutrients from near the surface. Root pruning (not too severe) may be an option with some trees.

In the southern United States, pine trees have rather deep root systems and allow more light through the canopy. Some deciduous trees such as tulip poplar and oaks have rather deep roots and do not compete as much with turfgrasses. Trees such as maples have shallow roots that compete more with the grasses and the roots often become raised above the soil. Taller-growing trees can often be pruned to allow more sunlight to come under the trees in the morning and afternoon. Proper tree selection would help prevent these problems from occurring.

Conclusions. Too much shade is a common problem on turfgrasses and increases over the years. Several different alternatives should be noted for your customer's consideration. Although we are in the grass growing business, alternative measures may be the best solution in some lawns with too much shade.

Leon T. Lucas is an extension plant pathologist specializing in turf at North Carolina State University, Raleigh, NC.



The effect of root pruning on the growth of bermudagrass is shown in this picture. The dark green grass is outside of the line where roots were cut with a small ditching machine several months earlier.

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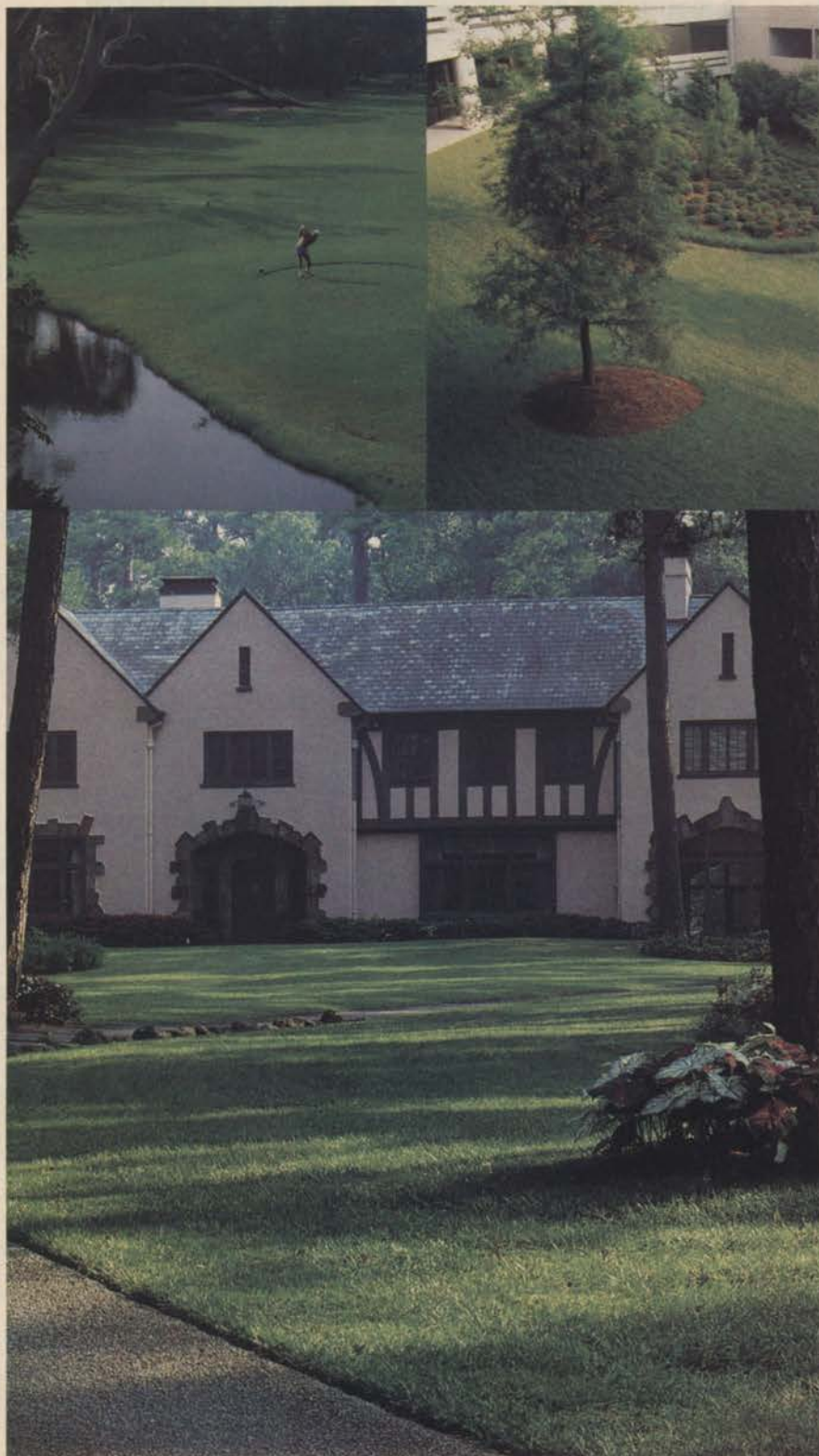
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VOLATILE NITROGEN LOSSES FROM TURF

environmental conditions and fertilizer relationships.

Soil and turf factors. Soil factors that influence ammonia volatilization include temperature, moisture, reaction (pH), cation exchange capacity (CEC) and texture. Turf factors include urease activity and thatch influence on volatilization.

Volatilization potential increases with increasing soil temperature. This is particularly true when urea is applied. As temperatures increase, urea is converted to ammonia more rapidly and is more likely to volatilize. This occurs because ammonia is building up faster than it can be converted into ammonium, which is less prone to volatilization.

Low soil temperatures of 45 degrees Fahrenheit or less, significantly reduce ammonia losses. However, some controversy exists on this point. Researchers at the University of Nebraska found that at temperatures below 40 degrees, microbial activity became so limited that conversion of ammonium to nitrate nitrogen was reduced. This reduced activity resulted in ammonium accumulation and its subsequent conversion to ammonia, which was more readily volatilized.

Soils with insufficient moisture are also prone to volatilization losses. Under favorable soil moisture conditions, fertilizer nitrogen is converted to the nitrate form and is taken up by turfgrass plants. In dry soils, this is not possible, and the nitrogen in the ammonium form may be converted to volatile ammonia. In climates where fall or early winter rainfall is limited, nitrogen fertilization should be restricted unless supplemental irrigation can be applied.

When soil moisture is less than one percent of field capacity, ammonia volatilization losses from urea may be retarded, since insufficient moisture is available to hydrolyze the urea. Soil moisture levels in higher maintenance turfs, however, are unlikely to reach one percent of field capacity.

Soils with low cation exchange

BY R.C. SHEARMAN,
M.P. PETERSON
AND R.W. WESELY

You may be suffering from gaseous nitrogen loss and not even know it. The potential for nitrogen losses through ammonia volatilization exists in most lawn care service programs. Lawn care applicators should be aware of this potential and should develop a better understanding of factors contributing to it. In this article we will discuss the current state of knowledge relating to factors that influence nitrogen volatility in turfs.

Increasing costs of fertilizers and labor over recent years have caused turfgrass professionals to consider the relative efficiencies of various fertilizers. The loss of nitrogen through volatilization of ammonia gas into the atmosphere can significantly reduce the efficiency of a fertilizer program. As much as 50 percent of applied nitrogen can be lost through volatilization in extreme cases, but these losses can be practically eliminated if applicators are aware of the factors influencing ammonia volatilization. There are several factors influencing ammonia volatilization, including the soil, turf,



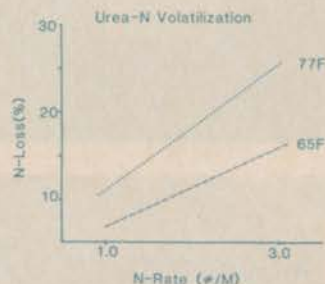
Apparatus used to trap volatile nitrogen in studies at the University of Nebraska.



Gaseous loss of nitrogen through volatilization is only one of several ways nitrogen is lost in the nitrogen cycle.

AIRFLOW	
Urea-N Volatilization--24 Hrs	
Airflow (l/m)	Nitrogen Loss (%)
1.2	5.8
2.4	9.8
85 F, 50 %, 1.0 # N/M	

The influence of airflow on volatile nitrogen loss from urea applied as a liquid in four gallons of water per 1,000 square feet.



Temperature effects on urea-nitrogen volatilization. Urea was applied in granular form and was not watered-in after application.

capacities (CEC) show the greatest nitrogen loss due to volatilization. Since soil texture affects the CEC, soils with high sand content have lower CEC and greater potential for volatilization losses than soils with high clay content. In fact, Volk (1959) found nitrogen losses as high as 59 percent on sandy soils with low CEC. If the soil has a low cation exchange capacity, the ammonium cannot be held by the soil and is more likely to be lost to the atmosphere through volatilization as ammonia gas.

CEC in thatch is even lower than that found in most soils. Research at the University of Illinois found 39 percent of the nitrogen applied from urea was lost to volatilization of ammonia from thatch. This could be related to CEC as well as urease activity in thatch. Urease activity will be discussed in more detail later. Modifying thatch, by coring and returning soil cores to the turf, could increase its CEC and change soil physical factors influencing the moisture-holding capacity of thatch. This in turn would reduce volatilization losses. Obviously, conditions may vary between studies and actual lawn conditions, but a more efficient nitrogen program could be realized when thatch accumulation is minimized.

In the soil, nitrogen in the ammonium form is held by tiny negatively-charged particles called acid colloids and is therefore not susceptible to leaching or volatilization. Since ammonium nitrogen is held by acid colloids in the soil, it is well known that ammonia losses through volatilization may be high from soils with a pH above 7.0. It is also thought that ammonia volatilization may occur to a limited extent on acidic soils as well.

Urease activity influences ammonia volatilization when urea-nitrogen is applied to turf. Urease is an enzyme responsible for conversion of urea to ammonia. Urease activity increases hydrolysis of urea to ammonia, and therefore potentially increases volatilization. This enzyme is found in the soil, plants and thatch. Researchers have found

that urease activity is highest in turfgrass plants and lowest in soils. If urease activity is decreased, then ammonia volatilization should be reduced.

Some research using urease-inhibitors to control urease activity has been conducted with limited success, but a more practical approach for lawn applicators would be to ensure soil contact of urea-based fertilizers rather than allowing it to stay on the plant or in the thatch. This could be done through higher water application rates with liquid programs or, when feasible, by watering immediately after fertilizer applications. Decreasing thatch and clipping accumulation should reduce volatile losses of nitrogen, since urease activity is high in these materials. Other properties of the plant-thatch complex may further accentuate volatilization losses as previously discussed.

Environmental conditions.

Several environmental factors can potentially influence ammonia volatilization in turf. Environmental factors that either increase urease activity, increase evaporation, or both; may increase volatilization. These environmental factors include increasing temperatures and wind, and decreasing relative humidity and available moisture. Under these conditions, without adjustments in cultural practices, there can be significant volatile losses of nitrogen.

Therefore, it is most desirable to apply urea and ammonium-based fertilizers during cool humid conditions that are followed by a light rain or irrigation. It is also best, in terms of reduced volatilization losses, to apply these fertilizers when roots are actively growing and immediately after close mowing.

Fertilizer relationships. Nitrogen losses from volatilization are influenced by nitrogen source, granule size and application method and procedures. Nitrogen sources such as ammonium sulfate and urea are particularly subject to volatile losses of nitrogen. Slow-release sources such as ureaformaldehyde (UF), methylene urea, isobuty-

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granular	1.0	6.6
	3.0	17.0
liquid	1.0	5.5
	3.0	15.0

65 F, 50% RH, 2.4l/m

A comparison of volatilization losses from granular and liquid applications of urea.

UREA vs SCU

Urea-N Volatilization--24 Hrs

Carrier	N-Rate(#/M)	N-Loss(%)
Urea	1.0	11.2
	3.0	26.8
SCU	1.0	1.3
	3.0	5.9

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Nitrogen source effects on ammonia volatilization from turf.

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NITROGEN LOSSES

(continued from page 40)

lidene diurea (IBDU) and sulfur-coated urea (SCU) are less prone to volatilization.

However, all of the sources can potentially volatilize ammonia. Some of the greatest losses of ammonia have been reported with urea. For this reason, the relative efficiency of urea may be less than that of other nitrogen sources commonly used in turf. However, if appropriate steps are taken to decrease potential volatilization, urea can be used effectively.

Nitrogen is applied to turf as granular or liquid applications. Studies have been conducted to determine potential volatile nitrogen losses from these applications. In general, the higher the nitrogen application rate, the higher the volatilization rate, and slow release nitrogen carriers are not as susceptible to volatilization as fast release carriers. Liquid forms tend to volatilize more than granulars. Suspension ureaforms, methylene ureas and methylol ureas are less prone to volatilization than urea. Methylol urea is slightly more susceptible to volatile nitrogen loss than the suspension ureaforms.

Volatilization research conducted in controlled environment and field conditions at the University of Nebraska, demonstrates the effects of some volatilization factors previously discussed. Doubling airflow, nearly doubled the percent of nitrogen lost from urea to volatilization, and resulted in approximately a 10 percent loss in nitrogen-use efficiency from volatilization alone.

Similarly, increasing temperatures from 65 degrees to 77 degrees Fahrenheit, increased volatile nitrogen losses. This was particularly the case as the nitrogen application rate was increased. Obviously, urea applications of three pounds actual nitrogen per 1,000 square feet are not practical for lawn care programs, but the fact is demonstrated, that as the nitrogen rate is increased, so is the potential for increased nitrogen loss to volatilization.

There is some controversy over liquid versus granular applications regarding potential volatile nitrogen losses. Research done prior to the writing of this article revealed no difference between the two methods of application. However, as was discussed previously, differences have been reported by other researchers. Some of these differences may be attributed to low water application rates that allowed more of the applied fertilizer to remain in the turfgrass canopy rather than filtering down to the underlying soil.

Foliar application (i.e. two gallons of water per 1,000 square feet or less) of urea is more prone to volatile nitrogen loss than drench applications (i.e. four gallons of water per 1,000 square feet or more). Differences between nitrogen sources also exist. Sulfur-coated urea treatments lost only one-fifth the amount of volatile nitrogen as did urea at similar application rates.

Conclusions. Lawn care applicators should keep in mind that ammonia volatilization is only one means of reducing nitrogen use efficiency. It should not be dwelled upon, but neither should it be ignored. Careful selection of nitrogen source, care in method and timing of application are also important factors. The applicator should also have an awareness of soil, plant and environmental factors influencing nitrogen volatility.

The best procedure to reduce volatilization losses is to ensure that the applied nitrogen reaches the soil and the turfgrass rootzone rapidly. This is particularly true when ammonium-based or urea fertilizers are applied. The lawn care industry relies heavily on these fertilizer sources. Potential for volatilization losses increases when these materials are applied without being watered-in or without an adequate water application rate to ensure rapid movement to the soil surface. You should be asking yourself this question: "Am I paying for nitrogen that never reaches the turfgrass?"

R.C. Shearman, M.P. Peterson and R.W. Wesely are professor, graduate research assistant and former graduate research assistant (now research director for Modern Turf Products, Fremont, NB), respectively, at the University of Nebraska, Department of Horticulture, Lincoln, NB.

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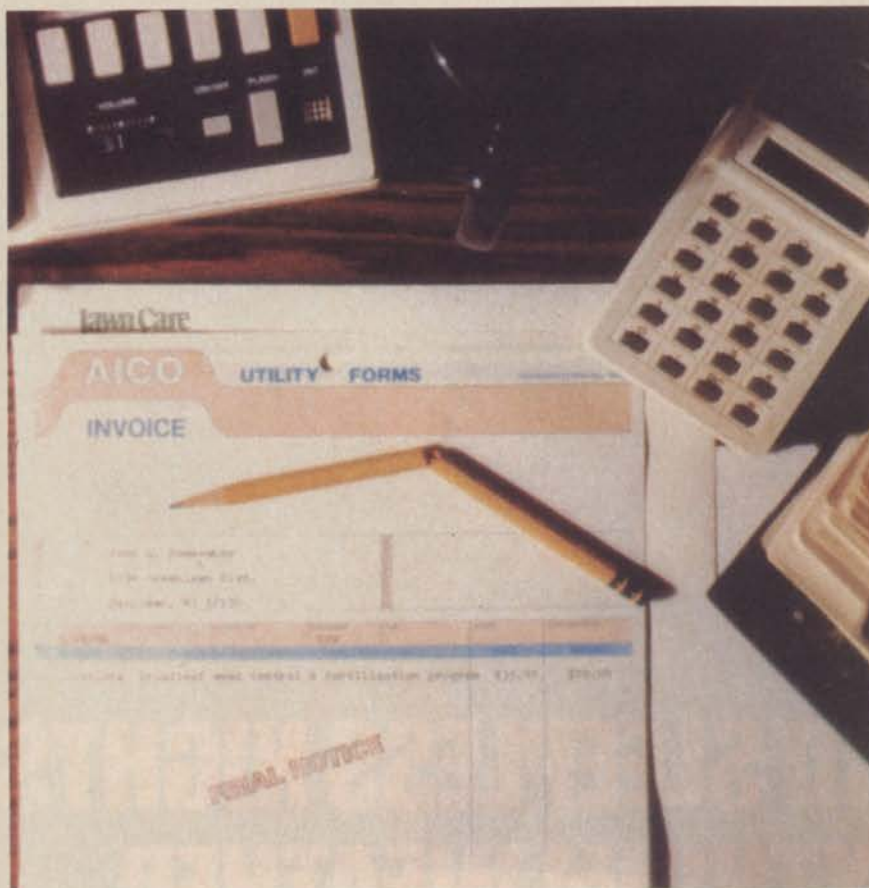


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BEATING DEADBEATS



BY TIM WEIDNER

Bad debts are not a significant problem for lawn care businessmen. More specifically, bad debts are not a significant problem for lawn care businessmen who actively pursue their receivables. The lawn care businessmen we talked to must be in hot pursuit of their receivables since none of them claimed uncollectable debts of over two percent of their total annual receivables.

Businessmen like Doug Baker, president of Leisure Lawn in Carrollton, OH, can say they are not overwhelmed by bad debts, but only because they are good receivables managers. Baker says Leisure Lawn has been able to hold the uncollectable debt line at two percent of annual income. "Receivables need to be managed like any other part of your business," Baker says. He says the state of the economy does have some effect on the incidence of bad debts; when customers get laid off, they tend to skip payments on luxuries like lawn service. But regardless of external forces affecting the bad debt situation, lawn care operators have to assume a realistic attitude when dealing with overdue accounts.

After an account becomes overdue by 180 days, Baker refuses to waste any more of his company's money and time on billing and demand letters. At that point, his uncollectables go to a collection agency. "There comes a time when you have to stop fooling with them and turn them over to somebody; you have to carry on with the business you have," Baker says. Collection agents have the clout necessary to intimidate people into paying their bills.

The nature of this business poses a built-in collections problem. "When you don't have signed contracts," Baker says, "it is a little bit difficult (to collect), but you don't want to build up receivables on somebody you know is not going to pay." Vigilant account management can catch most potential dead beats before they can run up a huge bill, but there is no way to detect in advance the people who make a practice of stiffing their creditors.

"There are always the people who just ride on lawn care companies, going

(continued on page 47)

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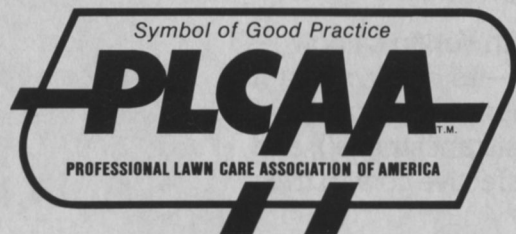
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PLCAA'S COLLECTION AGENCY

The Professional Lawn Care Association of America (PLCAA) has a "captive" debt collection service called the Professional Lawn Care Credit Association of America (PLCCAA). L. James Martin, PLCCAA executive director, attorney and president of Martin Enterprises in Kent, OH, says PLCCAA operations are based on procedures developed while he was working with Marty Erbaugh, PLCAA past president and president of Lawnmark Associates, Peninsula, OH.

"I had been representing him (Erbaugh) on his debt collection for some time," Martin says. "He had been going through the orthodox writing of two or three in-house letters, making a couple calls and threatening to send the debt to an attorney. He had very bad results with that." Erbaugh met with Martin to hash out a solution to his debt collection problems. As a result of the meeting, Martin began sending out two- and three-phase demand letters to Erbaugh's creditors which identified Martin as Erbaugh's attorney.

Martin believed that his legal clout could "...catch people's attention a little more rapidly, to prioritize the payment of these bills, which ordinarily are relatively small and don't find themselves as high on the pile as the doctor, dentist or utility bills." Erbaugh found that Martin's demand letters recovered substantially more debts than his past efforts had produced and he



recommended Martin's service to his lawn care colleagues.

Following more successful collections, Erbaugh suggested that Martin talk with PLCAA officials and make a proposal to form a credit collections association within the PLCAA. Now, a year after the acceptance of Martin's proposal, PLCAA members are enjoying considerable collection success with Martin's PLCCAA.

The credit association is designed to benefit the members individually and collectively. "Of the total amount of money we collect on behalf of any client, 70 percent of it goes back to the client," Martin says. Of the remaining 30 percent, 10 percent is retained by Martin as payment for his services and 20 percent goes to the PLCAA for support of member services.

As the PLCAA accumulates returns from the



L. James Martin

PLCCAA, Martin says the money will be utilized in two ways. First, says Martin, the money will be used to "...improve the ability of the association to collect and monitor its member's accounts." Second, the funds will help support PLCAA annual convention seminars on lawn care business topics. Martin says the debts sent to him for collection represent a wide range of needs; some send him all their overdue debts, while others send him only their problem accounts.

Martin says his results are generally better than those you could expect from a typical collection agency that charges a flat fee per collected debt. Unlike most collection agencies, the PLCCAA does not send debtors sequential letters. "With most collection agencies," Martin says, "you get a letter that says, 'Nasty letter to follow' and you know you are in some kind of sequential mode." Rather than let debtors know they can stall until they are informed of impending legal action, Martin relies on three demand letters.

The first letter tells the debtor that Martin is collecting for a nationwide association of lawn care businessmen, that he is an attorney and he expects payment within 30 days or "...some action will be taken." The dead beats who remain unimpressed are sent a similar second letter which narrows the payment deadline to 15 days. Finally, the people who continue to hold-out are offered the option of an extended payment plan. The die-hards who have not responded after the third letter are either written-off as bad debts or taken to court, depending upon what Martin's client wants to do. Since the amount of money owed is usually less than the cost of court filing fees, Martin says most of his clients write-off the bad ones and are satisfied with the debts Martin can collect.

If you would like more information about the Professional Lawn Care Credit Association of America, contact L. James Martin, Martin Enterprises, 138 South Water Street, Kent, OH 44240; 216/678-7900. — *Tim Weidner*

BEATING DEAD BEATS

(continued from page 44)

from one to the next. A customer can have lawn service and not pay any bills for two or three years — just shift from company to company." Baker avoids being stung twice by habitual dead beats since he has established a bad debt file to alert him to dead beats who try to become customers again.

Account management. Every lawn care operator who has gotten his bad debts under control will tell you he accomplished the feat by strict management of his accounts receivable. "Companies have bad debts because they don't stay on top of it," says Jerry Faulring, president of Hydro Lawn in Gaithersburg, MD. "They find out six months later that somebody owes them

\$34 and then they go after it — with time it becomes harder and harder (to recover)." Faulring says his company's accounts receivable have been much easier to manage since he computerized his billing system.

Hydro Lawn is currently writing-off bad debts which amount to less than one-half percent of annual sales. Faulring attributes his phenomenal success in dealing with bad debts to his computer. He says the computer can generate listings of customers who are in arrears and print out past-due notices. "Everybody is billed in a

timely fashion and they get reminder notices."

When his computer has done its best to round-up overdue debts, Faulring's in-house director of finance forwards the stragglers to the collection agency. The collection agency receives Hydro Lawn's past-due accounts after they become 90 days old. Those the collection agency cannot resolve are written-off as bad debts.

The only alternatives to writing-off a bad debt is taking the holder of the debt to small claims court or placing a lien on the debtor's property. Some

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BEATING DEAD BEATS

(continued from page 47)

time ago, Hydro Lawn took a few debtors to small claims court, but Faulring soon learned that the time and money invested in court costs can easily exceed the amount of the debt itself. The cost of going to court may be justified in the case of debts running into hundreds of dollars, but when it comes to the residential account dead beats, you might as well write them off. "If you are talking about a single

treatment, which is a typical \$34 to \$40 charge, there is no way in the world you are going to come out ahead on that, other than clearing the books and feeling good about it."

See you in court. Court costs may be prohibitive in many small claims, but a court summons can capture a debtor's attention when all else fails. Gordon Ober, general manager of Davey Lawnscape Service in Kent, OH, says the debtors who can't be persuaded to come forward by letters from their attorney are taken to court. "If



the client doesn't respond to anything," Ober says, "eventually he is going to end up in small claims court. Through that whole process, you smoke them out, they finally call you up and they are usually hot. That's when you say, 'Pay the bill or let's resolve the problem'."

If the court summons does not "smoke them out," when their day in court comes and they don't show up, the court will place a lien on the debtor's property. This means the debtor cannot sell his property or mortgage against it until the debt is resolved. "We have had clients five years later," Ober says, "find they want to sell their house, and there is that past-due bill." Ober says court actions or liens are not filed against customers who have a dispute concerning the service done on



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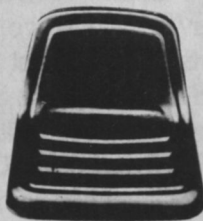
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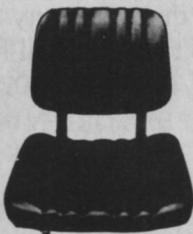
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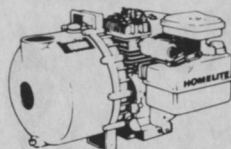
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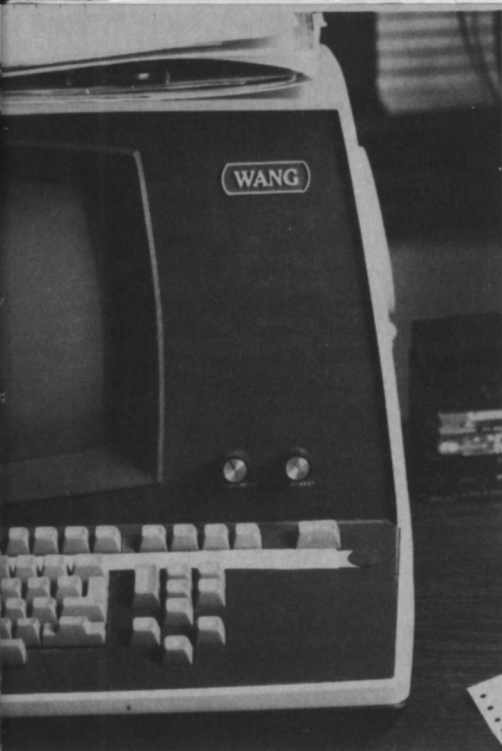
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their lawn. He says such disputes are resolved "face to face."

Although Davey is willing to go to court to recover past-due bills, the number of customers-in-bad-standing to receive court summonses or even letters from the attorney is very small. Ober says Davey's bad debts amount to less than one percent of total sales. The key to Davey's collection success is the same formula cited by Baker and Faulring — good receivables management. Ober says you have to keep an eye on the "aging of reports" to know when an account is coming due. Davey has streamlined this process with computerized receivables tracking.

In the money. Like Davey, bad debts at Lawn Medic, Inc. in Rochester, NY are also under one percent of sales. Again, management is important to Lawn Medic's collection success, but company President Don Burton says another factor is the affluency of most of his customers. Homeowners firmly entrenched in the upper middle class are less likely to stiff their lawn service. Being labeled a dead beat in the realm of BMW and Izod would spell social suicide.

Besides peer pressure, Burton also relies on up-front money to insure a steady flow of receivables. "On most of our work we get a downpayment, about 25 percent generally, and if we do any heavy renovation or seeding work, we get 50 percent down." The lofty income bracket of Burton's customers also means Lawn Medic can command higher prices than most of its competitors.

Still, Burton does have bad debts and he has to draw the credit extension line somewhere. "We will do two services without being paid," Burton says,

LEGISLATING DEBT COLLECTING

L James Martin, attorney and president of Martin Enterprises in Kent, OH, is concerned about the future of debt collecting in America. In 1976, Martin says the federal government enacted the Fair Debt Collection Practices Act. This act currently affects only professional debt collectors. However, Martin suspects that it is a foreshadowing of legislation to come which will restrict the debt collecting activities of attorneys collecting for clients and private businessmen attempting to collect their own debts. Even as it stands, the current act should impact small businessmen since most rely on collection agencies to recover their most stubborn receivables. A brief overview of some of the act's stipulations should be sufficiently frightening for most lawn care businessmen.

If you are trying to locate a dead beat, according to Martin, federal law permits you one phone call to one individual in your attempt to locate the debtor. Furthermore, Martin says, you may not call a given individual a second time

without their expressed consent. You also may not reveal at any time that you are "...seeking debt-related information, which sort of leaves you at a handicap," Martin says.

Another interesting provision of the act is a regulation of communication with the debtor at an "unusual" time of the day. "The statutory presumption is from eight in the morning until nine at night," Martin says. "All he has to do is work from eight to four, take the wife out to dinner and you can't contact him."

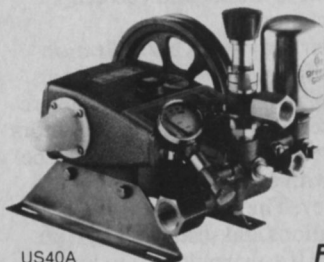
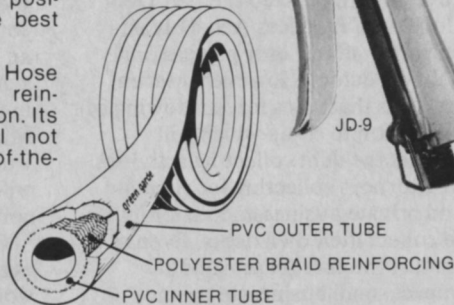
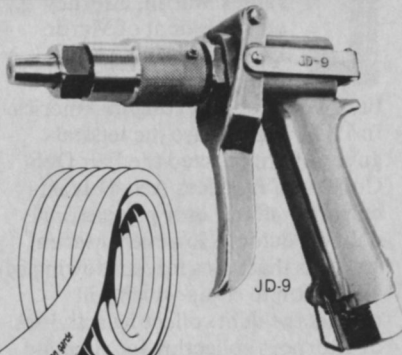
Other provisions bar collection agents from contacting debtors at work or contacting debtors who are represented by an attorney. Debtors represented by an attorney must be dealt with exclusively through the attorney. The list of provisions, stipulations and restrictions go on and on. If you would like to know more about this piece of legislation, Martin suggests that you examine a copy of the federal register and look up legislation 15 USCS, United States Code, Section 1692. — *Tim Weidner*



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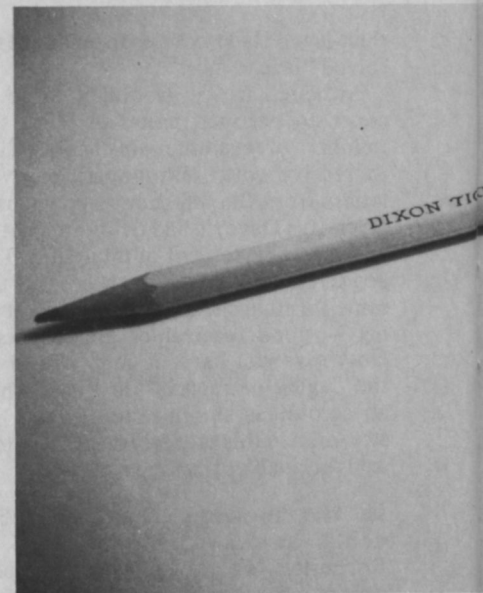
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BEATING DEAD BEATS

(continued from page 49)

"particularly for customers we know." A customer who has overstepped the two unpaid services boundary is allowed to go 120 days before being turned over to a collection agency. Before the 120th day arrives, Burton's accounting department sends some in-house demand letters, but for the most part, Burton believes most dead beats who go beyond 120 days are in it for the long haul, so he writes them off.

James Mello, owner of Nice 'N Green in Downers Grove, IL, is worried about customers who won't be around for the long haul. Much of Nice 'N Green's two percent of sales that go bad can be attributed to the fluctuating



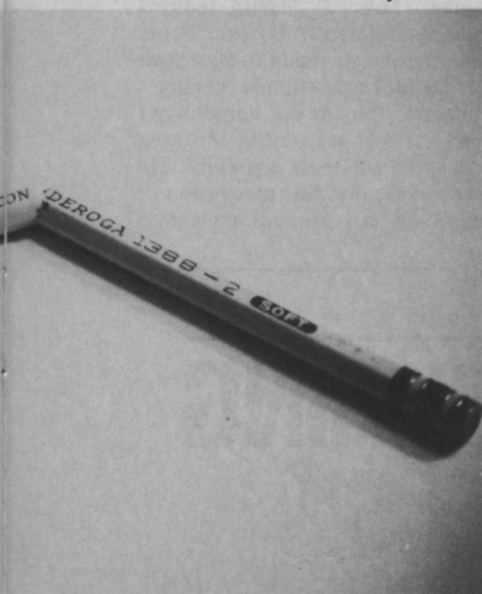
population of the Chicago area. "It is difficult to collect sometimes because people have moved from their residences and leave no forwarding address," Mello says. This problem seems to be common all over, but is worse in some isolated pockets of Mello's market area.

Mello sends his lawn service skips and other sundry dead beats to a collection agent after they have avoided his demand letters and other correspondence for 90 days. Mello says the collection agent lights a fire under the slow payers and separates "...the people who are going to stick you from the ones who are going to be really slow."

Marty Erbaugh, president of Lawnmark Associates in Peninsula, OH, also turns his bad debts over to a collection agency after they have avoided his overtures for 90 days. However, Erbaugh takes his bad debts to a firm unlike the average collection agency.

Erbaugh and many other members of the Professional Lawn Care Association of America (PLCAA) rely on the credit collection services of L. James Martin, president of Martin Enterprises, Kent, OH. "He is collecting about 50 percent of those old dogs and cats we turn over to him," Erbaugh says. "I have heard others say the same thing."

In addition to his role as an independent attorney, Martin also collects debts for PLCAA members as the executive director of the Professional Lawn Care Credit Association of America, the PLCAA's credit collections firm. (See related story.)

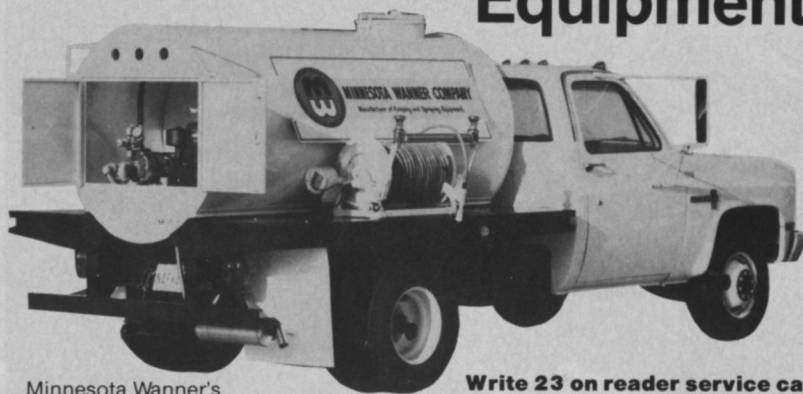


Calling in debts. Lawn care businessmen who have retained his services say they are getting better results than they have gotten in the past, says Martin. Of the debts that Martin cannot collect, most involve disputes over the service rendered by the lawn care company. Many of these disputes stem from customers who did not realize, or claim they did not realize, they were being serviced under an automatic renewal schedule. The automatic renewal system used by many companies means their servicemen will continue to treat a customer's lawn year after year until the service is cancelled.

"The biggest scam you get with people who are trying to avoid a legitimate bill is to say, 'I didn't order the service, I didn't know anything about it,'" Martin says. Unfortunately, when lawn care people come to Martin with such collection cases, he has to inform them that if they intend to take the

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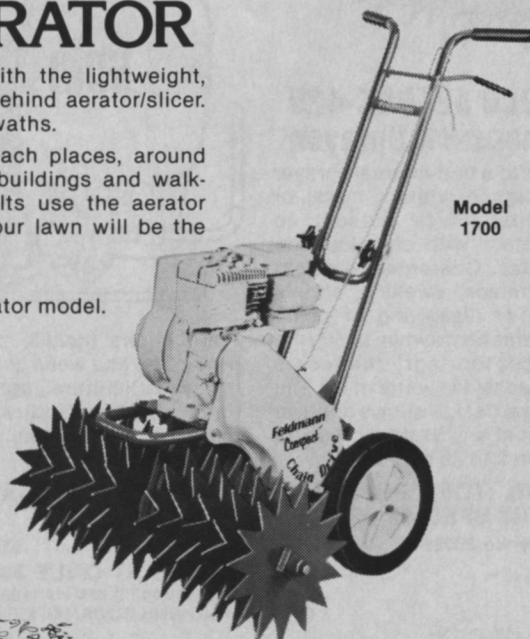
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BEATING DEAD BEATS
(continued from page 51)



debtor to court, there is a good chance they will lose the case. Rather than incur court costs against heavy odds, Martin says most of his clients are satisfied with the debts he can collect for them.

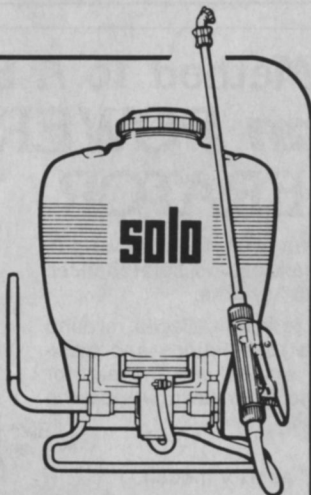
Rather than depend upon the services of a collection agency or attorney, lawn care businessmen should concentrate on keeping all their debts in the current receivables category. Martin has a couple suggestions that can help lawn care folks avoid the hassles of collecting overdue bills. First, he says the technician should get written verification from the homeowner to document his visit.

"That would cut off about 95 percent of the disputes we ever get into in terms of whether or not people legitimately owe money." Martin realizes that there is frequently no one home when treatments are made to sign such a notice, so he recommends leaving a door hanger to inform the homeowner that someone will stop by in the next couple days to get their signature. He warns, however, that this precaution or any other will not prevent collection



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BEATING DEAD BEATS

(continued from page 52)

problems stemming from people who make bogus property damage claims to avoid paying the bill.

Second, Martin says you should never let any customer get more than two billing periods behind. "Far too often, I'll see guys who will treat for an entire year and never get paid."

Martin has formulated what he calls "Martin's 10-5-1 Rule" based on his experiences in "...chasing down people who don't intend to pay you." The "10" stands for the 10 percent of your

total accounts receivable which will pose collection problems. "Those are the folks who will periodically run you 60 or 90 days." You should identify this group of malcontents before they pose a serious collection problem.

The "five" in "Martin's 10-5-1 Rule" is the five percent of your total accounts receivable which will require extraordinary collection measures. "You cannot simply continue to bill them on a monthly basis and expect them to write you a check." If you cannot bring most of this five percent group back into the fold, according to Martin, you are going to experience a

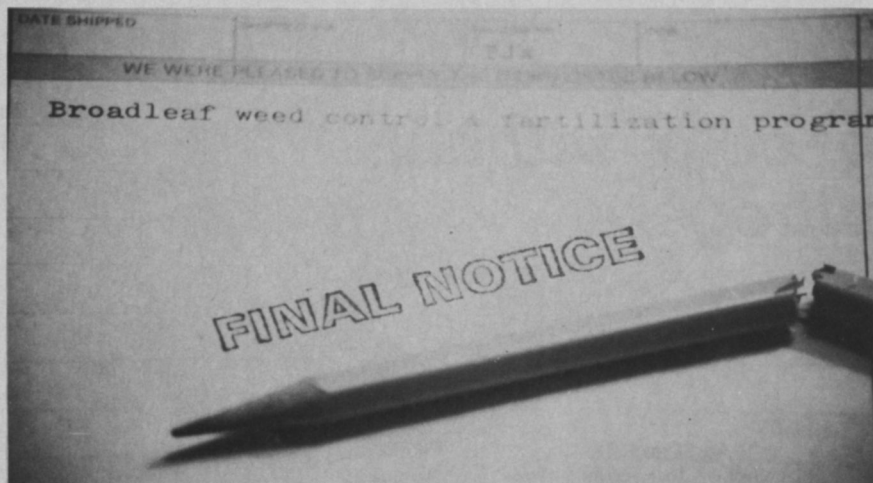
receivables problem in the five percent range.

Finally, the "one" of the 10-5-1 rule represents the one percent of all your receivables which can be classified as "uncollectable." Your standard demand letters and other overdue billing procedures will not work with these people.

Some lawn care businessmen may be worried that they will develop a bad image if they pursue their bad debts. Martin says this is a misconception. "The more effective you are at collecting your receivables, the sooner that word gets around town, the sooner everybody knows that you will deal severely with dead beats and you will better your receivables."

Conclusions. "You have got to find some way to make your debt important," Martin says. If your in-house efforts to get the dead beat's attention have failed, then it is time to seek the clout of an attorney or collection agency. It is becoming more and more important to give the debtor the incentive to give your bill priority over the other bills stacked in his shoe box.

The best way to curb bad debt is to keep track of your customer's payment history and let him know you are waiting for his check if he falls behind. Keep in mind that every potential customer could also be a potential dead beat.



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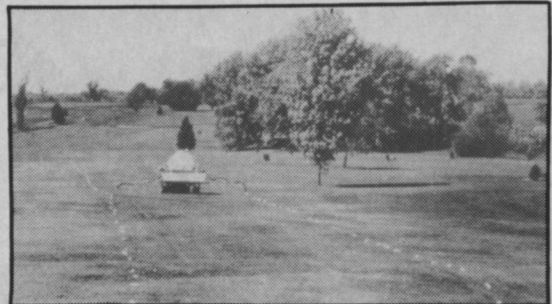
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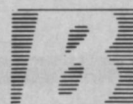
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grasses and other plants in these areas to reduce mowing frequency. Embark isn't for all turf areas and it can't completely eliminate the need for mowing, but in many cases it can make your job a lot easier.

"We are not presenting it as utopia," says William Howell, Agricultural Products, 3M. "It is simply one more tool for your bag of tricks." Embark regulates plant growth by slowing cell division at the base or crown of the grass blade where growth occurs. Applicators can expect up to eight weeks of turf growth suppression and season-long inhibition of cool-season grass seedheads, if applied before the seedheads begin to form. Eight weeks of suppression has been achieved with bluegrasses, fescues (tall, chewings and red), perennial ryegrass, reed canarygrass, crested wheatgrass, smooth brome grass, timothy, quackgrass, orchardgrass, centipedegrass, St. Augustinegrass and kikuyugrass.

Most 3M testing was done at the rate of 1-1/2 pints per acre, according to Howell, although the label allows for one to two pints on cool season grasses. This one to two pints per acre rate can be delivered with as little as 15 gallons of water to as much as 150 gallons of water and can be applied with virtually any spray rig, according to Howell. To achieve proper control, the tank mix must be sprayed uniformly on actively growing grass.

"If you apply Embark to dormant grass," Howell says, "you are not going to get uptake, and no results." Also, rainfall or irrigation

within eight hours after application can reduce performance. Addition of a non-ionic surfactant to the tank mix can reduce the post-application rainfall restriction to about two hours because the surfactant will cause the turf to take up the Embark more quickly. However, there are phytotoxicity trade-offs.

"You are going to increase phytotoxicity," Howell says, "you will have more yellowing, more discoloration, when you use a surfactant than you would otherwise. If you cannot tolerate some discoloration, temporary though it is, then



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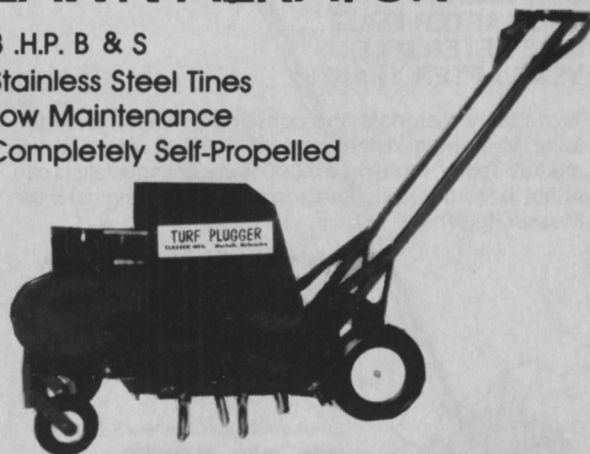
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EMBARK 2S

(continued from page 57)

don't use a surfactant." Phytotoxicity will increase in direct relation to the amount of the product absorbed by the plant beyond the labeled rate and the amount of time elapsed after treatment without irrigation (beyond the eight hour period), according to Howell.

Even without a surfactant in the tank, the applicator and customer should anticipate a certain degree of foliage discoloration. "Normally, you will have that (discoloration) for five to seven days, after that the grass will green-up — and be a darker green. Embark treated turf will be the first grass to go dormant and the last grass to come back from dormancy due to drought."

Embark is reasonably forgiving of overapplication. Howell has seen the product over-applied four and five times the labeled rate, resulting in extreme discoloration, but in all cases the turf recovered after several days. However, he says for attractive turf that will be given public scrutiny, application coverage and timing are all important. "You must calibrate your equipment. Working with equipment that is not calibrated is like working with a mowing machine without a blade."

When treating annual bluegrass, Howell says it is important to make the application when the grass is actively growing, but before the seed-head develops. Embark will not stop the seed-head from growing once it has formed. "The day you see a seedhead beginning to form, stop mowing, get out the rig and spray."

It is important to remember that during the eight weeks of suppression, very little new

growth will occur and damaged grass blades will not be replaced. Therefore, do not apply Embark on turf areas that will receive heavy traffic from people, animals or vehicles. Embark would probably be suitable for regulating turf growth in a baseball park outfield, but would put too much stress on the park's parking lot turf islands.

Howell says there are three ways to correlate Embark application with mowing: mow, then apply Embark; apply Embark, then mow; or apply Embark and not mow at all. If you want to mow and then apply the product, Howell advises you to wait three days after mowing before application. "Mowing causes stress. If you do (apply before the three days have passed), you will get noticeable discoloration, particularly on the tips." When mowing pre-application, Howell notes, it is also important that you don't scalp the turf because foliage must be present to absorb the Embark.

"If you apply Embark and then mow, which I think is the preferred method, you will get the most benefit." Howell recommends you apply to actively-growing turf, wait from three to seven days, then mow and "...you will have good looking turf that won't grow much for six to eight weeks." He recommends waiting for three to seven days before mowing because it takes about three days for the growth regulator to make the trip from the foliar part of the plant down to the crown where it can retard growth. After the seventh day, the product begins to travel through the grass plant's circulatory system. Mowing before the seven days have

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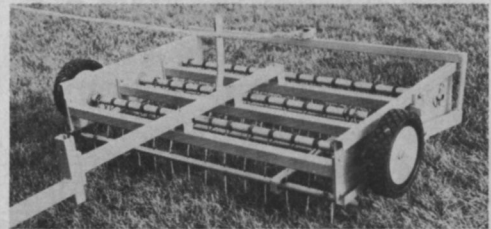
- Selected by Chemlawn for its service crews nationwide.
- Backed with a one-year guarantee on all parts.
- Quantity discounts available.
- Very prompt delivery.

For more information call or write:

IMLER
INDUSTRIES INC.

Dennis Imler
1117 Broadview Ave. Columbus, Ohio 43212
(614) 486-9068

TINE RAKE DOES MORE THAN JUST SCRATCH THE SURFACE.. IT LOOSENS MULCH AND THATCH



Our new rear mount Rake features: three rows of EXCLUSIVE TWIN SPRING TINES, offering greater FLEXIBILITY, increases tine life and provides more POSITIVE RAKING ACTION. Our Rake uses a clevis type pin hitch to attach the Rake to the draw bars on most tractors. This hitch has several levels of adjustments to accommodate many different heights of draw bars.

We also have a new Mechanical Lifting Mechanism with easy to reach Spring Latching Lever for operating convenience. Adjustment has been provided for locating the raising lever at a comfortable position and within easy reach of the operator.

These rakes are built using heavy gauge steel construction, to stand rugged service and designed for durability with a minimum amount of maintenance. Rakes come in 40-, 48- and 60-inch widths. Just attach to your tractor or riding mower and ride while it works. If you need a rake for dethatching, or some other purpose — this is the one. It rakes large areas in a surprisingly minimum amount of time.

TINE RAKE COMPANY

P.O. Box 9354
Raytown, MO 64133, 816/358-1837

passed will mow most of the product away.

Applying Embark without mowing is probably the least effective way to use the product, since under any circumstances, grass plants will grow at irregular rates, resulting in an uneven stand near the end of the growing season. However, this method may be the best way to deal with a turf area that is too difficult or dangerous to mow even once.

Embark-treated grass is suppressed, but it does continue to grow. Thirty-three tests were done on different species of grass, in different parts of the country and the results were lumped together to get an idea of how the "average" grass plant would react to Embark. "In the first week after application, the untreated grass grew five inches, the Embark-treated grass grew 1-1/4-inches, for a 73 percent suppression rate."

After the second week, according to Howell, the untreated grass grew another five inches, while the Embark plot grew even less than it had during the first week, for an 80 percent suppression rate. Growth in the Embark plots only began to take off in the seventh week and had returned to a normal growth rate by the tenth week. No seedheads formed in the Embark-treated plants during the entire growing season. The Embark label allows for two applications per growing season, if necessary, with a minimum of six weeks between applications.

Although foliage growth is suppressed, the roots continue to grow since Embark does not translocate from leaf to leaf or leaf to root. The University of Rhode Island, Penn State

University, Ohio State University and Michigan State University have all gone on record stating that an Embark treated turf is an enhanced stand of grass, according to Howell. "A plant has nutrients available to it," Howell says. "If that plant is not using those nutrients to develop the foliage, then they are still available. The root system benefits."

The lawn care professional who is involved in a variety of horticultural activities will also benefit from Embark. The product will suppress the growth of a number of plants, including broad-leaf weeds and many ornamentals. Ornamentals covered on the label are Japanese ligustrum, pyracantha, English ivy and Burford and Japanese holly. When treating ornamentals, Howell recommends one-half gallon of Embark to 100 gallons of water applied under high pressure and sprayed to run-off. "You want to be able to penetrate;" Howell says, "get the product into the shrub."

Applicators and customers alike will appreciate the low toxicity of Embark. Toxicity is generally measured in LD₅₀ values, which is the dosage necessary to kill 50 percent of a test animal population. The lower the LD₅₀ value, the more lethal the substance. Embark has a LD₅₀ value of 5,000 mg/kg (milligrams of product to kilograms of test animal body weight). To give you a basis for comparison, aspirin has an LD₅₀ of 1,250, while caffeine has an LD₅₀ of only 200.

For more information on the attributes of 3M's Embark 2S, write 120 on the reader service card.

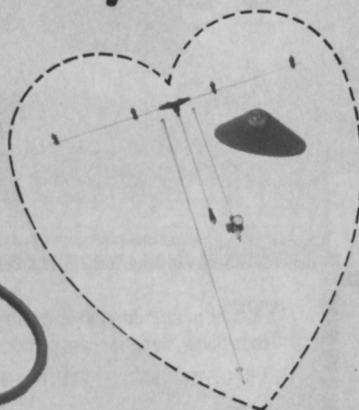


William Howell

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

**The Professional Lawn Care
Association of America
1984 Conference & Trade Show
November 12-15, Tampa, Florida**



PLCAA '84 Tampa

NOVEMBER 12-15

MORE IN 84! Mark your calendar. It's not too early to start planning for the lawn care industry's biggest week of the year — the Professional Lawn Care Association of America's 1984 Show and Conference.

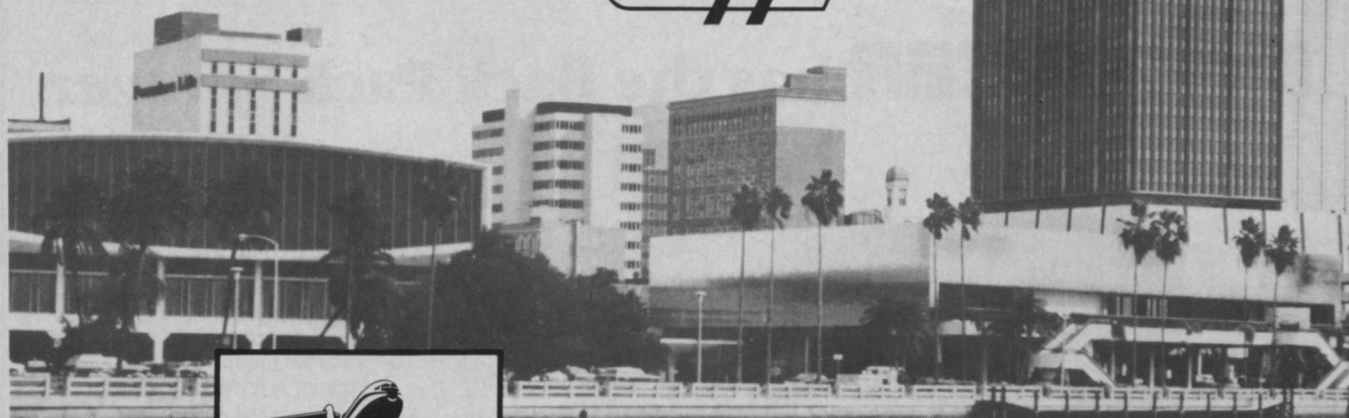
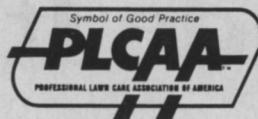
And what a week it will be! PLCAA '84 is shaping up to be the biggest, best gathering of powerhouse speakers and exhibitors in our five-year history. The seminar program has been expanded to offer over 16 hours of educational programming hosted by a new lineup of outstanding speakers, problem solvers all.

In addition, last year's popular "Workshop" series will offer even more hours of "how to" advice on business basics like purchasing, business expansion, and promotional techniques. Subjects aimed at boosting the bottom line of your operation.

IT'S SHOWTIME, FOLKS! Virtually every major vendor and supplier to the lawn care industry will be among the over 100 exhibitors at PLCAA '84. Longer show hours and more floor space in the beautiful Curtis Hickson Convention Center will give showgoers an unparalleled opportunity to see, touch, and compare all that's new in lawn care.

BRING THE FAMILY! Take advantage of Tampa, heart of Florida's funland. PLCAA '84 offers features, options, and vacation opportunities designed with fun in mind. Features like a special Spouse Program full of fun and surprises. Options like a week-long post-conference Caribbean cruise on the luxurious New Amsterdam, newest ship in the Holland America Line. Opportunities like a chance to visit those Florida wonderlands you've been dreaming about — Disney World, Epcot Center, and Sea World. Indicate your interest on the coupon below and details will be sent to you.

'84 is the year. Tampa is the place. Go for it!



Delta Airlines have been appointed official carrier for PLCAA '84. Delta has regular scheduled flights from most major US cities to Tampa and will be offering discounted fares to all PLCAA '84 participants — up to 30% off regular prices.



YES! I'm interested in attending PLCAA's 5th Annual Conference and Trade Show. Send me more information on:

REGISTRATION EXHIBITING MEMBERSHIP POST CONFERENCE CRUISE

NAME _____

COMPANY _____

ADDRESS _____

CITY, STATE, ZIP _____

Mail to: Professional Lawn Care Association of America
1225 Johnson Ferry Road, NE • Suite B220 • Marietta, Georgia 30067

MAY 1984



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MAY 1984



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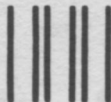
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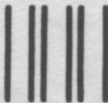
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HOW TO SELL LAWN DISEASE CONTROL, AND DELIVER IT.



HELMINTHOSPORIUM LEAF SPOT



SCLEROTINIA DOLLAR SPOT



RHIZOCTONIA BROWN PATCH



FUSARIUM PATCH

Turn disease problems into profits with CHIPCO® 26019 fungicide.

Selling disease control is a great way to boost profits and attract new customers.

And CHIPCO® 26019 is the ideal product to help you do both.

The selling proposition: a beautiful, disease-free lawn.

Everything you do for a customer is designed to create a beautiful lawn. Turf diseases look bad...and that can make *you* look bad. A programmed approach includes an effective, long-lasting fungicide like CHIPCO 26019 keeps your customers satisfied.

CHIPCO 26019 is the only fungicide you need.

It can be used safely on all lawn grasses nationwide to control the major turf diseases like leaf spot, dollar spot, fusarium and brown patch. Highly effective and long-lasting, CHIPCO 26019 fungicide fits into your treatment schedule and reduces callbacks.

In short, when you've got CHIPCO 26019 on the shelf, you're ready for *business*.

Send for FREE booklet on how to sell disease control.

We've put together a booklet that details lots of effective techniques and tools for selling disease control to your customers...and delivering it with effective, long-lasting CHIPCO 26019 fungicide.

CHIPCO® 26019

TAKING CARE OF BUSINESS

Send to: Rhône-Poulenc Inc.
CHIPCO Fungicide Lawn Care Center
P.O. Box 125 Black Horse Lane
Monmouth Junction, NJ 08852



Please send FREE *How to Sell Lawn Disease Control* booklet to:

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Write 37 on reader service card

ALA PRODUCTS

C.P. Chemical Company has introduced its second generation Nitro-26 CRN. This true solution, 26-0-0 material is now available in its improved form. The product is extremely stable for long periods of time, even at high temperatures, and is compatible with other lawn care materials.

Nitro-26 CRN is the only liquid methylene diurea fertilizer available to the lawn care industry. MDU products have long been known to provide excellent controlled release of nitrogen with no burn potential. C.P.'s CRN product provides 80 percent controlled release nitrogen with only 20 percent free urea. C.P. also announces the addition of Agri-Turf, South Deerfield, MA, as its New England regional distributor.

Write 131 on reader card

Salsco Welding and Fabrication has introduced a new walk-behind plug aerator with three-hole penetration and a three horsepower Briggs and Stratton engine with six to one gear reduction on the motor. The new aerator makes cores 2-1/4 to 2-1/2 inches deep, 5-1/2 inches between cores and cores are 3/4-inch in diameter. The machine is 22 inches wide, operates on a crankshaft principle (as opposed to drum or reel).

The crankshaft principle allows for straight, neat holes. Also, this method of operation means that tines are the only replacement units necessary, and allows a smaller weight, high-energy machine to be built. Cores are plugged seven times per second.

Write 121 on reader card.



Heavy-duty commercial **Buntun Company** gang mowers cut from 52 inches to over 20 feet, and are independently powered so they are easy to pull, even with small tractors. Drag is eliminated because each unit is powered by a eight horsepower engine. There is a choice of one, two, three, four or five units — not just an odd number to keep them balanced and pulling straight.

These mulching-type mowers cut

heavy grass faster and mulch clippings smaller. Clippings and foreign objects are dropped at the rear. Mowers can be transported in tandem with an overall width of only 53 inches. A unique hitch and back-up bar makes hitching quick and simple, and allows tight turning and reversing. Special pneumatic wheels with high speed bearings are used for longer life and transporting.

Write 126 on reader card.

EXCLUSIVE FORMOLENE DEALERS:

EVERGREEN LAWN SPRAY
Kitchener, Ontario M2C2K6
Canada
519-894-1022

BLAKLEY FERTILIZER COMPANY
Springfield, IL 62707
217-529-5692

TYLER ENTERPRISES, INC.
Elwood, IL 60421
815-423-5808

FLO-LIZER, INC.
Kingston, OH 45644
614-642-3001

LARRY FRICKER COMPANY INC.
Anaheim, CA 92681
714-774-6777

GREAT PLAINS ASSOCIATES, LTD.
Niles, MI 49120
616-683-7463

UAP SPECIAL PRODUCTS
Omaha, NE 68137
402-330-1910

HOWE INC.
Shakopee, MN 55379
612-445-6570

MOYER AND SON INC.
Souderton, PA 18964
215-723-6001

OLD FOX CHEMICAL COMPANY
Enfield, CT 06082
E. Providence RI
203-749-8339

UAP SPECIAL PRODUCTS
N. Kansas City, MO 64116
816-221-2783

ELDON C. STUTSMAN, INC.
Hills, IA 52235
319-679-2281

GEORGE S. TERRY & COMPANY INC.
Oakfield, NY 14125
716-948-9355


TEXAS LIQUID FERTILIZER CO.
Houston, TX 77026
713-236-1733

TURFWIZ
Chesapeake, VA 23320
804-547-7111

VOGEL SEED AND FERTILIZER
Jackson, WI 53037
414-677-2273

WESTERN FARM SERVICE INC.
Alpaugh, CA 93201
209-949-8476

WOLFKILL FEED & FERTILIZER
Monroe, WA 98272
509-932-4769

HAWKEYE  CHEMICAL COMPANY

Clinton, Iowa 52732 (319) 243-5800

TREAT TWICE AS MANY LAWNS AND DOUBLE YOUR PROFITS?

Save Time With Formolene® 30-0-2 Liquid Lawn Fertilizer

Add Formolene to your liquid program and you'll have more time to treat more lawns — up to twice as many! Because of Formolene's high concentration of nitrogen and its low-burn potential, it can be applied with less water. One fill of your truck could treat more than twice as many average sized lawns as urea, urea blends or UAN solution. So you can increase your customer base—and your profits!

Formolene's Advantages are Outstanding:

- Low-burn potential
- Quick green-up and lasting color
- Uniform, moderate turf growth
- Blends with other nutrients, chemicals
- Requires no agitation

A "Do-it-yourself" Source for Water Insoluble Nitrogen

You can convert 25% of Formolene nitrogen into a low-cost water insoluble nitrogen suspension—right in your truck tank.

Get the Whole Story

For more information on Formolene Liquid Fertilizer, contact your nearest Formolene Dealer. He can supply you with complete chemical and pricing information.



HAWKEYE CHEMICAL COMPANY

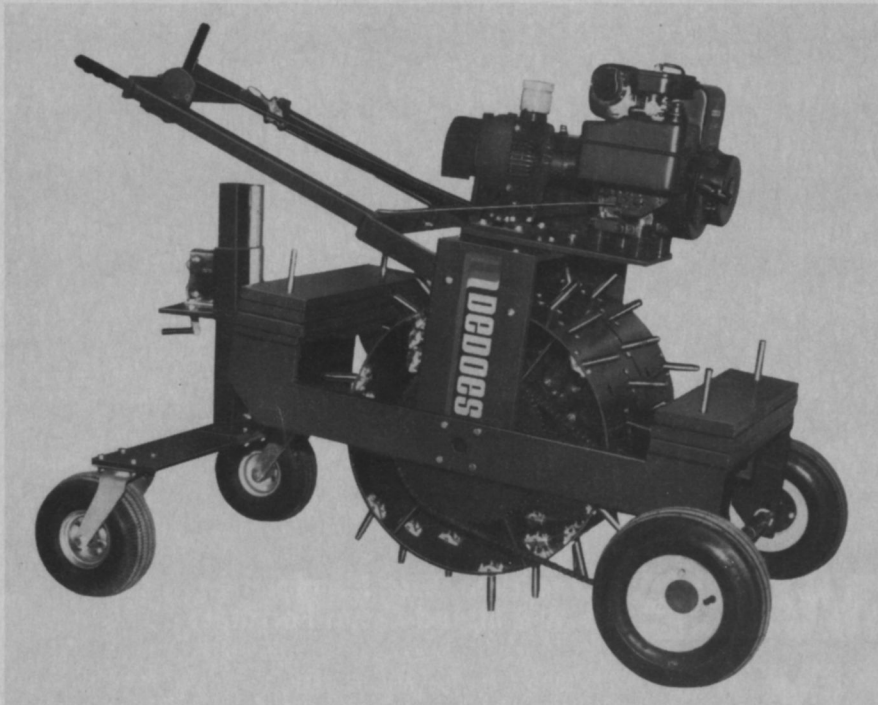
Box 899, Clinton, Iowa 52732
Phone: (319) 243-5800



Write 39 on reader service card

PRODUCTS

(continued from page 64)



Dedoes Industries, Inc. Model 3660® walk-behind aerator is a tough, low maintenance product that offers high quality construction and speedy aeration. It's compact size lets you maneuver in tight places and pass through 36-inch gates with ease. Fingertip controls and an adjustable handle make the Model 3660 simple to operate.

Fast, effective aeration is provided by Dedoes patented pivoting tines. The Model 3660 comes standard with 3/4-by three-inch tines; 3/8- and 1/2-inch tines are available on request. The front wheel drive feature of this model makes for easy handling on walks and roadways as well as easy one-man loading on the optional tilt-bed trailer.

Write 122 on reader card.

Tash-Made Products has a product called the Tash-Made® Piston Restraining Tool which the company claims is the solution to a frustrating problem at a very low price. The problem is familiar to anyone who has ever attempted to remove the flywheel (or mower blade, trimmer head, etc.) from a small gasoline engine: how to restrain the crankshaft-piston-flywheel assembly while loosening the nut or bolt which holds the flywheel (or attachment) to the crankshaft.

Up until now the alternatives have been extensive disassembly of the engine, a time and labor expensive alternative; or trying to hold the

attachment by hand, an often unreliable and dangerous choice; or the use of an expensive flywheel gripper, difficult to use and not adaptable to all engines.

The solution to this irritating, knuckle-busting problem is a small ingeniously-shaped tool invented by Charles Tashlein of Hudson, NY. The Tash-Made Piston Restraining Tool is easily inserted into the upper cylinder by simply removing a spark plug. As the crankshaft is turned, the end of the tool is caught between the rising piston and the cylinder head just before the TDC (Top-Dead-Center) position. With the crankshaft thus restrained, the clutch or attachment nut can be easily and safely removed. Re-assembly and torquing-up are aided in exactly the same manner.

Damage to the engine is avoided as the tool head, which is precision molded from a specially formulated nylon, will deform at predetermined forces (depending on the model in use) and allow the piston to pass TDC and relieve excessive and potentially damaging pressures. Two models are presently offered: the regular model for pressures up to 100 ft/lbs.; and the heavy-duty model for pressures up to 180 ft/lbs. These tools can be used on an extremely wide variety of small engines, such as mowers, chain saws, motorcycles, generators, trimmers, powered garden tools, etc.. Incredibly, this tool is made to be sold for as little as \$2.10 retail!

Write 124 on reader card.

Warren's Turf Nursery, Inc. has registered its A-34 BenSun® Kentucky bluegrass for sale in Canada (License Number 2373). Warren's A-34 is one of the most highly rated Kentucky bluegrass varieties for wear tolerance, shade tolerance, high density and vigorous recovery after injury. The variety is used extensively in major sports stadiums, race tracks, parks and general sports fields, as well as in everyday landscape use.

Write 127 on reader card.

Trail Mate, Inc. is introducing the new EZ Edge® model edger into its line of outdoor products. The new edger, which will have a limited production run for this season, uses a two-cycle Tecumseh engine and weighs only 25 pounds. Despite its light weight, the



company claims the unit has the cutting ability of its other, heavier commercial edger units.

The edger comes completely assembled with a fold-up handle. It can be hung or stored almost anywhere. New features being introduced on the EZ Edge are convenient foot pedal clutch and depth control. The depth may be "pre-set" with the use of a pin-ratchet. Another new feature for this edger is the "unitized" steel frame and cutter head assembly which is extremely rigid and strong. Initial delivery for the new edger will begin in May.

Write 129 on reader card.

International Seeds, Inc. has been granted a Plant Variety Protection Act certificate (PVP 7700110) for Regal turf-type perennial ryegrass. Regal has earned an enviable reputation for its ability to withstand

(continued on page 68)

Parker's full line keeps the grounds up and the costs down.

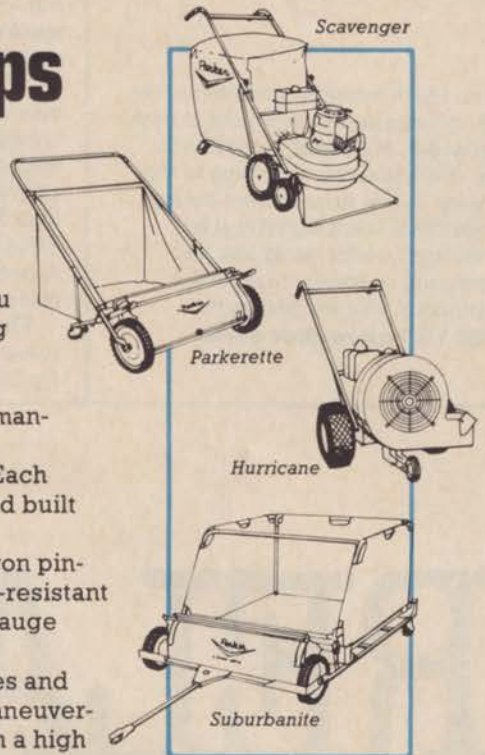
To get ahead in the grounds maintenance business, you need equipment that can perform well under punishing conditions . . . and survive. In other words, you need Parker quality.

Parker's full line of grounds care products includes manually operated, trailing and powered lawn sweepers, thatchers, leaf blowers, and indoor/outdoor vacuums. Each one is a superior performer, designed for efficiency and built tough to keep repair costs down.

Parker sweepers feature cast iron wheels, sintered iron pinions, long-life polypropylene brushes, tear and mildew-resistant baskets, rust-resistant plated steel tubing, and heavy gauge steel hoods with baked-on enamel finish.

The heavy-duty VAC-35 features large pneumatic tires and plated, plow-type handles for ease of operation and maneuverability. The rugged HURRICANE Blower generates both a high velocity and large volume air blast. The versatile Scavenger vacuum quickly converts to a powerful blower for windrowing leaves and other debris.

Keep the grounds up and the costs down, even after years of use. Demand Parker quality. And start getting a return on your equipment investment. For more information on Parker's full line contact your Parker dealer today.



Estate Master

Parker

PARKER SWEEPER COMPANY
Box 1728 • Springfield, Ohio 45501

Write 40 on reader service card

PRODUCTS

(continued from page 66)

heat and high humidity and has proven itself outstanding in this regard in trials at Beltsville, Maryland; Kentucky; Ohio; and Arkansas, according to the company. A low maintenance variety, International Seeds says Regal has proven itself winter hardy and has shown good resistance to summer brown patch, rust and leaf spot.

Write 130 on reader card.

Great Northern Equipment Company announces the introduction of its new line of lawn care applicators. The GN600® and other models in the line combine the latest in lawn care design and component equipment with Great Northern's reputation for rugged construction. A leader in agricultural fertilizer and chemical application equipment for over 30 years, Great Northern Equipment Company is now putting its experience to work for the lawn care professional.

The GN600 offers these impressive features: 600 gallon stainless steel tank for 200,000 square feet of coverage

with every load. This new size for the industry matches the trend toward three gallon per 1,000 sq. ft. application rates in chemicals; one ton Ford truck with 6.9 liter IH diesel engine; PTO driven with a 2C95 Myers pump;



stainless steel plumbing, sparge line and full sump; American Nordic reel with 500 feet of 1/2-inch hose; and a ChemLawn Spray Gun with extra nozzles.

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

The GN600 and other models in the line have been designed especially for the lawn care professional. Additional features include a pump-on and pump-off valve system, screens before pump and the hose reel assembly and a full metal catwalk. Optional features include compartmentalized tanks and a convenient hand washer system.

Write 123 on reader card.

RELAX!



The last thing you want to worry about is fertilizing

Naturally Organic Milorganite is the Peace of Mind Fertilizer.

Naturally organic Milorganite is the safest and easiest to use all-purpose fertilizer. It is easy to apply and does not burn because there are no salt problems as with chemical fertilizers.



Milwaukee Metropolitan Sewerage District

735 North Water Street
Milwaukee, WI 53202

Write 42 on reader service card

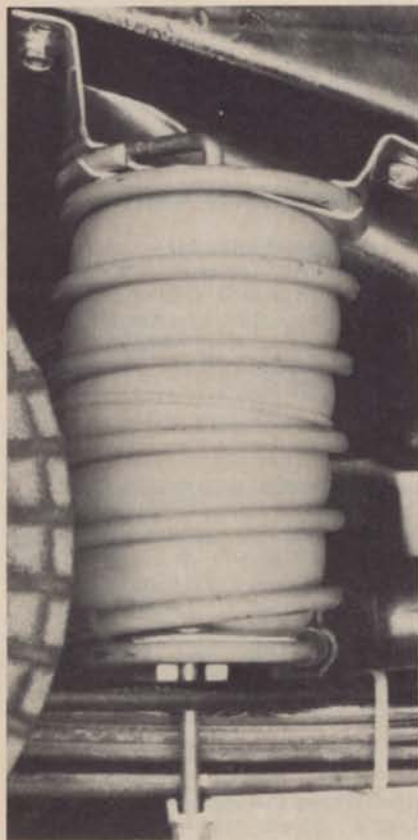


New for the 1984 season, the Model 200 Turf Plugger Aerator® from **Classen Manufacturing**, is a smaller version of the popular Model 400 and features a folding handle for easy portability. The 200 will collapse to 22 by 22 by 36 inches and can easily fit in an automobile trunk. Two stainless steel tines, driven by a three horsepower gasoline engine, can aerate 2,400 square feet per hour. The alignment of the outer tines allows the Model 200 to operate within two to three inches of a sidewalk. The unit weighs only 100 pounds.

Write 125 on reader card.

Landscapers, lawn maintenance contractors and nurserymen who own light duty trucks all have one thing in common: they tend to overload their trucks with work equipment and supplies from time to time. These excessive loads impair vehicle handling, cause rear-end sag and bottoming out and result in premature wear of tires and shocks. By taking a simple precautionary measure, light duty trucks can be equipped to better handle these everyday work loads.

The Air Lift Company manufactures a simple, low-cost solution, the Polyair Spring Kit®. It's an air-



adjustable suspension aid add-on designed for coil or leaf springs suspension on all domestic and import trucks. Polyairs are made of extremely durable polyurethane and carry a lifetime limited warranty.

Polyair Springs permit the owner to tailor the truck's spring rate (stiffness) to compensate for the exact load it's carrying. It's as easy as filling a tire with air. When the vehicle is unloaded, Polyairs can be deflated for normal ride comfort. This unique adjustability feature is the most important difference between the Polyair and any other suspension overload product.

Do-it-yourself installation kits are available from \$68.45. Complete installation takes about one hour for front or rear suspensions. Only basic hand tools are needed.

Write 132 on reader card.

Smithco, announces the introduction of a new line of sprayers equipped with Hypro® diaphragm pumps. The new "special" sprayers are made to handle abrasive, granular materials, wettable powders and corrosive chemicals without damage. And they are designed to be substantially less expensive to operate and maintain than piston pump sprayers. The new Smithco Lark Special® sprayer will deliver up to 9.5 gallons per minute, and pressures up to 550 psi. with its fuel-efficient five HP Briggs and Stratton engine. It comes equipped with a 110-gallon all-fiberglass tank. The larger Smithco Hawk Special® sprayer will deliver 14.6 gpm, and



pressures up to 550 psi. using an eight HP Briggs and Stratton engine.

Write 133 on reader card.



Now you can
choose the
INGRAM
KUT-MOR™
that matches
your
cutting
needs.

We're constantly increasing our product line to suit your needs.

With the KUT-MOR, our heavy-duty rotary mower with hydraulic, fluid power drive...

WE NOW OFFER THESE AND OTHER OPTIONS:

- 52", 62" or 72" cut
- 60" flail cut
- Air-cooled gasoline engine or air-cooled diesel engine
- Dual wheels
- Hillside cutting
- Large capacity grass-catching attachment

Full specifications available.
Contact:

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MANUFACTURING CO.

P.O. Box 1809 • Del Rio, Texas 78840
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Makers of Ingram
Road Rollers



WE'D LIKE TO TELL YOU MORE ABOUT KUT-MOR.™

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All classified advertising is payable at a rate of 35¢ per word. Payable in advance with each insertion. Add \$1.00 for Box Number plus six words, non-commissionable.

COMPUTER SERVICES

Computer Systems—

Complete systems with software for lawn care operators. Affordable prices. Pest Control Data Systems, 3535 Keith, Cleveland, TN 37311; 615/479-9711.

EQUIPMENT FOR SALE

Reeser Rope Wicks—

Hand-held herbicide applicators. Single-rope Dabbit for more selective weeding, with sight-gauge and 48-inch handle, converts to eight inch heads for broader trimming or over-the-top weed control. Choice of T-shape, U-shape, Wedge, Golfer or Hockey Stick. Route 1, Box 79, Weldon, Illinois 61882.

Spray Trucks—

1978, 1976, 1973 Chevrolet and Ford two-ton trucks, 1,200 to 1,500 gallon tank, FMC Pump, Hannay electric reel, many extras. Biddle Lawn Care, Inc. 217/359-7012.

Spray Trucks—

Spray Trucks and Tanks. Evenings only. 6-9 p.m. 201/337-3057.

For Sale—

Nursery and Sod Farm with active lawncare, landscape and lawn sprinkler business. Gross over \$150M potential, priced under \$300M. Box 954, Alliance, NE 69301.

For Sale—

(3) 550 gallon spray tanks. Unit is self-contained with 16 H.P. B/S twin cylinder motor and Meyers 2C95 pump — custom filtration system, manual Hannay reel, ad-

justable pressure and agitator valve and gauges. Excellent for tree and turf business. Phone: 312/537-6590.

For Sale—

Lawn Spray Truck, 1975 Ford F-600 two-ton with 800 gal. Finn Lawn Feeder, hose and reel. 32,000 miles, new Chelsea PTO. Excellent condition. \$12,800. Liqui-Lawn, Inc., P.O. Box 547, Niles, MI 49120, phone 616/684-0733.

For Sale—

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