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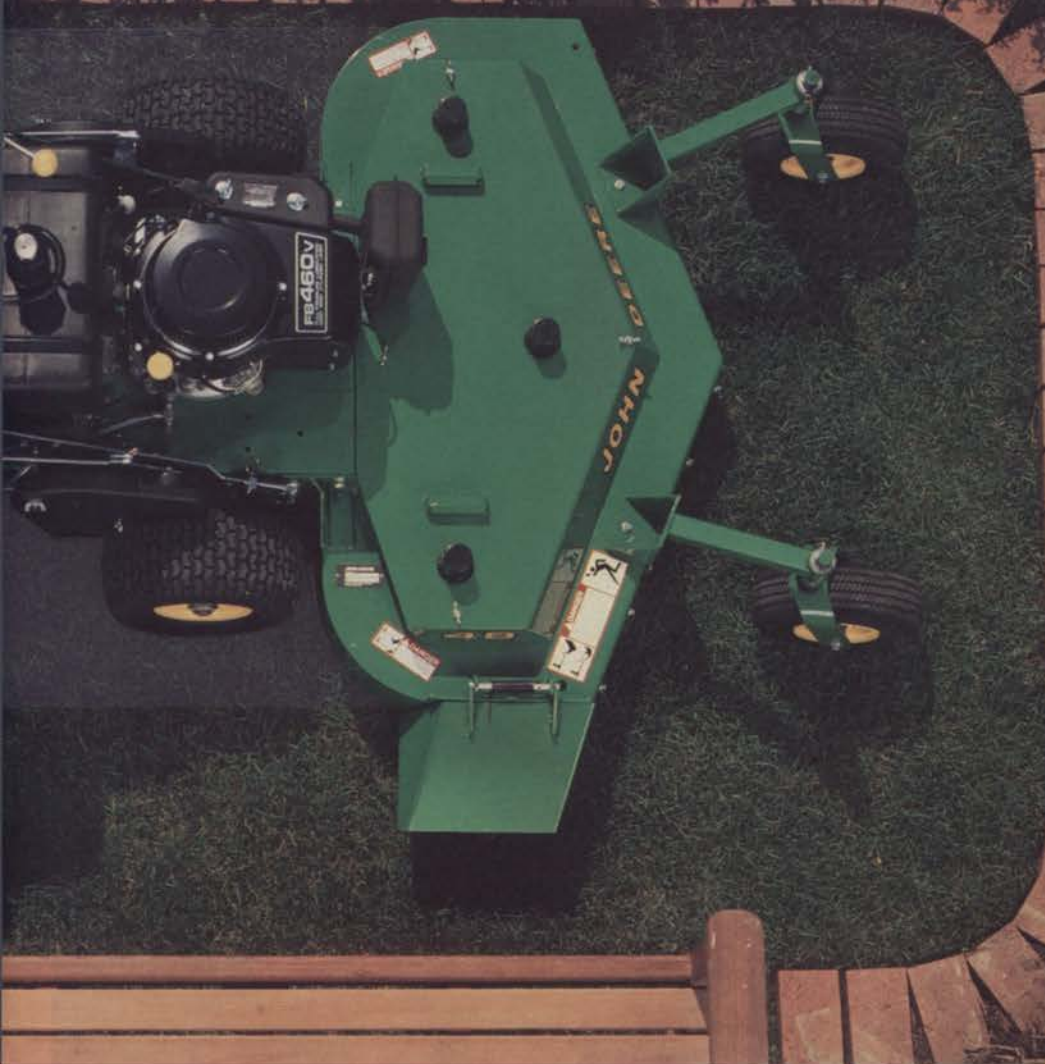
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EDITOR'S FOCUS

TODAY'S HIGH COST FOR LIABILITY insurance can be most aptly explained by the litigious society in which we live.

Not a day goes by that a liability-related lawsuit isn't being filed by someone, somewhere. Whether it be against a service-related company, a product manufacturer or its parent corporation, there's always someone willing to initiate a lawsuit, regardless of the cost and time to the parties involved. More often than not, these circumstances lead to high and sometimes prohibitive insurance rates for the targeted industry.

Although not the subject of a rash of liability claims, lawn and landscape operators, nonetheless, are feeling the heat of skyrocketing liability premiums.

Industry Consultant Ed Wandtke estimated there are less than a half dozen pollution incidents in the lawn and landscape industry each year. However, a number of companies are finding it difficult to comply with state laws requiring



liability insurance when insurance companies in their state won't write the coverage. Understandably, insurance companies don't want to increase their exposure any more than necessary, but be-

cause of increased government pressure to thwart environmental claims in their tracks, lawn and landscape operators are being unfairly blamed for much larger-scale environmental incidents such as the recent oil spill in Alaska.

The circumstances aren't as severe for the power equipment industry, which generally finds itself liable for its own employees rather than third parties. Still, proper training and precautions are vital to ensure worker safety and avoid costly compensation claims.

The product liability insurance dilemma has softened in recent years, but will continue to be a sensitive area for lawn and landscape maintenance professionals. As liability expert Robert Onan explained, the U.S. judicial system has become strongly pro-consumer in recent years, partly because of manufacturers' growing responsibility of protecting consumers from defective products, as well as from themselves. — *Cindy Code* ■

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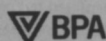
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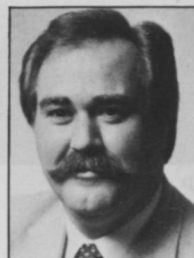
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Dr. John Street is an associate professor in the agronomy department at The Ohio State University. **Dr. William Meyer** is president of Pure-Seed Testing Inc., Hubbard, Oregon. **Des Rice** is president of The Weed Man Ltd., Mississauga, Ontario, Canada. **Dr. Al Turgeon** is professor and head of the department of agronomy, Pennsylvania State University. **Dr. Joseph Vargas** is professor of botany and plant pathology, Michigan State University, East Lansing, Michigan. **Dr. Patricia Vittum** is associate professor of entomology, University of Massachusetts, Waltham, Massachusetts.

CALENDAR

APRIL 21-22

1989 South Florida Landscape Trade Show, sponsored by the Florida Nurserymen and Growers Association, Radisson Centre, 777 N.W. 77th Ave., Miami, Fla. Contact: Charlye Roberts, 14695 S.W. 216 St., Miami, Fla. 33187; 305-235-2035.

APRIL 22

10th Annual Texas Wildflower Day, Denton, Texas. Contact: TWU Wildflower Committee, P.O. Box 22675, Denton, Texas 76204; 817/898-3326.

JUNE 5-7

Proving the Technical Case: Groundwater Pollution Litigation, University of Wisconsin-Madison. Contact: Patrick Eagan, Dept. of Engineering, University of Wisconsin-Madison, 432 N. Lake St., Madison, Wis. 53706; 800/262-6243 or in Wisconsin 800/362-3020.

JUNE 15

Sports Turf Association Educational Ath-

letic Turf Field Day, 8:30 a.m. to 4:30 p.m. River Oaks Recreation Centre, Oakville, Ontario. Contact: Robert Allen, 50 Booth Ave., Toronto, Ontario M4M 2M2; 416/392-7261.

JULY 31 to AUG. 2

International Lawn, Garden and Power Equipment Expo, Kentucky Fair and Exposition Center, Louisville, Ky. Contact: Expo 89, P.O. Box 70465, Louisville, Ky. 40270; 800/558-8767.

SEPT. 28-30

International Pesticide Applicators Association Annual Convention and Trade Show, Red Lion Inn, Bellevue, Wash. Contact: Bill Harlan, P.O. Box 681, Kirkland, Wash. 98083; 206/823-2600.

OCT. 8-11

The Associated Landscape Contractors of America Interior Plantscape Division Conference and Trade Show, Boston Park Plaza, Boston, Mass. Contact: ALCA,

405 N. Washington St., Falls Church, Va. 22046; 703/241-4004.

NOV. 6-9

The 10th Annual Professional Lawn Care Association of America Conference and Trade Show, Las Vegas, Nev. Contact: Jim Brooks, executive vice president, 1000 Johnson Ferry Road N.E., Suite C-135, Marietta, Ga. 30068-2112; 404/977-5222 or 800/458-3466.

NOV. 7-10

New York State Turfgrass Association Annual Conference and Trade Show, Rochester Riverside Convention Center, Rochester, N.Y. Contact: Beth Seme, executive director, P.O. Box 612, Latham, N.Y. 12110; 518/783-1229.

NOV. 8-11

International Trade Fair for Design, Equipping and Care of Amenity Areas, Cologne, W. Germany. Contact: Koln Messe, 221/821-2912. ■

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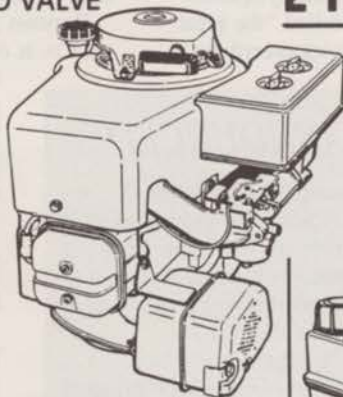
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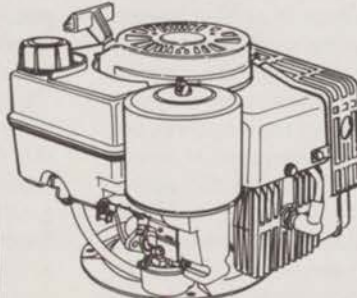
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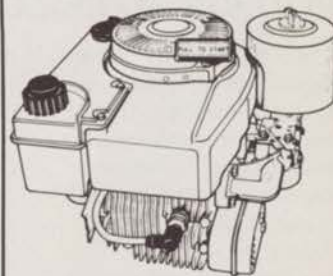
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EARLY PREPARATION NEEDED TO WARD OFF LYME DISEASE

Lyme disease season is soon approaching and applicators should begin early preparations in ridding lawns and backyards of the deer tick — carrier of the disease.

The ticks are active from spring through fall, but the highest number of cases reportedly peak in July. Lyme disease is the most common and frequent tick-borne illness in the nation.

Since its discovery 13 years ago, outbreaks have occurred in more than 30 states. More than 5,700 cases have been reported since 1982. The disease is concentrated and growing in three main areas: the Eastern Seaboard, Great Lakes region and several Western states.

The disease gets its name from Old Lyme, Conn., where an outbreak of cases led to the first understanding of the illness.

A tiny tick that could fit inside this "o" is causing big concern. Seventy percent of those bitten by an infected deer or bear tick, scientifically known as *Ixodes dammini*, will get infected with the Lyme disease organism. The organism, similar to one that causes syphilis, is called a spirochete and is formed in the gut of the tick.

A tell-tale sign of the disease is a rash that migrates outward from a central red bump to form a characteristic bull's eye

WHERE LYME DISEASE HAS BEEN REPORTED



Based on data from Centers for Disease Control.

shape. More than 70 percent of all victims develop this rash within two to 30 days after the bite.

Accompanying the rash may be flu-like symptoms, fever, muscle and joint pain, fatigue, headaches, neurological and cardiac difficulties and arthritic symptoms. Lyme disease has been called "the great imitator" because it mimics everything

from syphilis to Alzheimer's to Lou Gehrig's disease.

Fortunately, Lyme disease can be successfully treated with antibiotics. Unfortunately there are no standardized tests to diagnose it in its early stages — the best time to treat the disease.

Dursban 50W™ from the Dow Chemical Co. is one insecticide which controls these ticks and is available in pre-measured water soluble packets for safe, simple handling and in two-pound fiber canisters.

BIOLOGICAL INSECTICIDE VENTURE ANNOUNCED

ECOGEN INC. AND CHEM-Lawn Services Corp. have signed a co-development and license agreement to collaborate on the development of biological insecticides to control lawn and ornamental plant insect pests.

Under the agreement, Ecogen will identify and produce strains of *Bacillus thuringiensis* (*Bt*) — a bacterium with insecticidal activity — which are active against common lawn and ornamental plant insect pests. ChemLawn will carry out field tests with the *Bt* strains supplied by Ecogen. The products will be formulated and marketed by ChemLawn, while the *Bt* will be

manufactured by Ecogen.

According to a recent issue of the *Wall Street Journal*, the two hope to develop biopesticides that are cheaper and more effective than the chemical pesticides now commonly used.

"We are impressed with Ecogen's development of biological insecticides for agricultural applications," said Robert Miller, vice president of support services for ChemLawn. "Their work dovetails with our own continuing search for effective, natural pest controls. We are confident that the same technology can be applied to provide bioinsecticides to control lawn and or-

namental plant insects."

Chemlawn expects to start trials no later than 1990 and possibly to bring a product to the market within two to three years after that.

Ecogen has compiled a library of some 7,000 strains of the *Bacillus thuringiensis* bacteria. By inducing natural genetic exchanges between the bacteria, the company is trying to come up with bacteria that are particularly lethal to targeted insects, according to the *Journal*.

Among the insects that may be targeted are white grubs, sod webworms and bluegrass bill-

FUQUA REGISTERS NET GAIN FOR 1988

For the year ending Dec. 31, 1988, net income from continuing operations at Fuqua Industries Inc. (NYSE) rose to \$76.7 million from \$43.2 million reported for 1987.

Fully diluted earnings per share from continuing operations for 1988 were \$3.42 compared to \$1.99 per share reported for 1987. Sales for 1988 were \$934 million compared to \$677 million last year.

(continued on page 10)

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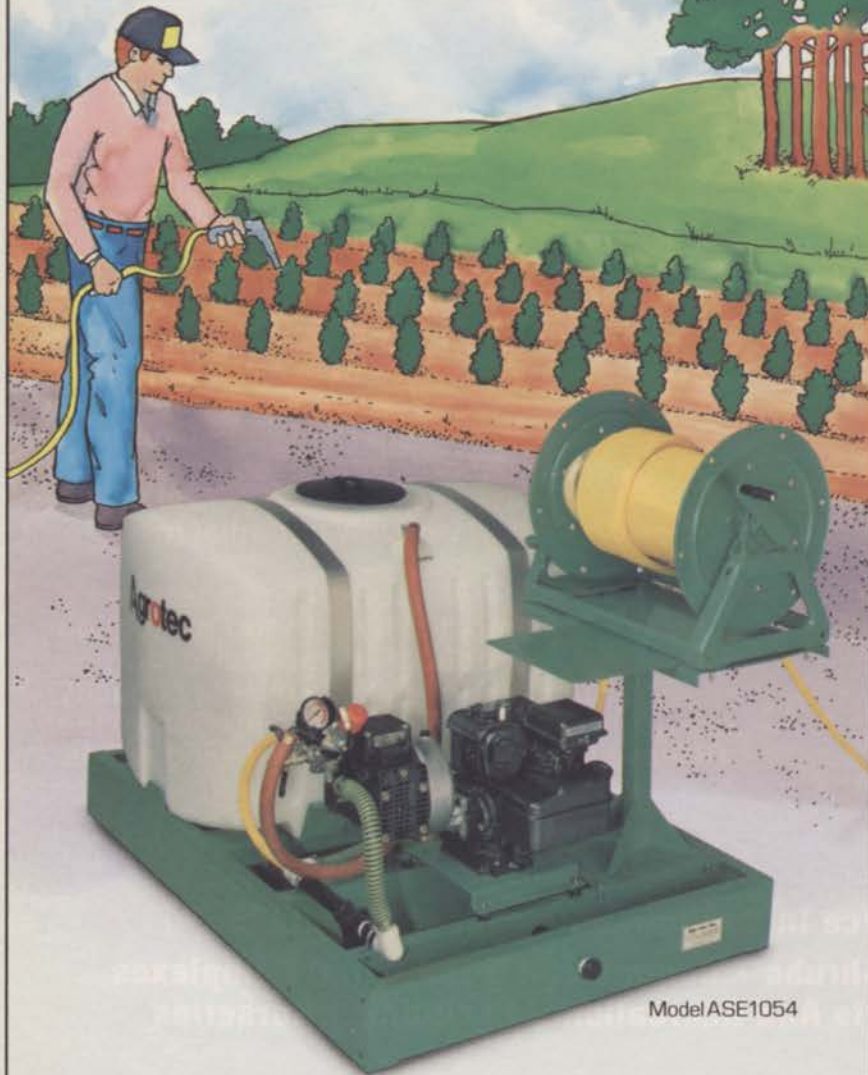
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News

(continued from page 8)

Lawrence Klamon, president of Fuqua Industries, said that the 1988 results showed the impact of last summer's drought on Snapper Power Equipment, Fuqua's lawn and garden division. For 1989, Klamon expects improved results from Snapper as its dealer and distributor inventories are reduced.

CSMA CHALLENGES CALIFORNIA REGULATIONS IN DISTRICT COURT

The Chemical Specialties Manufacturers Association filed suit in U.S. District Court, Los Angeles, challenging Proposition 65 hazard warning requirements for institutional and industrial products including non-agricultural pesticides.

The suit contends the law and its regulations are preempted by three federal laws — the Federal Insecticide, Fungicide and Rodenticide Act, the Federal Hazardous Substances Act and the Occupational Safety and Health Act, and therefore do not apply to federally regulated pesticides, consumer products and institutional and industrial products.

Named as defendants in the suit are Clifford Allenby, secretary of the California Health and Welfare Agency and John Van De Kamp, state attorney general.

The 1986 California law prohibits businesses from knowingly discharging certain chemicals designated by the state as causing cancer or reproductive toxicity, and from knowingly and intentionally exposing anyone to the listed chemicals without warning.

"No pesticide may be sold unless it is tested and registered by the U.S. Environmental Protection Agency under the federal pesticide law, FIFRA," said CSMA President Ralph Engel. "FIFRA expressly preempts state authority to regulate the labeling or packaging of pesticides."

Similarly, the Federal Hazardous Substances Act administered by the U.S. Consumer Product Safety Commission regulates the packaging and sale of products packaged for household use which may contain hazardous substances.

Nationwide safety and health standards adopted under OSHA (such as the hazard communication standard) require states whose regulations differ from the federal regulations to submit them to OSHA for approval and demonstrate that they are at least as effective as the national standard.

Under the federal hazard communications standard, most employers in the United States must implement a comprehensive program to inform workers of hazards in the workplace and provide appropriate protective measures. That program must include employee training and

hazard communication through warning labels and material safety data sheets for each substance determined to be hazardous.

Despite a November 1987 petition filed by the association, the state has failed to issue regulations exempting pesticides, consumer products and institutional/industrial products from the Prop. 65 warning requirements, even though the California Administrative Procedure Act requires the state agency to act on such petitions within 30 days.

JACKLIN SEED CREATES \$100,000 ENDOWMENT

Jacklin Seed Company, Post Falls, Idaho, established a \$100,000 endowment to the University of Idaho College of Agriculture. The contribution is part of the university's \$43 million Centennial Campaign.

The Jacklin Company's Arden Jacklin International scholarship, research and internship endowment will provide funding for scholarships, practical internship experience and research opportunities for people around the world. Internship participants will attend the university, as well as work with Jacklin Seed personnel.

Jacklin Seed established the endowment because of the value of advancing education and research, particularly in the area of agriculture, according to Tom Stoeser, the company's financial manager.

The internships will help train participants for work within the international seed business, allow Jacklin Seed to continue worldwide relationships within the seed industry and benefit the university by improving the overall work relationships between the university and private industry.

DOW TO INTRODUCE DRY FLOWABLE VERSION OF DURSBAN

The Dow Chemical Company has been testing a new dry flowable formulation of Dursban™ insecticide and plans to bring it to market after Environmental Protection Agency registration is granted.

Registration is expected next October, according to Turf Product Marketing Manager Rob Peterson. The new formulation, to be sold under the trade name Dursban 50DF, is a water dispersible granule.

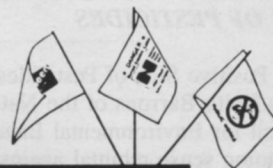
"The dry flowable formulation is pourable and easier to handle," said Dave Valcore, research leader for Dow. "It also has a lower odor and less tendency to cake under high temperatures. Because it has a higher bulk density, there is less storage or shipping volume

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"In one horticultural trial, Dursban 50DF showed a significant improvement in residual control over Dursban 50W," Valcore added.

PROMOTING THE POSITIVE SIDE OF PESTICIDES

"The Positive Side of Pesticides," written by Keith Barrons of the National Council for Environmental Balance, is a common sense rebuttal against misinformation on pesticides and technology.

The pamphlet discusses how the beneficial side of pesticides is seldom reported as well as seemingly little known facts that properly used, pesticides pose no hazard and that pesticides present aesthetic benefits as well.

Barrons is a frequent contributor to scientific and other journals, as well as the consumer press.

For a copy of the pamphlet write to the National Council for Environmental Balance, 4169 Westport Rd., P.O. Box 7732, Louisville, Ky., 40207.

GREEN MACHINE TAKES SEMINARS ON THE ROAD

For the fifth year, The Green Machine,[®] a division of HMC, is traveling throughout the United States and Canada with its "total service seminars."

The one-day seminars provide independent servicing dealers with up-to-date sales and service information on the Green Machine products.

This year's seminar will focus on the introduction of the Panther series products and state-of-the-art diagnostic service. Step-by-step diagnostic procedures for ignition systems, carburetors and drive shafts of Green Machine power products will be discussed.

The Green Machine will conduct 50 seminars over the next three months using rear-projection audio visual presentations, product displays and hands-on demonstrations.

600 PROFESSIONALS ATTEND ANNUAL LEBANON CLINIC

Lebanon Chemical Corp.'s Total Turf Care division recently sponsored its spring turf care clinics in Pennsylvania, New Jersey and New York. The clinics have become an annual event attended by lawn care, golf course and grounds maintenance professionals.

The clinics are designed to provide a forum for the sharing of information on products and issues of importance to the turf care industry. More than 600 professionals attended the five turf care programs.

Turf care specialists from Ciba-Geigy, W.A. Cleary, Dow Chemical, Elanco Products Co., Hoechst-Roussel, Mobay, Nor-Am, PBI Gordon and Rhone-Poulenc, as well as Lebanon, provided in-depth presentations on their company's various products.

The clinic also provided attendees with the opportunity to apply for recertification of pesticide licenses with their respective states.

Those interested in attending Lebanon's turf care clinic in Connecticut next fall should contact Harry Mathis, 516/722-4200. For information on future lawn

(continued on page 16)

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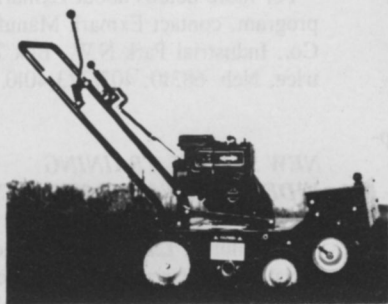
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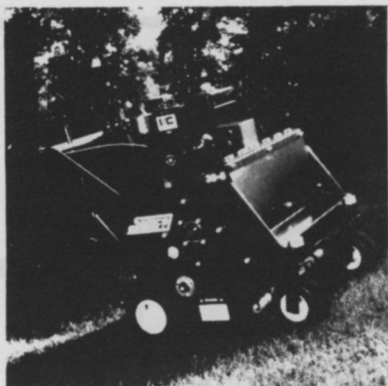
Manufacturer's suggested list price:
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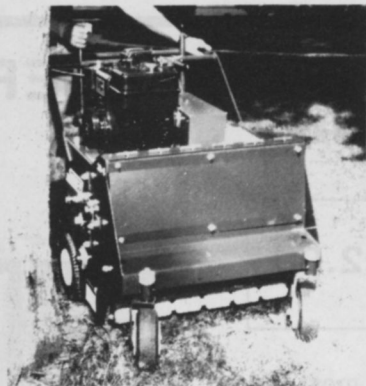
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30-6 CORE AERATOR

Combining speed and finger-tip maneuverability, the 30-6 is capable of aerating 25,800 square feet per hour, with a hole depth of 2 3/4". That can translate into 12 to 16 average lawns each day.

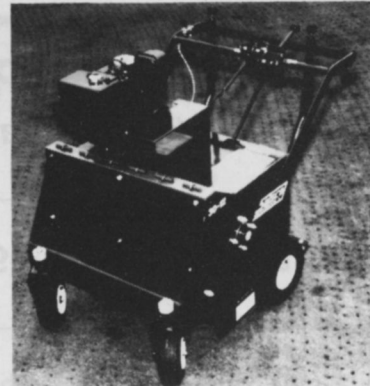
Manufacturer's suggested list price:
\$3,499.99*



30-6S CORE AERATOR

The 30-6S has all the speed and maneuverability of the 30-6 . . . and then some! A wider swath, closer hole pattern, variety of hole sizes, and a 4" hole depth. Lawn aeration doesn't get any better!

Manufacturer's suggested list price:
\$3,999.99*



30-12 CORE AERATOR

The premier greens aerator on the market, the 30-12 is capable of coring up to 13,900 square feet per hour, and cleanly penetrating to a depth of 4". Turns in a 15" radius while aerating!

Manufacturer's suggested list price:
\$4,799.99*

For complete information on our fine line of Seeders and Aerators please write or call:

Salsco, INC.
LEADER BY DESIGN

105 SCHOOL HOUSE ROAD
1-800-8-SALSCO

• CHESHIRE •
FAX (203) 271-2596

• CONNECTICUT 06410
• (203) 271-1682

*Prices are subject to change without notice; may vary according to area; and do not include such charges as set-up, crating, in-bound freight and options.

Circle 24 on reader service card

care clinics write, Lebanon Total Turf Care Clinics, P.O. Box 180, Lebanon, Penn., 17042.

RINGER BUYS ASSETS OF REUTER LABORATORIES

Ringer Corp., a Minneapolis, Minn.-based manufacturer and marketer of natural fertilizers and lawn care systems, has acquired the assets of Reuter Laboratories, a Dallas, Texas-based manufacturer and marketer of natural pesticides and insecticides.

Ringer's purchase of all Reuter assets and certain liabilities was completed March 22. The Reuter business will be operated out of Ringer's headquarters effective immediately. Terms of the sale were not disclosed.

Ringer Corp. manufactures Lawn Restore,® a natural fertilizer that contains living soil microorganisms and enzymes that break down thatch and improve grass plants. Reuter Attack® product lines include natural insecticides for use on lawns, shrubs, trees and ornamentals.

ORIGINATOR OF LEAF BLOWER HONORS 40th ANNIVERSARY

Atwater Strong Inc., a 40-year-old leaf blower and vacuum company, recently announced plans for expanding its sales, marketing and warehousing facilities into new offices at 1355 Evans Ave., Akron, Ohio. The announcement came in conjunction with the company's 40th anniversary celebration.

The move "is a visible sign of Atwater Strong's bigger commitment to northeast Ohio and to our dealers and customers nationwide," said Thomas Barrett, vice president of sales. "We needed the additional space for both sales and product inventory. Now it's possible for us to support our dealers with the kinds of programs it takes to compete in today's outdoor power equipment markets.

Manufacturing will remain at the current Atwater facilities, but sales, marketing, new product development and new product inventory will move to the new offices. From the new facilities, the company can ensure better supplier support and faster shipping.

Atwater Strong, the originator of commercial blowers for leaf and litter clean-up, markets them under the trade names Lo-Blo, Lit-R-Blo and Mi-T-Vac.

PARTS OVERNIGHT OR FREE FROM EXMARK MANUFACTURING

Exmark Manufacturing Co. introduced a new program called the Exmark Plus Parts Program.™

With parts plus, if an Exmark dealer does not have an Exmark part in stock, Exmark will deliver the part to the dealer the next weekday, or the part is free. The program is available only through participating Exmark dealers.

For more details about Exmark's new program, contact Exmark Manufacturing Co., Industrial Park N.W., Box 748, Beatrice, Neb. 68310; 402/223-4010.

NEW SAFETY, TRAINING VIDEOS AVAILABLE FROM CLCA

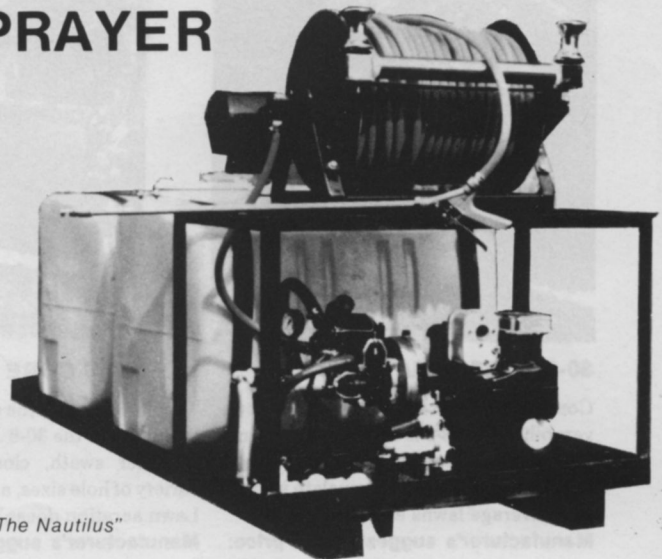
The California Landscape Contractors Association is offering available a new series of safety training videos for employees who operate infield landscape equipment. Produced in four separate volumes, the VHS color videos cover power hand tools, riding mowers, push mowers and bobcat and backhoe safety.

For more information contact the CLCA, 2226 K St., Sacramento, Calif. 95816, 916/448-CLCA.

TWIN TANK I.P.M. SPRAYER
for Pick-ups/Vans/Trailers

LEASE FOR ONLY \$92.00
per month

Our dual-tank NAUTILUS is by far the most popular in our entire line of complete sprayers. Fully versatile, can be used for both lawn and ornamental spraying. It combines the flexibility of a larger sprayer with the compactness of a single tank unit. The hose reel can be mounted for side or rear take-off. Choose from three tank sizes: two 100 gals.; two 150 gals.; two 200 gals. Optional pumps available for tree spraying.



"The Nautilus"

SPECIFICATIONS:

- Pump: 450 psi/10.5 gpm Udor Tau 35 diaphragm
- Motor: Briggs IC 5 hp or Optional Honda
- Hose: 300' X 1/2" 600 p.s.i.
- Hose Reel: Electric rewind Hannay or Nordic
- Gun: Choice of lawn or ornamental
- Tank Sizes: 2 X 100 gal.
- 2 X 150 gal.
- 2 X 200 gal.

OTHER OPTIONS AVAILABLE



GREEN PRO SERVICES
Grass Roots Nature's Way, Inc.

TOLL FREE **800-645-6464**

When Lawn Doctor franchises move up to TURFLON, broadleaf weeds take a fall.



"TURFLON is more effective on the broadleaves that the competition is missing."—

Russ Frith, president
Lawn Doctor,
Matawan, NJ

If "easy" weeds were the only ones cropping up in customers' lawns, 2,4-D would handle the job. But that's not the case. You need a tough product to keep tough weeds down. Maybe that's why you should move up to TURFLON* herbicide.

The real problem with lawn care.

"Weed control is the most important problem," explains Russ Frith. And as president of one of the nation's most successful lawn care franchisers, he ought to know. In explaining how TURFLON has worked for Lawn Doctor, Russ says, "It does a better job on the tough to control weeds."

Prove it for yourself.

How do franchisers who use it justify broadcast spraying TURFLON at about \$9.50 per acre? "Reduced callbacks," Russ says. He adds that independent Lawn Doctor operators select their own products. Most are skeptical of TURFLON until they prove for themselves that it does a better job of controlling tough weeds. "Many who use it full service started with spot (spraying)."

Finally, Russ says one word describes the experience Lawn Doctor franchises have had using TURFLON: "Excellent."

Isn't it time you moved up to a better herbicide for better weed control? Call us to find out more. 1-800-373-4DOW (4369).

Move up to TURFLON



*Trademark of The Dow Chemical Company

Circle 26 on reader service card

ASSOCIATION NEWS

FOLLOWING THE LEAD SET IN 1988 by the strategic planning committee of the **Professional Lawn Care Association of America**, the association's board of directors is moving swiftly to implement programs to advance the mutual interests of member lawn maintenance firms.

Identifying the need to project a positive proactive and constructive stance on the benefits of professional lawn care, the board will undertake several new projects under the general category of issues management.

The price tag for this increased legislative/regulatory activity by PLCAA is high — \$375,000 in new revenues will be required to meet its 1989 agenda. A voluntary program to support these efforts on a smaller scale (the defense fund) met with success in 1987-88. More than \$175,000 was contributed by PLCAA members.

This year, the board of directors has targeted annual membership dues as the principal source of funding for the proactive legislative/regulatory agenda. Dues will be increased on a sliding scale according to the member company's gross annual sales volume. The full amount of the dues increase will go to support PLCAA's increased commitment to issues affecting the future economic growth and development of the lawn maintenance industry.

The amount of the increase has not yet been released.

New this year will be a greater concentration on state and local issues, both regulatory and legislative, made possible through the creation of a new headquarter staff position — director of state government affairs. The director will work closely with the association's seven affiliated chapters and numerous state and

regional coalitions in forming reasonable regulations and legislation. The position has not yet been filled.

Jim Wilkinson will continue as director of regulatory and environmental affairs. Working with EPA, DOT, OSHA and other federal agencies, plus giving testimony where needed across the country, Wilkinson will continue to develop critical personal working relationships with regulators.

Computers will play a larger role in 1989 at PLCAA headquarters, both as a staff working network and as an access tool to computerized literature review. Tracking of federal legislation, committee work and some state activity may be accessed through computer modems. Increased use of facsimile, electronic mail and electronic blackboards will be explored as options for quick communications.

The **Outdoor Power Equipment Aftermarket Association** elected new officers at its third annual business meeting held recently at the Sonesta Sanibel Harbour Resort, Ft. Myers, Fla.

Charles Stenftenagel, Sten's Lawnmower Parts, will enter his second term as president; Mark Verble, Hal E. Verble & Son, was re-elected vice president; Bill Bethel, Bethel Sales, was elected secretary; and Bill Nelson, Rotary Corp., was elected treasurer. Joining the board of directors is Bob Bettelli, Atlantic Mower Parts and Supplies.

Robert Fishbaugh, vice president of marketing/sales for Champion Spark Plug Co., was the keynote speaker.

The "Speaking of Business" seminars for the **International Lawn, Garden & Power Equipment Expo** will offer valuable, take-home tips to

help show attendees run their businesses more efficiently and profitably.

For owners and managers looking for inexpensive ways to boost their business skills, Expo 89 in Louisville will offer seven free, how-to sessions:

- Protect your business from the adverse effects of drought and other weather conditions.

- Increase sales to commercial markets.

- Benefit from co-op advertising.

- Automate your office.

- Merchandise your products to make them more saleable.

- Turn your store into a selling machine.

- Develop loyal customers.

Seminar attendance and pre-registration for the tradeshow, featuring 550 major manufacturers, is free.

Roberto Burle Marx, the internationally acclaimed landscape architect who is re-designing Biscayne Boulevard in downtown Miami from the Miami River to Omni, will speak and give an illustrated presentation at a special appearance at the annual **South Florida Landscape Trade Show** April 21-22.

Show Chairman David Kaplan said that Marx will discuss the Biscayne Boulevard project and the story behind some of the more notable landscape designs he has created throughout the world. He will appear under the auspices of the show's sponsor, the Dade County Chapter of the Florida Nurserymen & Growers Association.

Stephen T. Cockerham, superintendent of agricultural operations at the University of California, Riverside, has been elected president of the **Sports Turf Manager's Association** for 1989.

Cockerham invented a machine three years ago to aid researchers in identifying which turfgrass species

are safest for athletes. Cockerham's Brinkman Traffic Simulator is now in use worldwide for experimental sports turf research.

The machine, replete with cleats, is designed to test how different turf types withstand the stress of serious sports traffic. It can be set up to mimic the wear and tear of a professional football game or nine innings of little league baseball. ■

FOR MORE INFORMATION CONTACT...

PLCAA

1000 Johnson Ferry Rd. N.E.,
Suite C-135
Marietta, Ga.
30068-2112
800/458-3466

OPEAA

1001 Connecticut Ave. N.W.
Suite 800

Washington, D.C. 20036
202/775-8605

Expo 89

P.O. Box 70465
Louisville, Ky. 40270
800/558-8767
502-582-1672 Outside
the U.S. or
in Kentucky



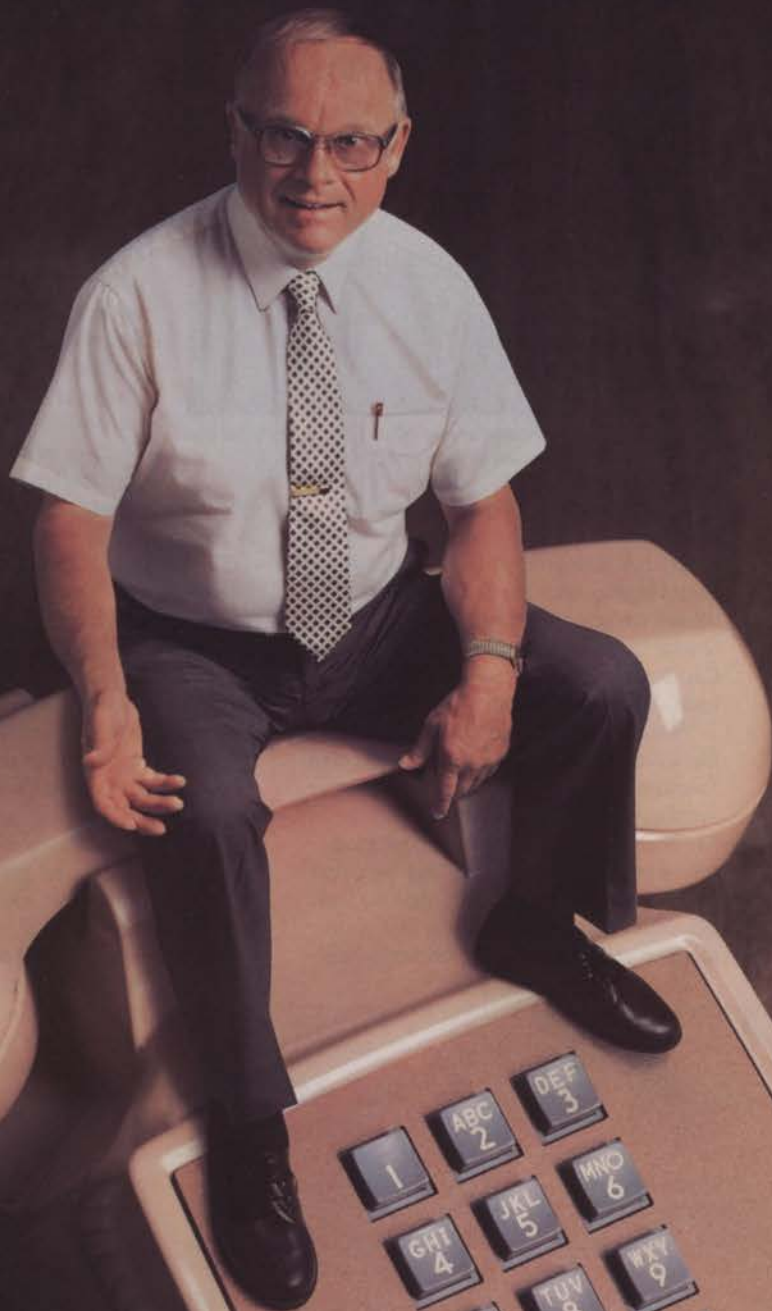
FNGA

14695 S.W. 216 St.,
Miami, Fla. 33170
305/662-2011

STMA

400 N. Mountain Ave.
Suite 301
Upland, Calif. 91786
714/981-9199, 714/984-4677

When Jim Gourley moved up to TURFLON, callbacks in Kenosha went down, way down.



"Our resprays have decreased by almost 50%."—

**Jim Gourley, owner
Lawn Masters,
Kenosha, WI**

If you're like most LCOs using standard three-way herbicides, there are days when you wish the phone wouldn't ring again. Callbacks and cancellations can really get you down. Well, maybe it's time you moved up to TURFLON® herbicide.

One good reason to switch.

"We switched to TURFLON because we were having too many resprays," explains Jim Gourley. And after 22 years in the business, he's happy with the results: "Our records show that we do have much better weed control and many fewer resprays this year than we've ever had."

You'll save money in the long run.

"Yes, we pay more for TURFLON," Jim says. "But when I figure how much it costs us per respray, it's saving us lots of money. And that justifies the extra cost."

Jim adds that there's another reason he can't afford to make too many callbacks. "When you have to go out and do a respray, you're taking a chance on losing that customer."

Isn't it time you moved up to a better herbicide for better weed control? Call us to find out more. 1-800-373-4DOW (4369).

Move up to TURFLON



*Trademark of The Dow Chemical Company

Circle 27 on reader service card

FOCUS ON:

IRRIGATION

NEW MOISTURE SENSOR REDUCES WATER CONSUMPTION BY 50 PERCENT

A NEW SOIL MOISTURE CONTROL system from The Toro Company, Riverside, Calif., is expected to reduce irrigation water consumption by an average of 50 percent while maintaining excellent turf quality.

The system takes advantage of rainfall by irrigating the turf only when needed — rather than telling the system when to start, the moisture control product tells the system when to stop.

Six months of field tests, begun in June 1988, were carried out under real-life conditions at 13 sites in Phoenix and Tucson, Ariz. The Toro soil moisture control system was tested under a variety of conditions and turf types at several parks, a major commercial airport, a high school baseball field, a golf course, a desert botanical garden, condominiums, a private residence and the University of Arizona.

"We've already seen a direct cost savings by using the Toro moisture sensing system," said Terry Mills, supervisor of the Northeast Parks and Recreation District in Phoenix. "We're using a third less water in the summer months, and that's significant when we average \$7,000 to \$8,000 a month for water at a typical 40-acre park in summer."

Charles Mancino of the University of Arizona's Department of Plant Sciences in Tucson, agreed with Mills' observations. "This soil sensor makes it truly possible to take advantage of any rainfall by irrigating the turf only when needed and without manual changes. At times, we've gone as long as two weeks without



Toro's new sensor, installed at root level, is designed to tell the irrigation controller when to stop watering.

irrigating and the turf quality remained acceptable or better."

Separate independent tests, which have been ongoing over the last two years at the universities of Georgia, Nebraska, California (Riverside campus) and through the California Department of Transportation, have shown similar water savings.

"We felt it was important to use real-life situations for field testing," said Steve Swenerton, director of sales and customer satisfaction for Toro Irrigation. "There has been a lot of skepticism about moisture sensors over the years, and we didn't want to release this product until we were absolutely satisfied that it met our customer's expectations and significantly con-

served water.

The Toro soil moisture control system was specifically designed to overcome the physical and operational weaknesses which have plagued other soil moisture sensors, such as changes in temperature, salinity and pH masking.

The Toro system contains no moving parts and is self-calibrating providing little opportunity for something to go wrong, according to David Rosenbloom of United Arts for Toro. The heart of the new system is a proven Cuming-type 4-EC ceramic soil sensor, which is completely inert, self-compensating and maintenance

free. The ceramic technology, developed in Australia, is licensed to Toro.

The sensor is manufactured to dehydrate at a preset tension level close to the soil's moisture capacity. This process completely changes the output of the sensor which sends a signal to the irrigation controller when the soil is moist enough. This eliminates the need for controller reprogramming, since the sensor automatically adjusts to climate and seasonal changes.

The Toro system is best suited to large open areas of turf and ground cover, where one sensor can adequately control irrigation for three to 10 acres. The soil sensor is easily installed under the turf in

an appropriate spot one-third to one-half the root depth. The system's electronics, which are connected to the sensor unit through a shallow trench, are mounted inside the existing irrigation controller.

The Toro Soil Moisture Control System has a suggested retail price of \$600. It is estimated that the system can pay for itself in one to three months from savings in water and pumping costs (electricity).

It can be used on residential properties, but probably will be more popular on larger turf areas until the price comes down, Rosenbloom said. ■

THE SOIL MOISTURE CONTROL SYSTEM

SOME SPECIFICATIONS OF the new system from Toro include:

- **Moisture Control Unit.** Power: 24 Volts, 0.06 Amps AC or DC (from controller master valve or pump start). Switching Rating: 2 Amps at 24 Volts. Soil Isolation: 2,000 Volts (nominal surge protection). Soil moist indicator. Sensor bypass switch. Station latch: allows completion of cycle when moisture reaches optimum level. Dimensions: 7 in-

ches by 4½ inches by 4¾ inches.

- **Soil Sensor.** Response time: under 30 seconds upon hydration. Soil contact surface: 24 square inches. Porous ceramic housing: 2,600 degrees Fahrenheit firing temperature. Corrosion factor: 0 (inert). Cable connection: four-conductor, 20 Ga. minute. Maximum run distance: 1 mile. Signal level: less than 10 volts. Fixed tension setting: standard: 15Kpa (15 cb). Installed depth: normal-

ly ½ to ½ or root depth. Dimensions: 4 inches by 2 inches by 1 inch.

- **Sensor Bedding Compound.** High stability. Low swelling. High hydraulic conductivity. Ionization: 0 (inert). Diffusion: 0.

- **Underground Connectors.** Barrel: PVC. Connector: screw compression, 4-way. Sealant: low moisture, absorbent, two-pack Epoxy resin (setting time: 5 minutes at 50 degrees Fahrenheit).

When Tim Doppel moved up to TURFLON, his bottom line followed.



"The first year we used TURFLON, we realized a \$1,200 savings on service call costs!"—

Tim Doppel, president
Atwood Lawncare, Inc.
Sterling Heights, MI

Keeping a lid on expenses becomes more and more important as your business continues to grow. Do things right, and profits will rise while the cost of servicing each new customer falls. If that's the kind of lawn care firm you want to run, maybe it's time you moved up to TURFLON* herbicide.

When more is less.

"Even though the product costs more, I still end up saving money by using TURFLON," explains Tim Doppel. And he has three years' worth of documented results to prove it pays to broadcast spray TURFLON at about \$9.50 per acre. "The first and foremost advantage of using TURFLON is its effectiveness. It works."

Reducing callbacks and cancellations is the key.

"The first year we used TURFLON, we had a 20 percent reduction in callbacks and that has held steady over the years," Tim says. "We've also seen an increase in customer retention in the three years we've been using TURFLON."

And using TURFLON has one more advantage, Tim adds. It's the reason he's been able to reduce callbacks and cancellations: "My customers are happier."

Isn't it time you moved up to a better herbicide for better weed control? Call us to find out more. 1-800-373-4DOW (4369).

Move up to TURFLON



*Trademark of The Dow Chemical Company

Circle 28 on reader service card

To Bill
 Date 9/21 Time 8:42

WHILE YOU WERE OUT

M Susan Jones
 of 2087 Cowan Rd

Phone _____

Area Code	Number	Extension
TELEPHONED	<input checked="" type="checkbox"/>	PLEASE CALL
CALLED TO SEE YOU	<input type="checkbox"/>	WILL CALL AGAIN
WANTS TO SEE YOU	<input type="checkbox"/>	URGENT
RETURNED YOUR CALL <input type="checkbox"/>		

Message
Says insecticide
didn't work -

Beth
 Operator

Management Series™

To Bill
 Date 8/27 Time 3:14

WHILE YOU WERE OUT

M Mrs. Lingenfelter
 of 952 Macedonia

Phone _____

Area Code	Number	Extension
TELEPHONED	<input type="checkbox"/>	PLEASE CALL
CALLED TO SEE YOU	<input type="checkbox"/>	WILL CALL AGAIN
WANTS TO SEE YOU	<input checked="" type="checkbox"/>	URGENT
RETURNED YOUR CALL <input type="checkbox"/>		

Message
Insect damage. Wants
lawn re-seeded

Beth
 Operator

Management Series™

Triumph gets rid of the toughest

Constant callbacks and retreatments can drive even the best lawn care business right into the ground.

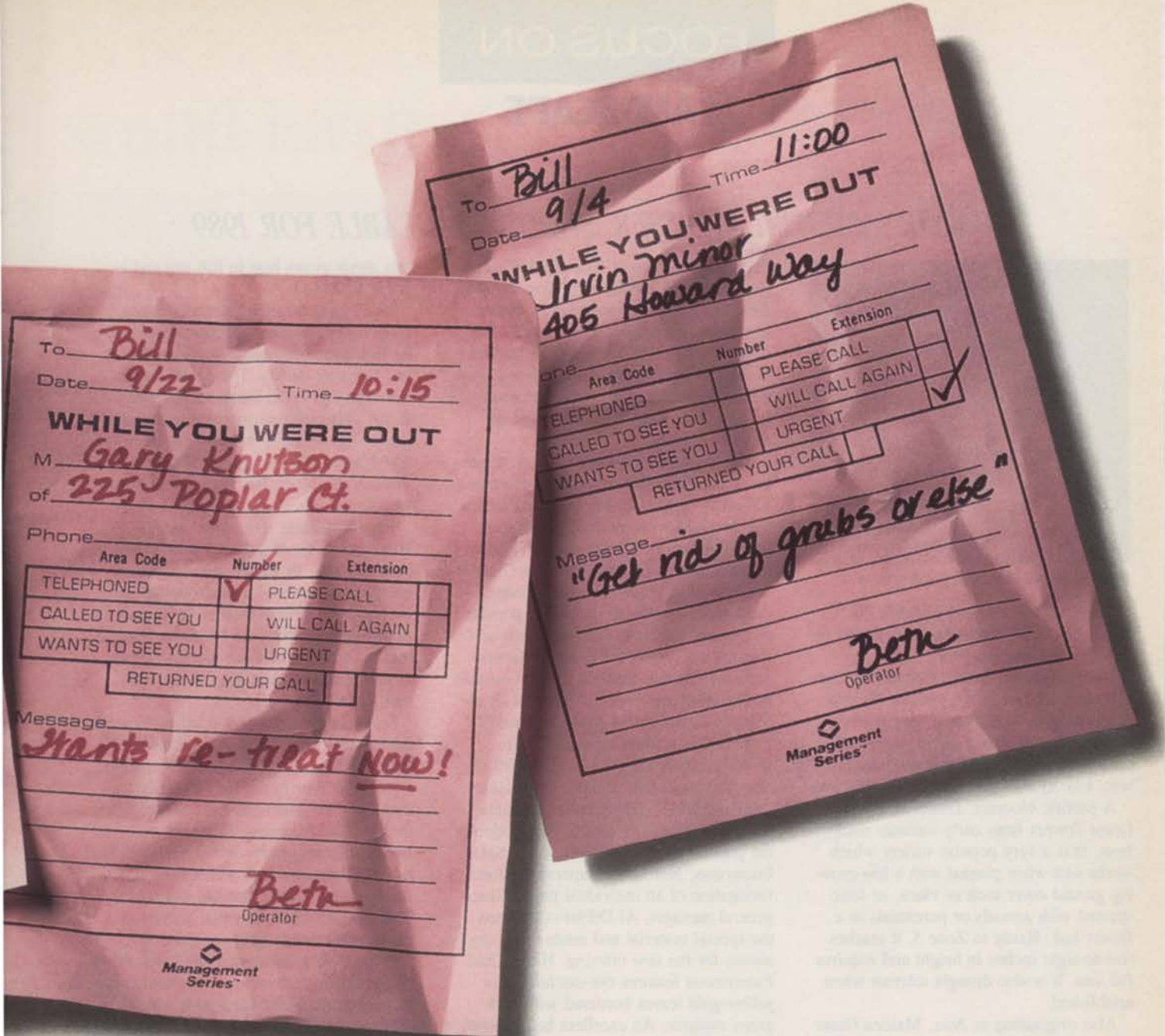
But you can reduce your callbacks —and increase

your profits— simply by replacing whatever insecticide you've been using with Triumph®.

Because no other insecticide is proven more effective

at controlling problem turf pests, including white grubs and mole crickets.

For example, in 10 years of university testing, Triumph has been shown to deliver



st turf pests, including these.

90 percent control of white grubs within just 2-3 days of application.

And, unlike other insecticides, Triumph consistently provides lasting control

for a full 8-10 weeks. So one late summer or early fall application is all you need for effective turf protection.

Which doesn't mean you won't still collect notes from

your clients.

Just that they'll more often be the green, negotiable variety.



sale to and use only by certified applicators or persons under their direct supervision, and only for those uses covered by the applicator certification.

Circle 21 on reader service card

FOCUS ON:

LANDSCAPE

NEW ORNAMENTAL GRASSES, SHRUBS AVAILABLE FOR 1989



Hines Gold, an evergreen shrub cultivar.

SEVERAL NEW GRASSES FROM Hines Nurseries may offer landscapers interesting options this year.

Dwarf Fountain Grass (*Pennisetum alopecuroides* 'Hameln') is a cultivar selection originating in Asia, that is very useful in erosion control. Long green stems grow from its thin green blade leaves, adorned with four- to five-inch cream-colored spikes.

A prolific bloomer, Dwarf Fountain Grass flowers from early summer until frost. It is a very popular variety which works well when planted with a low-growing ground cover such as vinca, or interspersed with annuals or perennials in a flower bed. Hardy to Zone 5, it reaches five to eight inches in height and requires full sun. It is also drought tolerant when established.

Also originating in Asia, Maiden Grass

(*Misconthus sinensis* 'Gracillimus'), can reach a height and width of five to eight feet. Light tan, six-inch plumes bloom above the thin grayish-green blades and deepen in color in the fall. The Maiden Grass grows in dense, upright, vase-shaped clumps and provides a scenic background. It is hardy to Zone 5 and requires full sun.

The largest of the three grasses, Ravenna Grass (*Erianthus ravennae*), can reach 12 feet in height. Rising above its foliage are 18- to 24-inch plumes, which turn from light tan to bronze in fall. Originating in southern Europe, Ravenna Grass works well as an accent against large, deep green broadleaves. It is also popular as a hardy substitute for *Cortaderia seloana*. Like the Dwarf Fountain Grass, Ravenna Grass is drought tolerant once it has become established in the soil. It requires full sun and is hardy to Zone 5.

In addition to the grasses, five interesting shrub varieties head the list of new plant material available from Hines.

Hines Gold™ (*Euonymus japonica* 'Aureo-variegata') is a cultivar selection of the popular evergreen shrub, Gold Spot *Euonymus*. Noting the superior uniform variegation of an individual plant, Hines general manager, Al DiFlorio, isolated the special material and made it the stock source for the new offering. Hines Gold *Euonymus* features eye-catching pure yellow-gold leaves bordered with dark green margins. An excellent hedge plant,

this shrub grows best in full sun and is hardy to Zone 6.

Nandina domestica 'Moon Bay' is a proprietary *Nandina* selection developed by Bill Barr, propagator at Hines Nurseries' Houston facility. The Moon Bay is characterized by its compact globular form, well-groomed appearance and unique foliage color — bright lime green maturing to medium green. Hardy to Zone 6, the Moon Bay *Nandina* performs well in full sun or part shade.

For the darkest spot of the garden, Hines offers the Brazilian Fuchsia (*Lusticia rizzinii*). In winter, this herbaceous evergreen is covered with drooping tubular one-inch flowers that are bright red, tipped with yellow. The Brazilian Fuchsia reaches a height of three feet and grows in part shade or even deep shade. It is hardy to Zone 6.

Japanese Beauty Berry (*Callicarpa japonica* 'Issai') is a deciduous mounded shrub with arching branches that reaches a height of four to six feet. Recently introduced into American horticulture from the Brookside Gardens, Wheaton, Md., the Japanese Beauty Berry is distinguished by its metallic-purple fruit which form in late summer and remain into fall and winter. This cultivar selection fruits heavily as a young plant and is hardy to Zone 5.

Perhaps most unusual is the Duck Plant (*Sutherlandia frutescens*) — so named for its papery, duck-like seed pods which children delight in floating upon water.

The Duck Plant's narrow curved flowers measure about an inch in length and bloom a bright brick red from January to June, followed by the pale green inflated seed pods. Hardy to Zone 8, the Duck Plant is a good subject in desert gardens, rock gardens and perennial borders in full sun. It grows rapidly to a height of four to six feet.

For more information on the ornamental grasses available from Hines-Vacaville, call Hines customer service, 800/231-0561. For more information on new plants from Hines-Santa Ana, contact a customer service representative at 800/63-HINES. ■



Japanese Beauty Berry (*Callicarpa japonica* 'Issai').

A seeder for tight spots and small lawns.



The Ryan® Spotseeder is ideal for lawn repair.

Nothing lets you renovate lawns as effectively or economically as the Ryan Spotseeder. Its 20-inch width lets you handle small yards, patch work, and hard-to-reach areas with greater ease than ever before. A fully adjustable seed delivery system drops any kind of grass seed in front of the vertical cutting blades for better seed/soil contact, facilitating a higher germination rate compared to drop-type and broadcast seeders.

Cover more ground more quickly.

The Ryan Spotseeder gives you 1/8-inch slits in the soil on 2-inch centers, which works well with all

types of grasses, allowing you to have one pass seeding. The standard reel or one of the three optional reels combine to deliver high quality seeding and dethatching in a wide range of turfgrasses. The Ryan Spotseeder is the easy answer to lawn repair.

To see just how easy the Ryan Spotseeder can make your next renovation, contact your Ryan dealer or call toll-free: **1-800-228-4444**.

RYAN®

BUILT TO LAST

6479 Cushman, P.O. Box 82409, Lincoln, NE 68501

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Circle 49 on reader service card

The Choice is Yours: Improve the Old or Start Anew

WHEN HENRY DE La Rosa inspects an old lawn, he's like a buyer checking out a used car.

"If you have rusty metal on the car and you just paint over it, you're still leaving the bad behind," said De La Rosa, who owns San Jose's Pro Lawn Turf Care Service. "It's better to get a fresh start."

That's why, when customers

hire De La Rosa to renovate their lawns, the California maintenance operator usually kills out all existing grass with Roundup — Monsanto's non-selective herbicide — then starts from scratch with new seed.

"You've got to get rid of the bad stuff first," said De La Rosa, who uses Roundup on about 212 of the 250 lawns he renovates annually.

Lawn and landscape maintenance operators who want to fix up old, worn-out lawns, can either seed new grass varieties into existing turf, or completely clear a site and start all over again.

Experts say the choice depends largely on cost, location and the specific problems of the existing turf.

In many cases, elimination of the existing turf may be the operator's only option. For instance, De La Rosa has killed out dozens of San Jose-area lawns originally planted with a Fusarium blight-prone bluegrass, sold in the area for years.

"We can almost drive up to those lawns and tell what year they were planted, and who sold the customer the sod," De La Rosa said. "The sod varieties have changed in recent years, but we're still seeing a lot of it."

De La Rosa also kills out lawns where thatch buildup has made overseeding impractical.

"In this area, where a lot of homes were planted with sod, you frequently have thick root mats from the original installation that never broke down," he said. "Getting seed to germinate in that is tough."

In addition, De La Rosa frequently kills out lawns with major bentgrass or Bermudagrass infestations, as well as marginally infested lawns that began with poor turf quality.

"It isn't that much more expensive to wipe out a lawn and start again with an improved grass blend," said De La Rosa, who charges \$300 to overseed a 1,000-square-foot lawn, but \$450 to kill and reseed it.

For De La Rosa, the best part about killing lawns is the service's potential to bring new customers into his regular maintenance program. The maintenance operator estimates 90 percent of his renovation clients eventually sign on for bi-monthly "weed 'n' feeds."

"Once we renovate a lawn, the customer has an investment that he wants to protect and keep looking sharp," De La Rosa said. "That's the primary reason we offer the service — to attract customers to our maintenance program."

De La Rosa will, however, overseed lawns that have good-quality base grass, with only spotty weed or weedgrass infestation.

"If there are clumps of tall fescue in a Kentucky bluegrass lawn, we can just spot treat and dethatch," he said.

Gayle Jacklin-Ward of Idaho's Jacklin Seed Co. recommends overseeding whenever possible, because it's generally less expensive.

Jacklin-Ward estimates that killing out and replanting a 1,000-square-foot lawn takes about three man-hours — two to apply Roundup and rake together dead turf, and one to seed, fertilize and mulch the new growth. New grass also requires timely water until establishment.

By contrast, overseeding only takes about two man-hours, she said.

"Overseeding is always more desirable if you have a controllable problem like spot weed or weedgrass infestation," said Jacklin-Ward, adding that selec-

RENOVATING AN OLD LAWN

WHEN LESS THAN 50 PERCENT OF A LAWN IS comprised of desirable turf, renovation procedures are recommended. First, check for insect, disease and soil problems and correct as needed.

STEP 1: Apply Roundup or Kleen Up type killers on hardy weeds and grasses.

STEP 2: Mow the lawn to a height of about one inch.

STEP 3: Aerate the turf by slicing, coring, spiking or with dethatching equipment which will help relieve soil compaction and eliminate thatch.

STEP 4: Rake or sweep the lawn to remove clippings and other debris.

STEP 5: Apply three to five pounds of a good nitrogen-based, slow-release fertilizer per 1,000 square feet.

STEP 6: Rake or rough the soil surface giving special attention to bare spots.

STEP 7: Spread the seed with the spreader of your choice. Special attention should be given to spots where the ground is bare. Extra seed should be applied by hand to these spots.

STEP 8: Drag or rake the grass to be certain the seed comes in contact with the ground. On bare spots apply a light mulch of peat, straw or sawdust.

STEP 9: Water the seedbed lightly so the soil surface is moist. Continue watering lightly so the soil does not become hard or baked.

STEP 10: When the seedlings reach a height of two to three inches, mow to a height of 1½ inches with a sharp mower at a time when the grass is not wet. — *International Seeds Inc.*



Creating a new lawn through renovation. Photo: International Seeds Inc.

tive herbicides can treat such ailments.

Jacklin-Ward also advises overseeding acceptable turfgrass varieties with improved proprietary strains when wear and tear or drought have thinned them out.

"A lot of old lawns were originally seeded with common grass varieties instead of the improved versions that have hit the market in the past five to 10 years," she said.

Still, Jacklin-Ward recommends killing out lawns with uncontrolled noxious weeds like quackgrass, crabgrass, nutsedge or Russian Thistle.

Such growth "can easily spread through an entire lawn if unchecked," she said. "A lot of times you can spot spray weeds, but if they're out of control, you have to start over from scratch."

Killing out Kentucky bluegrass heavily infested with unwanted perennial ryegrass or fine fescue, two strains that can eventually dominate a lawn, is also recom-

mended by Jacklin-Ward.

"Some people like a fine fescue/Kentucky bluegrass mix because it does well in the shade," she said. "But in our area, most people like a bluegrass quality turfgrass, so they're unhappy when fine fescue comes in and makes their lawn look patchy."

In addition, she said, many maintenance operators in her area kill out lawns contaminated with necrotic ring spot and summer patch, two common Pacific Northwest diseases.

Mike McCarthy, research director at Oregon's E.F. Burlingham & Sons seed company, advises killing out a lawn if it's a losing battle. "You have to look at a lawn and decide if it's salvageable because if it isn't, you could overseed forever and never be happy," he said.

McCarthy recommends killing out turf heavily infested with weed or weedgrasses, and lawns with grading, irrigation or drainage problems. If drainage

or soil amendments like lime are needed, the problem won't be solved by overseeding.

In addition, McCarthy suggests killing unirrigated lawns when customers insist on renovating in the middle of a drought.

"When there's not enough water, you do a heck of a lot better killing out existing turf and actually burying new seed into the ground," he said. "When you just lay seed on the surface, it dries out a lot quicker."

However, McCarthy said many lawns — particularly those on the East Coast — can easily be maintained or thickened with annual fall overseeding.

"If the lawn's just a little thin, it's easy to overseed," he said. "In some places, you can even throw seed on by hand and that'll work."

In Florida, where most lawns use St. Augustinegrass, neither overseeding nor turf elimination is frequently necessary, said Gary Moreau of Jacksonville's

Turf Tech Inc.

According to Moreau, about 90 percent of Florida lawns use St. Augustinegrass, a grass so aggressive it can overtake most weeds and weedgrasses with a little help.

"If you drop gasoline or antifreeze on part of a St. Augustinegrass lawn and the grass dies out, the lawn will fill itself back in as long as you water it," he said.

Moreau said lawns with at least 40 percent uniform St. Augustinegrass coverage are capable of being renovated with selective herbicides and fertilizers — things he applies for \$255 annually on a 6,000-square-foot lawn.

For instance, Moreau can easily take weak centipedegrass out of a St. Augustinegrass lawn by adding nitrogen, which inhibits the centipedegrass, but promotes St. Augustinegrass.

"We pour on the nitrogen and the St. Augustinegrass just loves it," he said. "It smothers the centipedegrass right out."

Moreau can also take bahiagrass out of a St. Augustinegrass lawn by using selective herbicides.

However, if a lawn has major weed or weedgrass infestation and less than 40 percent St. Augustinegrass, Moreau said, maintenance operators must add new St. Augustinegrass by either killing out the lawn and resodding, or by sprigging in grass plugs. The commonly used herbicide 2,4-D cannot be used on the weeds because it would also kill the St. Augustinegrass, he said.

Sprigging a 6,000-square-foot lawn costs roughly \$1,500 in Florida, while killing out and resodding the same size lawn runs about \$1,800, according to Moreau. Despite the higher cost, most customers choose sodding because it brings immediate results, he said.

Because sprigging with St. Augustinegrass plugs takes a lot of time, many customers will choose the more expensive route to avoid waiting for their lawn to fill in, Moreau said.

He also recommends killing out and reseeding bahiagrass and centipedegrass lawns that have thinned out, since neither can be nourished back.

"Usually, you're better off



A 15-year-old, mostly Bluegrass, Nebraska lawn before renovation began. Photos: Cushman/Ryan.



Roundup was used on what remained after the drought of 1988.

cost-wise to go with Roundup, take everything out and plant new," said Moreau, who annually advises about 100 of his 1,930 customers to kill out their lawns.

Steven Pettengill, owner of The Lawn Care Co., Pownal, Maine, said he can properly overseed any site — "even a pretty hopeless one" — if customers will wait two to three years for success.

"We can bring any lawn around with overseeding and broadleaf herbicides, but most people are too impatient for that," Pettengill said. "They want to see some pretty quick results."

Pettengill said most properties in need of renovation suffer from heavy crabgrass, clover or oxalis infestations. Overseeding can fix most any lawn, except those with 60 percent or more weed coverage.

"The last lawn we used Roundup on was a total disaster," Pettengill said. "There were weeds in it and nothing else. But even then, we could have put down broadleaf herbicide and overseeded, and in a couple of years

it would have looked half decent. The customer just didn't want to wait."

Pettengill charges about 30 cents per square foot to kill out and reseed a lawn, compared to roughly 12 cents a square foot to overseed. He estimates thousands of Maine lawns could use renovation, but said few homeowners are willing to pay for it.

"Maine is different from a lot of other states, because many people here don't care about their lawns," he said. "As long as it's green, they're happy — even if it's mostly weeds."

Other than cost, Pettengill said, the only drawback he's encountered with Roundup is the public's negative perception of chemical use in general.

"Customers — even commercial ones — get nervous when you tell them you're using something that kills everything," he said.

In Yakima, Wash., Green Baron Inc. owner Robert Dahlin advises customers to kill lawns that have heavy Bermudagrass, bentgrass or weed infestations — problems he sees about 15 to 20 times a year.

Dahlin said most Yakima lawns contain either fine fescue/perennial ryegrass mixes or Kentucky bluegrass, both of which respond fairly well to selective herbicides and fertilizers.

Of the two, Kentucky bluegrass — a relatively aggressive turf — responds better, filling in any bare spots left after selective herbicides kill out the lawn's weeds.

"We know that once we control feed a Kentucky bluegrass lawn and control the broadleaves, it'll be OK," Dahlin said.

However, no existing treatment can take Bermudagrass — a common Yakima problem — out of Kentucky bluegrass, so Dahlin advises customers with such infestations to wipe out their lawns and start over again.

"We have to kill that Bermudagrass first," he said. "Overseeding just won't do any good."

Dahlin also recommends killing out Kentucky bluegrass heavily infested with a native bentgrass that turns brown each summer, marring an otherwise green lawn.

"Usually, you can spot-kill the native bentgrass unless it's really taken over," he said. "Generally, it'll overtake the patches where it crops up, but won't move through an entire lawn."

"You have to decide if you want to overseed worn spots, or if there's enough bad grass in the lawn to warrant starting over," he said.

All things being equal, most of Dahlin's customers prefer starting from scratch and resodding, unless spot reseeding can solve a problem.

"People here don't want to deal with reseeding," Dahlin said. "They want the turf killed, the sod planted and boom — instant new lawn."

Although most Yakima homes are planted with older turf varieties, Dahlin believes few customers would jump at the chance to have their lawns killed out and reseeded with improved strains.

"We're usually the last place to get a lot of trends," he said. "People don't even know there are grasses out there that have everything here beat." — Jerry Kronenberg ■

The author is a free-lance writer based in Cleveland, Ohio.

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Many Plant Problems Linked to Poor Soil Environments

THERE IS AN EVER-increasing desire on the part of both commercial and residential property owners for a high quality and aesthetically pleasing residential landscape.

This desire has created a wide range of products and services available to them including improved turf varieties, fertilizers, herbicides, pesticides and equipment to manage their application. In addition, technical assistance in the management of these products is widely available.

An often ignored aspect in the

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Soil reaction and fertility status are probably the easiest soil properties to adjust for residential plantings.

goal of landscape beautification is a consideration of the soil limitations in meeting this goal, and the soil resources available to achieve the ultimate design concept.

Indeed, it has been suggested that as much as 80 percent of plant problems can be traced to and/or caused by a poor soil environment. Many people involved with vegetation management in the commercial and residential landscape soon discover that the soil does not have the appearance or properties of soil in the surrounding countryside.

FACTORS IMPACTING SITE ASSESSMENT. Residential soils, in particular, are predominantly created by human activity. This contrasts with the natural agents of wind, water and ice in the place-

ment of soil material, as well as the slow soil-forming processes in the natural environment. The residential soilscape is often formed by combinations of cuts and fills to shape the site for placement of the primary dwelling. This site manipulation creates a landscape that may radically differ from the native contours. Soil cuts to lower the natural contour, remove topsoil and expose the subsoil horizons, much like soil erosion in the natural landscape.

Filling is the process of dumping and spreading soil material over the existing surface to increase the elevation of a natural landscape. The fill material is often brought to the site from distant locations and often contains material of human origin including masonry, asphalt, wood, glass and metal. After the site is shaped, soil excavation for basements and footings result in a second soil disturbing process.

Soils that have undergone massive disturbance generally have several features that contrast with their native, undisturbed counterparts. These residential soils are more compact, have poor structure, lowered organic content and an unfavorable chemical environment in terms of soil reaction (pH) and fertility. The residential site also has a high degree of variability in its soil properties both vertically and horizontally.

Soil compaction is common in residential sites due to construction traffic during site preparation, and foot traffic during periods when soils are wet and predisposed to compactive forces. Surprisingly, vibration caused by heavy traffic on adjacent roadways also helps create a more

compact soil. Soil compaction results in a loss of pore space for root penetration through soil and poor soil drainage and aeration.

SOIL STRUCTURE. Soil structure is formed by the aggregation of sand, silt and clay particles into larger, distinct units. Soil tilth is the term used to describe soil with favorable structure. Soil structure is often destroyed by human manipulation so that residential soils usually have poor structure and poor soil tilth.

When rainfall strikes a soil surface having poor tilth, a soil crust forms on the surface. This crust inhibits seedling emergence in new seedlings and also inhibits root penetration of sod into the soil. The result is either thin non-uniform turf stands or susceptibility of sod to drought, encouraging thatch formation.

Mixing of surface and subsoil horizons in residential sites generally decreases the organic matter of the surface horizons. Organic matter impacts the physical, chemical and biological processes occurring in soil. The ability of the soil to store water for subsequent use by plants is dramatically increased by organic matter. Therefore, soils poor in organic matter are susceptible to drought. Organic matter also acts as a reservoir for storage of plant nutrients. Finally, soil inhabiting organisms depend on organic matter as a source of energy. It is important to maintain a rich community of soil organisms for general soil and vegetation health.

Residential soils tend to have soil reaction (pH) values higher than their natural counterparts. These higher soil pH values result, in northern latitudes, from application of calcium or sodium compounds to roads and side-

walks for ice removal. Another source of high soil pH is the use of calcium-enriched irrigation water. Finally, soil reaction is elevated by the release of calcium from the weathering of masonry, plaster, driveways and sidewalks.

There are both advantages and disadvantages of elevated pH values. Near neutral soil reaction is beneficial with regard to plant survival and soil fertility. However, elevated pH creates management problems for acid-loving plants and an abundance of calcium or sodium creates an imbalance in the nutrient status of the soil and may inhibit nutrient uptake by vegetation.

Soil properties in most natural profiles change gradually with increasing soil depth. Residential soil profiles, however, show abrupt changes in soil properties due to human manipulation of the soil. These discontinuities have a dramatic influence on water movement and root penetration. In addition to this vertical soil variability, residential sites also exhibit horizontal or spatial variability.

It is important to note that these soil limitations may not exist at all residential sites. In addition, there may be special considerations not included here that impact other residential sites. The important point here is that a careful soil inventory is necessary to ensure success in the landscape design.

SOIL REACTIONS. Soil reaction and fertility status are probably the easiest soil properties to adjust for the requirements of the residential plantings. Soil pH can be raised by liming or lowered by the addition of acid-forming substances. These acid-forming substances include organic mat-

DETERMINING DESIRABLE SOIL CHARACTERISTICS

OFTEN, AFTER A CAREFUL site assessment, the designer may wish to modify the soil by either importing topsoil to the site or by incorporating specific amendments into the existing soil. The question which then arises is what are the desired soil characteristics for planting and management of urban vegetation.

This question is not easily addressed since different soil characteristics are required for the intended use.

Turf areas intended for play areas and high intensity use require different soil properties than those of an open meadow receiving low intensity use. Soils for street side tree planting will need different properties than those for yard tree planting. Certain shrubs will require different soil characteristics from that of turf or trees. While there are diverse soil properties required for specific applications, several general rules of thumb can be applied to approach optimum performance.

Soil texture refers to the relative proportions of sand, silt and clay of the soil. Suitable soil texture is the first soil property to explore in the search for desirable soil performance. In general, soils that have a high percent silt and very fine sand are most subject to compaction. On the other hand, soils containing less than about 40 percent silt and very fine sand generally resist compaction. Soils containing more than about 30 percent clay may be subject to compaction, but also have un-



A quality landscape begins with good soil. Photo: Cushman/Ryan.

desirable drainage and aeration characteristics. This does not imply that the higher percent sand in a residential soil offers the best performance.

Disadvantages of coarse-textured soils (soils with high sand content) include poor knitting of turf root leading to shearing the turf from the soil, low water holding capacity requiring frequent irrigation and low nutrient holding capacity requiring frequent fertilization. In addition, adding a coarse-textured layer to the surface of fine-textured material can create distinct textural interfaces that inhibit water movement and cause aeration problems.

The second most important design characteristic for soils is adequate organic matter. Organic matter can vastly improve the low water and nutrient retention properties of coarse-textured soils. Over the long-term, organic additions can also promote aggregate formation in disturbed soil and help create favorable soil structure.

It has even been suggested that the addition of organic material to compacted soils can help make the situation more tolerable, however, this aspect is open to some debate. The key question here is the specific organic material to be added to the soil.

Organic materials range from the relatively inexpensive muck soil products to the very expensive sphagnum peat moss. A useful rule of thumb is to use organic materials with a relatively low percent of silt and clay-sized minerals.

ter, sulfur and iron or aluminum sulfate.

The best approach is to begin with soil material that has approximately the correct soil reaction. This makes maintenance of the appropriate soil reaction easier. It should be remembered that different vegetation will require different soil pH for optimum growth. Therefore, different soil materials or different management recommendations are required for various portions of the planting design.

The soil surface should be protected both during initial planting and over the long-term. Insufficient surface protection can lead to surface crusting, water runoff and erosion. Well-structured soils with strong aggregates can resist crust formation better than soils with poor structure and weak aggregates. Surface protection is also im-

portant after the plantings are established. Decline of the surface protecting vegetation under trees can also lead to soil degradation by raindrop impact and negatively impact tree vigor.

The final question is what soil resources are available to achieve the desired soil characteristics. Topsoil is a very dubious terminology, and the material that is called topsoil can exhibit a wide range of undesirable characteristics. Occasionally, you can be fortunate enough to be working on a site that is relatively undisturbed and has a nice native topsoil.

Amending soil at the site with materials such as sand and organic matter is the most cost-effective method, in terms of initial investment, for soil renovation. Generally, these materials are spread on the surface and rototilled into the existing

soil. This practice should be approached with a great deal of caution since it is difficult to achieve a uniform material without excessive working of the soil.

In addition, some commonly held concepts on soil mixing can lead to disastrous results. For example, it is often thought that a heavy-textured soil having a high percent of silt and clay can be improved by addition of small amounts of sand. Sand addition to a soil having poor structure to begin with, however, results in a soil that is very compact and massive, resembling concrete. The technology of soil formulation is relatively complicated and should not be treated casually.

The second option is importing topsoil to the site. Many commercial topsoil companies acquire soil from a variety of different development projects, leading to

inconsistencies in many products.

The best option is to purchase topsoil from a company that amends their topsoil with sand and organic materials off site to overcome soil deficiencies and produce a consistent product. The initial investment of a high quality formulated topsoil can certainly be expensive, but when compared to the long-term, may actually reduce costs associated with plant replacement, irrigation and general maintenance.

Any landscape design, whether at a new or existing site, should include a careful inventory of the soil. — Tom Kurtz and Ed McCoy ■

The authors are from Kurtz Bros. Inc., Cuyahoga Heights, Ohio, and from The Ohio State University Department of Agronomy, Wooster, Ohio, respectively.

Skyrocketing Prices Shoot Insurance Out of Reach

AN OUNCE OF PREVENTION is worth a pound of cure. Americans remember this commonly heard adage extolled by their parents, urging them to eat their vegetables at dinner and look before crossing the street.

This old saying holds true today as lawn and landscape maintenance operators examine their liability insurance needs. Specialists within this growing, yet still relatively small industry, as well as insurance experts emphasize safety, training, communication, incident prevention and claims containment when dealing with insurance needs.

But a caveat or two must be added to the old adage. Until the 1970s, though many companies naturally stress safety and doing

the job right, American firms felt secure in the belief that liability insurance protected them from legal claims brought by the consumer or worker from injuries or chemical contamination.

Today that pound of cure may be prohibitively expensive or simply not available at any price. Though the lawn and landscape maintenance industry may not have caused this insurance dilemma, it is considered a high risk group by insurance underwriters.

"We were thrown into a much higher risk pool than we deserve," said James Brooks, executive vice president of the Professional Lawn Care Association of America. "We should have done a better job of educating the insurance industry."

Product liability insurance expert Robert Onan Jr., a principal in the Minneapolis-based JPO Alliance Inc., explained the "U.S. judicial system has become strongly pro-consumer in recent years, due partly to a growing manufacturer's burden—the need to protect consumers not only from defective products, but more often than not, from themselves.

Dennis Dix, executive director of the Outdoor Power Equipment Institute, describes the current mood more simply. "We live in a litigious society."

At this point, the lawn and landscape maintenance operator may be asking why the explosion in punitive damage claims, regularly coupled with compensatory damage claims, is eroding his bottom line and giving him administrative headaches. What do class action litigation like asbestos and Agent Orange mean to lawn and landscape maintenance?

In the fall of 1985 and early 1986, Onan explained, the usual

"cyclical premium adjustments" became serious. Premiums went up from five times the previous years premium to 33 times that premium. Many companies could not get insurance at any price. Strangely enough, this often occurred without regard to whether the particular insured manufacturer had any adverse claim experience.

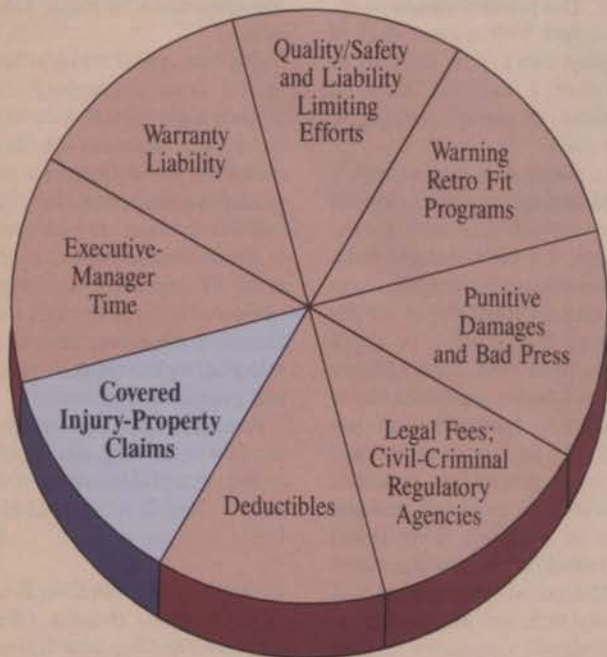
As a result, companies get \$5 to \$25 in protection for one premium dollar, rather than \$500 to \$15,000 in coverage. Onan added that lawyers' fees now account for 37 cents to 63 cents of every dollar spent on processing claims, a cost often subtracted from available policy limits. And most insurance companies no longer provide punitive damage coverage.

Onan estimated "about 15 percent of liability and safety dollars are covered by traditional liability insurance. The rest is self-insured or erodes the bottom line."

Though lawn and landscape maintenance operators aren't manufacturers, they are learning that it doesn't exclude them from liability. Onan said the "lawn has gone in the area of post-sale responsibility." He estimated 70 percent of U.S. court cases involve claims of defects in user manuals or other documents rather than the product itself.

Ewald Altstadt, director of operations for Lawn Doctor, points out that consumers or workers "aren't going to sue just the product company. They're

PRODUCT LIABILITY EXPENSES



Graph: JPO Alliance Inc. Based on 1988 data.



THE BEST WAY OUT OF THE INSURANCE CRISIS IS TO UNDERSTAND HOW WE GOT INTO IT.

of factors combined to bring about the insurance crisis. Insurers forgot that their financial model was based on sound underwriting—the basic principle of insurance coverage. And they raised rates in a furious price war because interest rates were high, they had no other income to make up for their losses.

Third, an explosion in litigation fueled by enormous liability awards in our civil courts made it virtually impossible for insurers to predict future losses and therefore set realistic rates. It's time to learn from our mistakes. The mistakes weren't made by insurance companies alone. By demanding ever lower rates and by allowing the civil courts to award ever higher liability judgments, society itself helped create the crisis.

And if we allow it to continue, society itself will be the biggest loser. Because the very capacity of insurers to write future insurance depends on their ability to build financial reserves and to reasonably predict losses. In fact, we've already seen reduced capacity in many kinds of insurance. The purpose of insurance is simply to spread risk. When the cost of covering the risks becomes exorbitant, we all pay. Through higher premiums

and ultimately through higher costs for the products and services provided by insured businesses. At AIG, we feel that the crisis won't be over until all of us in society stop pulling apart. And start pushing together to solve the problem.

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going to sue everyone in sight."

In case this discussion of the national liability insurance dilemma sounds far off and esoteric, operators may see the relevance through the recent experience of Alan Cook, president of Green Guardian Lawn Care. Cook said he lost thousands of dollars when the insurance carrier providing his pollution liability coverage notified him that "they went belly up."

Green Guardian, a smaller operator, provides both lawn and landscape maintenance services in the South Shore area, south of Boston. "The more chronic (liability) insurance problems (are) in lawn care," he said. "In landscaping, you do a project and it's done as long as there is no injury caused by workmanship or materials.

"But lawn care is going to be something that could bubble over into a mess for lawn care operators or anyone involved with chemicals," he said. "It's the type of business where the largest will survive. They'll be able to defend themselves against the

possible lawsuits or be able to deal with increased regulations."

Experts in both insurance and lawn and landscape industries agree that smaller businesses are at a distinct disadvantage and hardest hit by the liability insurance crisis.

Cook faces a "Catch 22" in that Massachusetts requires pollution liability insurance yet his insurance agent spent three months trying to find a company that would underwrite the state's requirements without success. The state then required Green Guardian to provide its clients with a waiver. "We had to in effect get permission from the homeowner," explained Cook. And yet he isn't aware of a single pollution incident.

Three years ago, PLCAA tried to start a self-insurance program to aid smaller operators. Even here there was a catch, Brooks said. "We tried to survey owner members and see what their needs were, but less than 8 percent responded."

According to Brooks, the lawn

and landscape maintenance industry was informed in early 1986 that major carriers doing business through the Insurance Service Organization would no longer provide pollution liability coverage. He said the Bhopal, India, incident "brought the situation to a head." More recently, the insurance industry has re-entered the pollution liability market, but at much higher prices and diminished coverage.

"You've got to be careful as to what you are buying. It's been a tough area for us and the industry. Most (companies) have been able to solve their problems of liability. Many are taking their risks," Brooks said.

Lawn and landscaping operators, experts maintain, must be prepared to face the pollution liability insurance problem for the foreseeable future. Experts agree that relief won't come until significant changes occur on a national basis in extreme pro-consumer public attitudes and strict liability litigation standards, as well as state and federal laws.

To counteract the negative publicity of the insurance crisis, industry trade groups placed ads in major media explaining the causes for the dramatic rate increases.

Industry consultant Ed Wandtke of All-Green Management Associates, Columbus, Ohio, advised firms how to isolate any liability risk exposure. He made these major points:

- Minimize risk exposure by using the right disclaimers in communications with consumers.

- Incorporate the business to protect any personal assets from attachments or seizure in any legal situation.

- Secure insurance coverage from a reputable firm. On this point, Wandtke, a senior consultant, warned: "The pollution liability issue is one that has and is being marketed by firms that don't truly have the coverage you think you are buying."

Wandtke said the lawn and landscape industry, including its trade groups and operators, are largely operating in the dark when it comes to the question of pollution liability insurance. "I don't think there is a single operator that has a handle on pollution liability or business interruption."

He added, however, that the insurance industry itself is in a confused state. Though a majority of states require pollution liability coverage, it may not be available in all states.

The pollution liability issue, Wandtke contended, "is one that's falling through the cracks. Because no one has been put out of business, the associations aren't paying any attention. If a state finds that half its operators don't have the coverage, then everything hits the fan." Wandtke estimates 60 percent of operators have pollution liability coverage.

In spite of difficulty obtaining pollution liability insurance and its high cost, Wandtke estimated there are less than a half dozen pollution incidents in the lawn and landscape industry each year.

Wandtke isn't sure whether lawn and landscape industry trade groups should become directly involved in helping to provide pollution liability insurance. Pest control trade groups tried the self-insurance approach

with mixed results.

In one instance, according to Mark Weisburger, president of the insurance brokerage of B & D. A. Weisburger, White Plains, N. Y., "the National Pest Control Association started its own insurance company, sold policies and went under." Weisburger's firm is recognized as the largest insurance broker serving the pest control industry. He added that the group's insurance company was only licensed in two states, and in some experts' view, wasn't sufficiently financed.

A year ago, on the other hand, the Florida Pest Control Association formed its own Property and Casualty Trust Program to improve loss control and keep losses down. Association spokesman Jack Caithness reported that loss ratios are in line, but the industry-spawned insurance company is still building up reserves and it's too early to determine if it will be successful.

The key to liability insurance relief in these two industries which use pesticides as a tool,

Wandtke asserted, is for the "pest control and lawn care industries to band together to have a voice in the legislative process to modify the rules to make them livable. Standing alone they don't have the finances and constituent clout."

He estimated there are 12,000 lawn maintenance operators and 60,000 pest control operators. One lawn maintenance operator, however, estimated the lawn maintenance industry, which has grown rapidly from a \$300 million to a \$3 billion industry, has only captured 15 percent of its potential business.

Brooks said the issue of pollution liability insurance may again be brought to the PLCAA's agenda. However, Wandtke somewhat tempers his view of the role of the lawn and landscape industry trade groups.

"One of the variables is the training and work ethic. That's not something that the associations can get involved with," Wandtke said, emphasizing these areas are the responsibility of individual

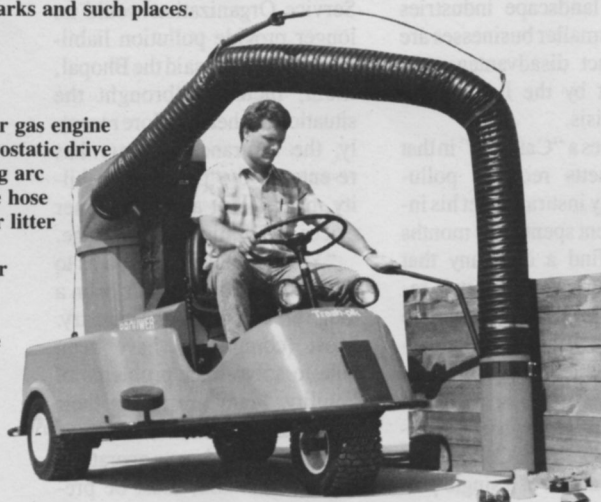
(continued on page 36)

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Liability
(continued on page 34)

companies.

The experience of the lawn maintenance industry's largest

franchiser, Matawan, N. J.-based Lawn Doctor, reveals the inconsistencies within the pollution liability insurance issue.

Altstadt reported that pollution liability insurance among its fran-

chises has increased operating costs 2 to 3 percent, but is viewed as a cost of doing business. However, its 10 franchise operations in Massachusetts are having trouble getting coverage.

Though the outlook for relief and solutions to pollution liability insurance problems may seem bleak, both practical short-term approaches as well as long-term

(continued on page 77)

SAFETY CRITICAL IN CONTAINING HIGH LIABILITY COSTS

CONSUMER AWARENESS, ENVIRONMENTAL CONCERNS and a more sophisticated and critical system of insuring businesses for their potential liability will be combined in the next decade to make safety even more important in the lawn and landscape maintenance industry.

"Primary (insurance) carriers (will be) far more sophisticated and produce many more rejections of careless manufacturers and distributors and those who do not have effective prevention, containment and defense programs," predicted Robert C. Onan Jr., a principal with The JPO Alliance Inc.

Today, in the lawn and landscape maintenance industry, safety and training is a top priority at a number of companies.

Lawn Doctor, according to Ewald Altstadt, director of operations, integrates safety into its management practices. The company makes a conscious effort to portray a positive image. Technicians working at various franchise operations wear standardized uniforms, respirators when handling dusty materials and protective boots.

Specialty products supplied by Spectrum Technologies range from temporary non-toxic spray colorants to a waterless, pesticide-removing hand cleaner.

Other examples of products with features for accurate and

safe performance include:

- Fine-Cut Flails made by Jacobsen/Textron, a division of Textron Inc., fit a variety of the manufacturer's tractors and includes a variety of safety features. The flails are recommended in areas where noise disturbance and risk of thrown objects must be reduced.

- HMC/The Green Machine's Commercial (Model 3040M), suited for industrial property maintenance, features an anti-vibration clutch housing to reduce operator fatigue.

- Protective polyblend knee-boots (16-inch) made by Bata Shoe Co., are gaining acceptance in the lawn and landscape maintenance industry. The two-stage injection moulded one-piece construction gives complete waterproof protection. Product information also indicates the boots — made of a blend of 15 different substances — are constructed for environments where severe conditions require a high degree of chemical resistance.

- Unsupported, chemical-resistant gloves are made by Ansell Industrial Products, a division of Pacific-Dunlop Ltd.. Tests found the Challenger Nitrile gloves, consisting of a man-made substance, to have good resistance to herbicides and pesticides.



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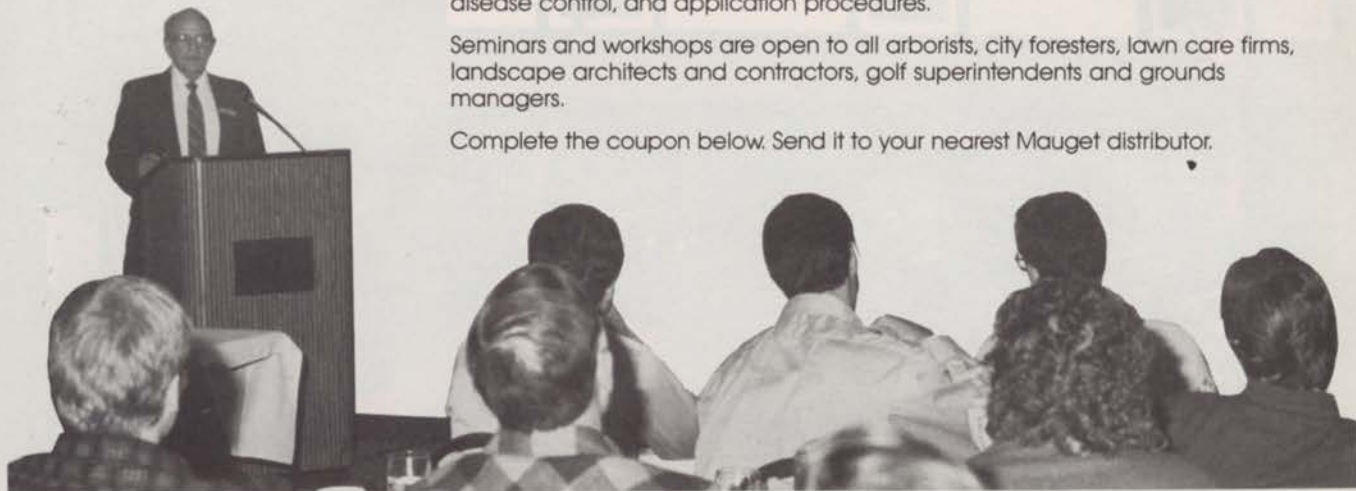
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America's Morbid Aversion to Risk is Threatening Society

IN JANUARY 1967 THE first Apollo spacecraft caught fire during a test on the launchpad. Three astronauts were killed. The nation was shocked and horrified, all the more so because the screams and scrambles of the astronauts could be clearly heard.

Although there was a congressional hearing, and some delay of the manned flights, the Apollo program went smartly ahead with the full understanding and support of the nation. Within 18 months, Apollo 11 landed on the moon, ahead of the deadline set by John Kennedy. The Apollo disaster was not etched on the public mind as a rebuke to America's confidence in its technology, or taken as the occasion to preach that Americans must learn the limits to their energy and power.

Nineteen years later, the space shuttle Challenger was destroyed before our eyes on television. It was a spectacular tragedy, the result of human miscalculation and technical failure, neither of which should have been present, perhaps, but both of which are understood risks in the still dangerous enterprise of space flight. Yet the prevailing mood in America so panicked NASA that it took almost three years to send up another shuttle. NASA even reached the stage, as members of its staff said, of taking so many precautions that it was in danger of enlarging, instead of diminishing, the possibility of malfunction.

In the 19 years between these tragedies, the idea that our individual lives and the nation's life can and should be risk-free has grown to be an obsession, driv-

en far and deep into American attitudes. Indeed, the desire for a risk-free society is one of the most debilitating influences in America today, progressively enfeebling the economy with a mass of safety regulations and a widespread fear of liability rulings, threatening to create an unbuoyant and uninventive society.

As many studies show, this is strikingly an American phenomenon, one that seems to have taken root in yet another distortion of the philosophy of rights underlying the Constitution, as if the Declaration of Independence had been rewritten to include freedom from risk among the self-evident rights to life, liberty and the pursuit of happiness. This morbid aversion to risk calls into question how Americans now envision the destiny of their country.

If America's new timidity had prevailed among the Vikings, their ships with the bold prows, but frail hulls would have been declared unseaworthy. The Norsemen would have stayed home and jugged. Columbus' three tubs would not have been allowed to sail; as it was, one was left wrecked on American shores. The Vikings and Columbus were exploring what was as unknown to them then as our solar system is to us today, and it is not only the practical achievements of such venturing that are frustrated by the desire for a risk-free society. Something of the questing endeavor of the human spirit is also lost.

The Vikings made sagas of their explorations, as European and English literature flowered during their great Age of Exploration. There once was, but there is not now, a promise of saga in America. Its literature has retreated into a preoccupation with private anxieties and fretting.

At Three Mile Island, the fail-safe system worked. The power station switched itself off. There was a scare, but no disaster. Yet Three Mile Island in the American mind is an emblem of catastrophe. Nuclear power in America, as in no equivalent industrial or industrializing nation, has been almost paralyzed, although it is the only sufficient, efficient and *relatively* safe source of energy that can avoid the greater risks of pollution and the "greenhouse effect." Of course there is a risk in nuclear power, and there should be thorough inspections and safeguards.

Of course, there is also such a thing as a level of risk that is unacceptable. But in America the threshold of tolerable risk has now been set so low that the nation is refusing to pay the inevitable costs of human endeavor. Stand beneath the majesty of the Grand Coulee Dam, or gaze up at the marvel of the Brooklyn Bridge — "O Harp and Altar," as Hart Crane sang of it — and count the number of lives lost in their construction. But then feel the power, even the beauty, of both dam and bridge, and weigh the cost of lives against the benefits they have brought.

The origins of the widespread refusal to accept a sometimes high level of risk as a normal and necessary hazard of life lie in the early 1970s. As America lost heart in the prosecution of the war in Vietnam, the energy of the dissenters — the vanguard of the "Me Decade" — turned to lavish care for the environment, the snail darter and their own exquisite, often imagined, physical and emotional well-being.

The simultaneous loss of faith in American technology was part of the same phenomenon; tech-

.....
The idea that society and our individual lives should be risk free has grown to be an American obsession.



nology, it was observed, not only fouled the environment, but had proved incapable of winning a war against guerrillas in the jungle. And beyond this, of course, has been the growth of the larger belief that science itself has somehow betrayed us, that it promises evil and not beneficence.

This loss of courage and faith has manifested itself in many ways, but it has found its most immediately dangerous expression in tort (liability) law. Tort law is not only threatening to make the economy uncompetitive, it is warping the American legal system and its judicial philosophy. As Peter W. Huber observes in *The Legal Revolution and Its Consequences*, "No other country in the world administers anything like it." Tort law was

"set in place in the 1960s and 1970s by a new generation of lawyers and judges. Some grew famous and more grew rich in selling their services to enforce the rights they themselves invented."

In November, a court in Albany had to consider a claim for \$1 million in damages against New York state, brought by a woman who, while she was sunbathing on the beach in a public park on Long Island, was hit in the neck by a Frisbee being tossed between a nine-year-old boy and a 20-year-old woman. Her lawyer contended that the Frisbee was a "dangerous instrument" that should not have been allowed on the beach. (Since the idea of the Frisbee was taken from the bakery of that name where the workers whizzed pie plates to each other,

rather than laboriously carry them, are we to assume that today the Occupational Safety and Health Administration would have stepped in to stop this skilled, efficient, rapid, but clearly "dangerous" method of conveyance?)

At least this woman's claim was thrown out. The judge observed that she could have moved to another part of the beach if she feared injury from these alarming flying objects. Consider also the mother who sued a baseball club because her son was injured by a ball fouled back to their seats. It may well be that they had chosen seats there because her son had hopes of capturing a foul ball as a trophy, in which case the risk was known and invited by the mother. In any event, blame cannot be said to lie with

A risk-free society has become an American obsession — a fear that includes activities of the lawn and landscape industry. Illustration: Keith Bendis.

the club, the hitter or the ball. Here we see one dangerous moral effect of America's growing fear of risk: a diminishing of the notion of individual responsibility of one's actions.

Claims of others' liability for our plights are, with the support of judges, lawyers and juries, producing a "tort tax" on goods and services. They amount to a \$300 billion levy on the American economy, observes Huber, that "accounts for 30 percent of the price of a stepladder and 95 percent of the price of childhood vaccines."

The development of tort law has been particularly vicious in its effect because of another phenomenon peculiar to the United States—the award of huge punitive damages (as opposed to nominal damages, intended only to compensate the victim for the actual injury inflicted). The flagrant injustice of many of these awards was illustrated in a case brought against the Monsanto Company that sought damages for 65 plaintiffs for alleged personal injuries from one

.....

Why are Americans more concerned about the risks of pollution than the budget deficit and war?

of the company's products used to make wood preservatives.

After the longest-running trial in American history, the jury awarded each plaintiff one dollar in nominal damages, but then, "in a burst of tortured reasoning," as Monsanto Chairman Richard J. Mahoney said, awarded \$16 million to the plaintiffs in punitive damages.

There is no justification for this. The Supreme Court has recently agreed to hear a case in which the constitutionality of huge punitive damages will be tested. In an earlier case, Justices Antonin Scalia and Sandra Day O'Connor observed that "this grant of wholly standardless discretion to determine the severity of punishment appears inconsistent with due process."

Meanwhile, the awards further frustrate, if they are not crushing, the spirit of innovation in American business. The Conference Board in 1988 conducted a survey of chief executive officers. It showed that uncertainty over potential liability had led almost 50 percent to discontinue product lines, and nearly 40 percent to withhold new products, including beneficial drugs. The fault lies not only with the "wholly standardless discretion" allowed to juries to determine the severity of the punishment, but with the present power of a single jury to decide what conduct is liable for punitive damages.

The result of all this, says Justice Richard Neely of the West Virginia Supreme Court, author of *The Product Liability Mess*,

is that "as a state court judge much of my time is devoted to ways to make business pay for everyone else's bad luck." When the step of a stepladder breaks because it was made of defective material, the payment of reasonable damages to the injured party is just. But as anyone with any household experience knows, sometimes a broken stepladder is just a broken stepladder, the result of bad luck; and surely each of us has the individual responsibility to approach any stepladder with some caution.

The prevailing attitude in America is that people should be safeguarded against not only negligence, but bad luck. It has become all too easy for lawyers to manipulate jurors who generally are scientifically ignorant and believe that they can be guaranteed a risk-free society.

One confirmation that the obsessive American aversion to risk is a growth of the last two decades is the proliferation in that time of academic and quasi-academic literature on risk, with such titles as "Public Percep-

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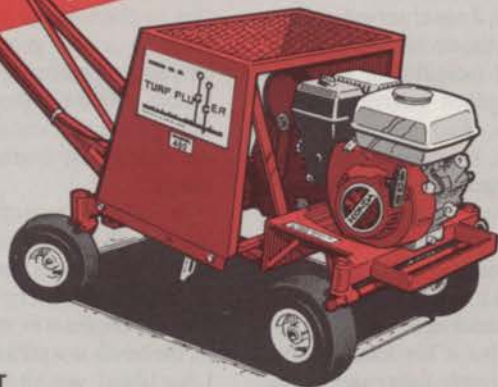
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tions of Acceptable Risks as Evidence of Their Cognitive, Technical and Social Structure." The conclusions of much of this literature were drawn together in 1982 by Mary Douglas and Aaron Wildavsky in *Risk and Culture*, their own still impressive critique of this phenomenon. Among the interesting questions asked by the authors is "Why is asbestos poisoning now seen to be more fearsome than fire," especially when asbestos was introduced and welcomed as a prevention of injury or death by fire?

The question is made even more interesting by Mahoney's revelation that Monsanto "abandoned a possible substitute product for asbestos just before commercialization. Not because it was unsafe or ineffective, but because a whole generation of liability lawyers had been schooled in asbestos liability theories that could possibly be turned against the substitute."

In principle, Douglas and Wildavsky note, a society selects which risks it will worry, and

perhaps even legislate, about in the hope of diminishing or eliminating them. But why do Americans seem to be more concerned about the risks of pollution than about the budget deficit, economic stagnation and even war?

Who are the people who promote the intolerance of risk in contemporary America, and select which risks the society should worry about? It is reasonable and almost certainly correct to assume a link between the attitudes that have led to the slowing of such new and promising industries as space technology and nuclear power, the gross development of liability law and litigation, the concern about environmental pollution, and the finicky attention to one's bodily health, comfort and even purity.

Together they form a syndrome. The people who are environmental extremists are likely also to be exorbitantly fussy about the risks to their bodily purity from a multitude of pollutants, natural and artificial, not much concerned about the pro-

gress of the space and nuclear power industries, automatically against manufacturing companies in liability cases, and generally uninterested in creating and maintaining a productive industrial economy.

From such people are drawn the staffs and membership of the special interest groups that have diligently promoted America's risk aversion. Douglas and Wildavsky counted some 75 national environmental groups alone, and thousands more at state and local levels. By something like sleight of hand they represent themselves as public interest groups, but in fact these risk-averse groups speak for a very clear special interest: those who work not in manufacturing industries, but in the now vast services sector, including government and corporate bureaucracies. In short, they do not get their hands dirty.

So it is easy for them — it does not violate their "class interest" — to be indifferent to creating a productive industrial economy. It is no sweat off their backs if

a manufacturer is closed down, and its workers laid off for environmental reasons. The risk-averse groups are drawn from a privileged class.

Since it is in the interest of these groups to multiply regulations and strengthen their control of the economy, they have encouraged the growth of government bureaucracy (federal, state and local). The federal environmental agencies have grown like a coral reef into this bureaucracy and are as indestructible. Since their bureaucrats also wish to keep their paper-shuffling jobs, they work hand in glove to promote yet more regulation of the manufacturing sector of the economy.

One of the reasons why an aversion to risk has taken hold in America is the manner in which the American political system has developed during precisely the same two decades as the growth of the movement for a risk-free society. All the influences that have been observed and analyzed — the decline of parties, the proliferation of committees

(continued on page 74)

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Innovations Meet Turf, Roadside Spraying Popularity

WHEN GREEN PRO Services invented its first multiple tank IPM spray unit to the lawn care industry nearly 10 years ago, the industry barely took notice.

Today, as they say, is a different story. With a trend toward sleeker, more versatile spray units, Green Pro's units are selling like hot cakes.

"Admittedly, we were a little ahead of our time back in 1979," said Richard Hawkes, vice president. "They weren't very well accepted based on what ChemLawn was using, but it seems that the market has finally caught up to us."

As more companies go the full-service route, the days of the huge spray tanks are gone. Instead, low profile truck beds holding more compact models have steadily become the norm.

The future will require even

50-gallon specialty tanks, plumbed through a single pumping system and dual hoses/electric hose reels.

The unit was designed by Supervisor Bill Ferguson from Green Pro's lawn, tree and shrub care division in New York.

The dual hose set up makes spray preparations much faster, according to Ferguson, because he no longer has to contend with clearing the materials from the previous spray out of a single hose. He keeps a basic fertilizer mix in his main tank, using one of the 50-gallon tanks for insecticides, fungicides and other herbicides.

"No matter what size company you have, you still need a check-back unit," Hawkes said. "This (Neptune) allows you to do that as efficiently as possible, since you're usually not getting paid on a callback."

The company has also made revisions to its Nautilus and Trident units. The three-tank Nautilus system is essentially the company's twin-tank sprayer with a 30-gallon tank added.

"The small third tank gives applicators the ability to prepare special mixes on site," Hawkes explained.

"If a lawn needs a fungicide, for example, you only have to pay for the material for one lawn, not all the lawns sprayed for that day."

As Green Pro sees it, the Trident is "the sprayer for the 1990s." It's furnished with four separate tanks equaling a 650-gallon capacity. Each of three 200-gallon tanks is filled through an air-gap antisiphon system. The 50-gallon custom mixing tank is at curb side for fast and easy mixing.

"Acceptance began three or four years ago with operators wanting multiple tank units,

especially the small to mid-sized companies," Hawkes said. "People want more tanks. The industry is showing a need to be completely versatile to be able to do a lot of jobs at one site."

As the turf market becomes more mature to the ways of the spraying industry, manufacturers are learning a lot from the ag market, according to Kent Hahn, president of Hahn Inc. Hahn just introduced a 300-gallon utility vehicle.

"It's the first machine of this capability designed for turf. Most vehicles (today) are between 100- and 150-gallons," Hahn said.

The utility vehicle is designed for any wide open area such as a condominium complex, athletic field or an estate, and is noted for its maneuverability.

With a full 300-gallon tank, turf loading is 12 psi. The unit is powered by a 35-h.p. engine and offers full hydrostatic drive. The low center of gravity and sharp turning radius allow this unit to be used in numerous applications. Several other attachments will be available in the near future.

Hahn sees calibration becoming more accurate and precise as spraying equipment continues to progress, including more use of automatic calibration to control spray output. Two-and-a-half years ago, Hahn introduced a system with the ability to sense the speed of the vehicle and adjust the spray flow accordingly.

"There's still a lot we don't know about this industry," he said. "They'll be more research on calibration, safety, nozzles and ways to determine the best spray particle size."

Perhaps the newest and most unique addition to the line of available application equipment is the Expedite™ from Monsan-

to Company.

Expedite, formerly the Nomix, is a complete pesticide delivery system, consisting of a lightweight lance with easy-to-use, fingertip controls and ready-to-spray specially formulated pesticides.

All Expedite pesticides, including a weed and grass herbicide and a broadleaf herbicide, come premixed in specially designed sealed containers. The operator just connects the lance hose into the pesticide carton and primes the lance.

A five-liter container of the formulation covers the same square footage as a three-gallon backpack sprayer refilled 28 times, based on a four-quart/acre rate, according to company officials.

Expedite is said to significantly reduce worker exposure to pesticides because of its completely closed system. The system eliminates mixing and subsequent opportunities for mixing errors.

The product was test marketed last fall and, pending design changes, will be released under its new name, Expedite™ this summer. Initially, Monsanto will be concentrating sales efforts in the East, Southeast and Midwest.

Through its uniform droplet application technology, Expedite lets the applicator vary both droplet size and swath width by turning the speed control on the lance handle. The faster the speed, the smaller the droplet and the wider the swath. A rechargeable battery in the lance handle allows the Nomix to run up to 20 hours.

Monsanto acquired worldwide rights to the technology from the United Kingdom.

These are just a few of the industry's application offerings. But there's plenty more from which to choose. An operator can probably find just about anything

.....
As the turf market matures, manufacturers are learning a lot from the ag market.

more versatility in spray units, as well as manufacturer ingenuity in designing equipment which makes less and less of the actual spray system visible to the consumer.

As evidence of the interest in Green Pro's models, sales of its new IPM sprayer line have been brisk in the first two months of 1989. Green Pro's most recent spray unit is the Neptune, a three-tank system suitable for the back of a pickup truck. The skid-mounted Neptune uses a 150- or 200-gallon main tank and two

he's looking for to fill his spraying needs.

Other new spraying units include the motorized backpack sprayer from Solo, a versatile chemical and seal coating unit from Jevco Manufacturing, a new electric-powered sprayer kit for the LESCO standard or hi-wheel spreader, a low-profile, wide applicator unit from Cushman, an economical mist sprayer from Automatic Equipment Manufacturing, a complete line of sprayers from C & S Turf Care and a greenhouse sprayer from Agrotec.

Solo's model 420 motorized backpack sprayer provides high pressure while easing operator effort. It offers a five-gallon capacity tank and is powered by an air-cooled, two-cycle 25cc engine that delivers up to 7,500 rpm and produces a maximum operating pressure of 132 psi.

Jevco's Max 4 portable pump unit allows operators to seal coat driveways and other asphalt paved surfaces, and gives them a backup for applying chemicals and fertilizers, said Ervin Shook, president.

The Max 4 is ideal for lawn maintenance contractors who want to add seal coating and application of non-skid coatings to their service package, Shook said.

The one-man unit features interchangeable quick-disconnect wands and applicator heads, making it possible to convert the equipment for various applications in seconds. Designed primarily for small contractors, Max 4 will also find many applications for spot jobs and finishings.

LESCO's SpreaderSprayer spot-sprays liquid products at the touch of a button while the spreader is being used to apply

a granular product. This permits applications such as spraying herbicide on isolated broadleaf weeds while applying granular fertilizer to a large turf area.

The SpreaderSprayer features a stainless steel, folding boom with two FloodJet® spray tips that can be adjusted to spray a product over the same area as the granular product pattern. A three-gallon polyethylene solution tank and a battery which provides seven hours of continuous spraying between charges are also included.

The new Cushman Broyhill sprayer is available in 120- or 150-gallon capacities, with a sprayer which can handle a wide variety of chemicals with spray gun or boom application.

The tanks are low-profile and custom designed to match Cushman's turf truckster. The low-profile design also provides easier access and better operating visibility.

Mixing action is evenly distributed throughout the tank by the sprayer's quadra-jet agitation system. Agitator flow is provided at maximum pump pressure

even if the boom or spray gun pressure is reduced or shut off. Outer boom protector guards and patented four-way spring tension hinges prevent damage if the outer boom strikes an obstacle.

Automatic's MS-25 mist sprayer is an economy sprayer that can cover large areas quickly, according to Jay Hesse, marketing director. The PTO-operated sprayer covers up to 100-foot swaths at speeds up to 12 miles per hour. The polypropylene roller pump feeds nozzles into a jet stream produced by a centrifugal fan, creating a high-speed cloud of active ingredient.

C & S Turf Care offers a variety of sprayers ranging from gas- and electric-powered to twin-tank, tree and pull-behind sprayers. The units are designed for easy installation into the appropriate size pickup and built for continuous use.

The company's newest model, The Protank® tree sprayer is versatile enough to handle duplicate residential tree and shrub care as well as commercial landscape maintenance jobs.

For the greenhouse growers, the new mini-pro care greenhouse sprayer from Agrotec is designed to operate easily within the limitations of these environments. The sprayer is equipped with a 4.4-gallon per minute diaphragm pump that delivers 275 pounds of pressure for adequate mid-size tree spraying or reaching distant corners.

The handgun kit features a high reach, pistol type grip with adjustable spray patterns.

Constructed of linear polyethylene, the 30-gallon tank incorporates UV absorbers to prevent sunlight deterioration. The tank also has a cut off valve, easy to clean line strainer with stainless screen, a drain plug for easy cleaning and an anti-splash lid for easy filling and cleaning.

That's a brief rundown of a variety of spraying systems. But look for spraying system innovations to heat up as turf and roadside spraying are said to be the two fastest growing areas in the spraying industry. — Cindy Code

The author is Editor of ALA/Maintenance magazine.



Spray application innovations in line with industry growth. Photo: Raven Industries.

Proper Application, Good Techniques Bring Results

IN A STUDY CONDUCTED by Nebraska ag engineers it was found that two of every three pesticide applicators were making significant application errors — the result of inaccurate calibration, incorrect mixing, worn equipment and failure to read the product label.

"Nozzles were mismatched, plugged or badly worn, screens discarded, pressure gauges broken or inaccurate and tank markings erroneous," said Elbert Dickey, Nebraska Extension engineer and project coordinator.

All these problems caused significant errors among the 133 applicators tested, and there's a good chance those errors are causing the same problems for many more commercial applicators.

The impact of these application mistakes is summarized in two tables. The first compares the measured application rate to the rate applicators estimated they were applying. Errors here indicate a poor job of equipment calibration. The second indicates where the mistakes were made.

Project leader Allen Rider explained that errors of +/- 10 percent can be considered acceptable. Only 37 of the 95 sprayers surveyed were within those guidelines, meaning six of every 10 missed their estimated application rate by more than 10 percent. Of those, 32 percent under applied by an average of 30 percent. The maximum under application was 59 percent.

Nearly a third of the sprayers

studied over applied by 10 percent or more. The average over application was 35 percent and the maximum 83 percent.

MISAPPLICATION HURTS. Even if chemical application mistakes don't hurt your pride, they're bound to damage your pocketbook. The most direct method is by over application.

In a calibration video prepared by The Milliken Chemical Co., Inman, S.C., for the Professional Lawn Care Association of America, basic liquid calibration and application techniques are discussed. Although each company must adopt a program that complements the individual company's services, the video offers some basic steps to proper calibration including the following.

APPLICATION RATE. A lawn care company's standard application rate is measured in quantity of liquid applied per unit area. This is usually expressed in gallons/1,000 square feet. The application rate is a function of: equipment, spray delivery system, product, target, growing conditions and operational considerations. The objective of calibrating and practicing spray technique is to apply the prescribed gallons/1,000 square feet consistently in a uniform practice.

Typically, the swath width of lawn care spray delivery systems range from three to 10 feet. A standardized height (and/or movement with certain hand held spray delivery systems) will assure that a constant swath width is maintained. During the training it is important that an applicator learn to operate the spray delivery system to maintain this swath width.

EFFECTIVE SWATH. Simply

stated, the effective swath is the total swath width minus the amount of swath overlap. Each particular type of spray delivery system has a characteristic degree of tapering from the center of the pattern where the rate of application begins to lessen.

Using the swath distance for widths, the length of calibration blocks may be determined. Setting up the total course area in 1,000-square-foot increments provides the applicator with experience of the perception for this unit of measurement and simplifies calculations.

DETERMINING WALKING SPEED. Once the dimensions of the calibration course are established, the walking speed may be determined by timing the trainee while covering the course with the effective spray swath. Alternatively, if it is necessary to calculate the miles per hour walking speed for a particular calibration equation, the following equation may be used:

$$\frac{\text{distance (feet)} \times 60}{\text{time (seconds)} \times 88} = \frac{\text{walking speed}}{\text{mph}}$$

Thus, if 100 feet is walked in 20 seconds, then:

$$\frac{100 \times 60}{20 \times 88} = 3.4 \text{ mph}$$

The walking speed is expressed in feet per second or mph for the line and in seconds per coverage of the calibration course.

Calibration is the process of measuring and adjusting the amount of the liquid mixture applied to a given area. There are a variety of formulas and equations to calculate the equation for calibration. However, a basic equation uses coverage time times the flow rate, equaling gallons per 1,000 square feet. ■

ESTIMATED APPLICATION RATE vs. ACTUAL APPLICATION RATE

Rating	Applicators Within Rating		Misapplication Percent Error	
	Number	Percent	Average	Maximum
Good (±) 10%	37	39	NA*	NA*
Under	30	32	-30	-59
Over	28	30	35	83

*Not applicable.

Table 1.

WHERE APPLICATORS MADE MISTAKES

Error	Percent of applicators that erred	
	More than ±5%	More than ±10%
Calibration	49%	46%
Mixing	8%	5%
Both	30%	12%

Table 2.

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Alternatives to Spending a Fortune on Your Equipment

THANKS TO A GROWING trend by manufacturers of lawn and landscape maintenance equipment to set up flexible leasing and financing agreements, a large piece of the overhead pie is getting much easier to swallow.

Both established businesses and start-up operators are turning to leasing plans in increasing numbers. Doing so, they are taking the burden off the company's ability to come up with the necessary capital required to buy a new truck, mower, sprayer, etc.

To accommodate their customers' ability to pay, manufacturers are offering varied payment schedules, low minimum leases and alternatives for end-of-lease buy outs. It's still a relatively new concept — in most cases not more than four or five years old in this industry — but many see it continuing to grow.

"It's a very easy way for someone just starting in the business to get the equipment they

need," explained Terry Waak, general accounting and credit manager for the Cushman Division of Outboard Marine Corp., Lincoln, Neb. "This is especially true in the lawn care industry where people aren't flush with capital for acquisitions. With a lease you don't have to have a big outlay of cash before you can start earning."

Leasing isn't always the best choice, but in many instances it can benefit a business by freeing up capital funds. In addition, lease payments are usually tax deductible.

New business operators are generally wary of leasing plans because of their limited credit background. Industry experts, however, said it really isn't difficult for a start-up business to get a lease.

"We will do a lease for a new operator. In most cases all it takes to secure a lease is a personal credit application," said Mike Bush, account executive for Bush and Cook Leasing, Wilmington, Ohio. Bush said he has confidence in an individual's ability to take the equipment and make money with it. "We have a real low delinquency rate," he added.

Sal Rizzo, president of Salsco Inc., Cheshire, Conn., said his company will also lease to a new business.

"Any one of our dealers or customers who wants to lease a product just needs to call me and I will turn it over to one of our leasing agencies. They will have an answer within 48 hours," he said. "A lease doesn't consume their cash flow or ruin their line of credit. This is becoming very big in the industry. We have creative payment plans that allow heavy summer payments and lighter winter ones."

The approval rate on leases sub-

mitted is generally high in the lawn and landscape maintenance industry. Bunton Co., Louisville, Ky., claims a 70 percent approval rate for their customers, while Cushman boasts as high as a 85 percent to 90 percent approval rating.

The seasonal nature of the lawn and landscape maintenance industry is another reason leasing is gaining in popularity. In many areas, money is only coming in six months out of the year. With this in mind, a number of manufacturers make special provisions in their payment schedules to allow heavier payments in the summer months.

Snapper Power Equipment, McDonough, Ga., now offers a "six plus six" program since acquiring F.D. Kees of Beatrice, Neb. — the first company to offer such a plan. This type of program, which is designed for lawn and landscape businesses and other related industries, allows a company to pay more during their earning months.

"Leasing is more convenient than straight financing, and with a six plus six program it becomes even more so because the payments match their cash flow," said Jim Jenkins of Snapper.

According to Debbie Ellis, Bunton's 90-day plan works like this: A customer fills out an application just as if he was going to lease the equipment, but without making advance payments. At the end of the 90 days he has the option to pay off the equipment or to go on with the lease.

Exmark Manufacturing Co., also of Beatrice, Neb., offers a similar six plus six leasing program over a 36-month period with lower interest rates from October through March. And Encore Manufacturing, Beatrice, has what they call a "six plus six

Operators can build-up equipment through leasing. Photo Jacobson.



HOW TO CHOOSE A LEASING COMPANY

IF, AFTER CONSIDERING BOTH THE pros and cons, the lawn and landscape business owner decides to lease, careful consideration should be given to choosing a leasing company.

If, like many industry business owners, you want service and continuity in your relationships with a lessor, you should look for a company with a reputation for stability and one that is not highly dependent on the old investment tax credit and fast depreciation schedule. Such a company is more likely to be around when you need to upgrade your equipment.

You can often get attractive rates from leasing companies that are looking for depreciation. For instance, the Tax Reform Act of 1986 eliminated certain tax breaks on which insurance companies, regional banks and savings and loan associations used to rely. Now, in order to generate new tax benefits, they are expected to move into the leasing market in a big way.

Some leasing companies can offer better terms because they specialize in certain kinds of equipment. In computer leasing, for example, a lot of companies were burned by the rapidly changing market and got out of the business. The ones that survived learned how to estimate residual value despite the fast-changing technology. Since they are confident of their ability to dispose of equipment after a lease expires, they can offer a rate that doesn't include a large cushion for error.

Major leasing companies can offer good terms for the same reason. They have entire

divisions that specialize in marketing old equipment. To attract new customers in a competitive marketplace, some major leasing companies also offer access to service facilities that allow lawn and landscape businesses to benefit from the discounts they get on bulk purchases of replacement parts.

This will help maintenance operators realize savings normally available only to large corporations. If considering this kind of lease, compare the leasing costs with the cost of leasing elsewhere, plus the cost of a service contract.

Leasing from the equipment manufacturer can offer advantages, too. Manufacturers often provide financing as a way to maintain customer contact. They make it easy to finance upgrades and improvements and they provide trade-in programs allowing lawn and landscape operators to exchange equipment for something more advanced before the end of the lease term.

Furthermore, since many manufacturers often use their leasing programs as sales tools, they may have more relaxed credit standards than independent leasing companies.

Be aware, however, that not all manufacturers — not even every leasing company — offer true "tax-oriented" leases. Although they are called leases, those arrangements often are conditional sales agreements and the lease payments may not be fully tax deductible. — *Mark E. Battersby*

The author is a tax and financial adviser in Ardmore, Penn.

easy lease" with payments over 36 months, adjusted to be higher during the income producing months of April through September.

Many companies are also offering a 90 days same as cash option to make it even easier on the commercial operator. Encore offers such a plan with payments spanning a 12- to 36-month period. The equipment is in the customer's hands immediately, but decisions on leasing or purchasing are postponed for three months.

Cushman has the same type of 90-day plan, but they also go a step further in offering quarterly, semi-annual and annual payment plans to make sure each customer can have the lease that best suits their needs. These can be paid off over 36, 48 or 60 months.

Even with the wide variety of options available to the prospective lessor, it can still be difficult for the small operator to find the right leasing program. Bush said that's where his company experience in leasing, and their "fleet buying power" can help. "We can customize a program for the particular needs of a company."

Since Bush and Cook buys thousands of vehicles every year, the manufacturer will give the leasing company extra savings that they can pass on to the lessor.

The particular equipment that can be leased from these various manufacturers and leasing companies ranges from mowers and spray trucks to seeders and aerators. Many manufacturers go as low as \$1,000 for their minimum lease. Normally, items in the \$3,000 to \$6,000 price range make for good leases.

Gerald Haney, president of The Lawn Works, an Avon Lake, Ohio, landscape management company, leased equipment for

the first time this past year.

"It's getting difficult to reach into my cash reserves for a piece of equipment that costs almost as much as a vehicle," he explained. Previously, Haney financed such purchases through a bank, but discovered a lease is much easier. "I just had a simple form to fill out."

Haney plans to buy his equipment at the end of his lease for just above 10 percent the original value. He said it would be impossible to find a piece of used equipment at that price. While this represents a typical buy out situation, the lessor has a variety of options even at the closing stage of the agreement. Many companies offer a \$1 buy out at the end of the lease, while others stay closer to the 10 percent figure.

It's not hard to see why leasing, as opposed to the outright purchase of equipment, is on a steady increase with all the fi-

ancial options available. Nearly every major manufacturer offers some kind of leasing package. Still, there's a number of companies that haven't bought into the leasing idea, because of its relative newness.

In just the past four or five years the number of businesses that lease has risen sharply. "The percentage of customers leasing is about 50 percent of our (Bunton) distributor dealer network," Ellis said. "In the future we look for 80 percent to 90 percent of that network."

Waak of Cushman said 10 percent of his customers are now leasing, but he fully expects that number to grow.

So don't give up if you run into a stone wall at the bank. There are options, plenty of options, when you look into a lease. — *Cameron Smith*

The author is a free-lance writer based in Cleveland, Ohio.

Granular Formulations Continue to Interest Turf Managers

THERE ARE SOME RELATIVELY NEW TURF INSECTICIDES on the market for 1989 and some new formulations expected by the end of the year.

In general there appears to be a continued interest in the development of granular formulations for use on turf. More and more commercial lawn care operations appear to be moving in this direction, and many golf courses are expressing a preference for granular materials.

Most university field trials show that there is no significant difference in performance of liquid applications versus granular applications, at least in controlling white grubs, assuming each is applied in accordance with label instructions at the appropriate rate. (Both application technologies have their own advantages and disadvantages).

Following are comments on some of the turf insecticides available on the market for 1989. For lack of a better way, they are discussed in alphabetical order by trade name.

ASPON (*propyl thiopyrophosphate*) is listed in several states' turf recommendations for use against chinch bugs or sod webworms. The active ingredient (propyl thiopyrophosphate) is apparently particularly effective on chinch bugs, but the material does not seem to be readily available in many parts of the country.

DIAZINON recently underwent a review by the Environmental Protection Agency and its label was changed to reflect the toxicity of diazinon to wild fowl (notably ducks and geese). Diazinon cannot be used on

golf courses or sod farms anywhere in the United States. It can be used (at the new application rate of four pounds AI per acre) on home lawns and certain other kinds of turf. It is available in a wide range of liquid (emulsifiable concentrate) and granular formulations from a variety of formulators. It remains a consistent performer and serves a very useful role as a general purpose insecticide for use in lawn and garden settings.

DURSBAN (*chlorpyrifos*) is an excellent insecticide for use against surface feeding insects (chinch bugs, sod webworms). In some instances, the active ingredient (chlorpyrifos) is rapidly adsorbed to thatch. Dursban is available in a wide range of liquid (emulsifiable concentrate) and granular formulations from several formulating companies.

MAVRİK (*fluvalinate*) is a synthetic pyrethroid which has been used for several years on trees and shrubs. More recently fluvalinate has been labeled for use on chinch bugs and other surface feeding insects. Like most pyrethroids, it tends to act quickly, primarily as an irritant, but does not remain active for more than a couple weeks in most cases.

MOCAP (*ethoprop*) has recently been made available in a new formulation, a 5 percent granular. Many turf managers will remember that the former formulation (a 10 percent granular) was very unpopular in home lawn settings because of a strong and unpleasant odor. In addition, the 10G formulation was the most toxic material available for use on home lawns. The new 5G formulation is much safer to handle (dermal LD50s

Insecticides can control such pests as the leafhopper, tent caterpillar, chinch bug and sod webworm. Illustrations: Rhone-Poulenc Co.





Illustration: Rhone-Poulenc Co.

in the same range as most other turf insecticides), generally does not smell and does not release as much dust during the application. While the question has not been resolved in all states, Ethoprop 5G apparently will be suitable for use on athletic fields— as long as the material is watered in and the area dries before athletes return to the field.

OFTANOL (isofenphos) has been on the market for several years now. It is available as a flowable formulation and in a variety of granular formulations, some of which are combined with fertilizers. Isofenphos is probably best suited for control of soil insects such as white grubs. Although not known for killing grubs rapidly, it generally remains active for 10 to 12 weeks — longer than many materials currently available.

In some places (often very localized areas) oftanol has been used repeatedly for several years, and its performance has dropped off markedly. In many cases this observed drop in performance was due to problems in application (improper calibration or overlap, inadequate water), but in some cases there has been a natural phenomenon called microbial degradation which leads to a rapid breakdown of the active ingredient before it has a chance to kill the grubs in the soil.

Turf managers should consider alternating use of isofenphos with other insecticides in those areas where it has been used for more than three consecutive years and no longer appears to be working as well as it did in the first years of use.

PROXOL and *DYLOX*, two products with the same active ingredient, are insecticides often used to clean up "hot spots." The active ingredient (trichlorfon) moves through thatch more rapidly than any other

turf insecticide. It also kills insects much more rapidly than other materials currently available. As a result, an applicator may very well see several dead grubs (or sod webworms or whatever the target may be) a day or two after an application is made. Depending on the situation, the product may not always be the most prudent route to insect control.

Dylox is currently under an EPA-mandated review for all commodities, because it moves through thatch and soil so readily. Turf managers sometimes save Dylox for use as spot treatments to clean up infestations which develop unexpectedly.

In some areas of the country, Dylox is available only as an 80 percent soluble powder (80SP). Other areas of the country have reasonably good supplies of a 5 percent granular formulation. Be aware, however, that the shelf life of the granular material is much lower than that of granular formulations of other insecticides. Do not store granular Dylox for more than a few

(perhaps six to eight) months.

SEVEN (carbarly) carries a turf label on at least some of its formulations, and has been used on a variety of insects. Its performance on white grubs may be inconsistent, but it is usually very effective on sod webworms and cutworms. It is available in a variety of formulations, but most commonly is found in a flowable form.

TRIUMPH (isazophos) is the newest turf insecticide, having just appeared on the market last year. The active ingredient (isazophos) has been around in university trials (known as CGA 12223) since the mid 1970s, and it consistently looked very good on a variety of insects. The manufacturer, Ciba-Geigy, finally received a federal label in 1988 for Triumph 4E for use by commercial applicators on home lawns and some other turf. The company anticipates having a 1 percent granular formulation available for use on home lawns by the end of 1989.

Triumph seems to combine the best of both worlds — it works reasonably quickly on grubs and

yet has a fairly long residual. As a result, you can expect to see some dead grubs within two to four days after application, but it will remain effective for six to eight weeks and even longer in some cases.

The main concern about Triumph is that it is extremely toxic to fish. As a result the company is choosing to proceed cautiously in its efforts to expand the label. A number of states have been granted 24-C (state) labels for use on greens, tees and aprons.

TURCAM (bendiocarb) is another relatively new material in the turf world. It is available as a 76 percent wettable powder (76WP) and as a 2.5 percent granular. One of its selling points is that it is a carbamate, whereas virtually all of the insecticides currently on the turf market are organophosphates.

It works reasonably quickly and has a "middle of the road" period of residual activity. Many managers have been using it to replace oftanol in settings where oftanol's performance has been dropping off, and have reported very ac-

ceptable results. It is more expensive to apply than most of its competitors, but apparently has not been subject to many failures.

CONCLUDING COMMENTS.

There are a number of good turf insecticides on the market and most of them are available in liquid and granular forms. Some work quickly, while some persist more than others. It becomes the responsibility of the turf manager to do his homework before he makes an insecticide application — choose the material best suited to do the job at hand.

Most of these materials are available in several formulations, some of which are meant for use in agricultural settings. Be sure that the material and formulation you select are indeed labeled for use on turf — and follow the label instructions. They are there for a reason! — *Patricia Vittum* ■

The author is an associate professor of entomology at the University of Massachusetts Surburban Experiment Station, Waltham, Mass.

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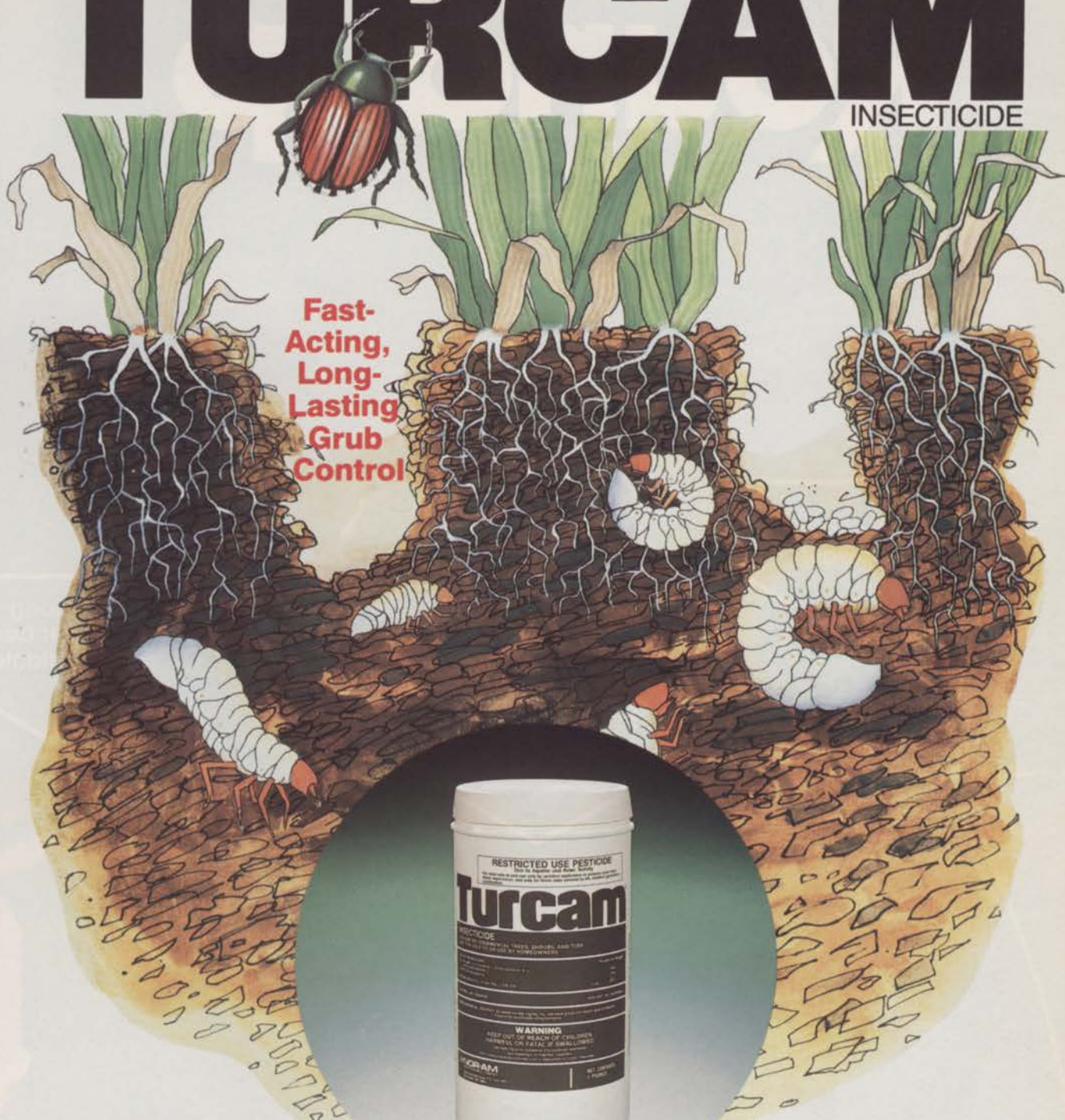
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Good Judgment, Proper Timing Needed for Renovation

IF YOU READ THE TRADE PUBLICATIONS OR LITERATURE from equipment and chemical companies, you know all about renovation. Promotional literature makes it all seem very simple. All you have to do is spray out the existing turf with a non-selective herbicide, dethatch and/or core cultivate the area, plant the grass of your choice, fertilize, water, and presto, you have a stunningly beautiful lawn that is dense, green and weed-free.

Does it really work like that? Is renovation a foolproof method for improving or replacing turf infested with weedy grasses or damaged beyond repair by insects or diseases? Is it the easy way to convert your lawn to the latest miracle grass created by turfgrass breeders? The answer is yes or no, depending on what you do, when you do it and how carefully you do it.

Like all cultural practices, renovation requires good judgment and proper timing to give top quality results. The purpose of this article is to guide you through some of the critical steps in renovation of lawns in temperate climates and to point out where mistakes are likely to occur. In addition, it will summarize the key steps necessary to achieve success with renovation.

WHAT IS RENOVATION? Renovation involves establishing new turf from seed without removing the old sod or preparing a seed bed via tilling and grading. We normally renovate turf areas in order to improve the quality of existing turf and/or change the grass species or cultivar to achieve a new look, improve wear tolerance, increase disease resistance, etc. To achieve these goals, there are three basic strategies you might use.



Renovation involves establishing new turf from seed without removing the old sod. Photo: Salsco Inc.

SIMPLE OVERSEEDING. The plan here is to simply introduce seed into existing turf by whatever means you have available. The most effective planting technique is to use a slicer seeder machine which cuts a slit in the turf and drops seed directly into the slit. Seeding can also be done by coring the turf area, broadcasting seed and then dragging the seed into the aerated holes and turf canopy.

In heavy wear areas, seed can be broadcast on the surface, followed by sand or soil topdressing. Of the three techniques, slicer seeding is probably the most reliable. Simple broadcast seeding is often effective when used on the center of football fields once most of the turf has been destroyed through heavy use. Overseeding is generally least effective on dense turf areas.

OVERSEEDING FOLLOWING SUPPRESSION OF EXISTING TURF. This technique is useful when you want to change the species composition of a turf that is dense and vigorous at the time you wish to renovate. The existing turf must be suppressed long enough to allow germination and early establishment of the overseeded grasses.

The most common procedure here involves severe dethatching, followed by scalping to thin out the existing grass enough to allow establishment of the overseeded grass. A general rule of thumb is



Turf renovation can be achieved without damaging desired shrubs and flowers.
Photo: Monsanto Co.

to get down to the bare soil with the dethatcher before seeding. Because plant competition may be severe, it is important to select overseeding grasses that germinate rapidly and are competitive in the seedling phase. Perennial ryegrass is often the only suitable grass for this method, but we have had success with chewing fescue seeded into Kentucky bluegrass.

The best method for planting is probably the slicer seeder operated in two directions because it assures good contact between seed and soil. It's sometimes difficult to get uniform establishment with broadcast seedings unless they are mulched with a thin layer of sawdust or other available material to help maintain a moist surface environment for germination. It's important to avoid heavy fertilizer applications at the time of seeding because the existing grasses will grow too much and may out-compete the seeded grasses.

Chemical suppression of existing grasses with a plant growth regulator prior to renovation is another possibility, however, we haven't conducted any trials to see how well this would work. If successful, this could streamline the renovation process by reducing the need for the dethatching or scalping process. Potential negative effects for the growth regulators need to be determined.

COMPLETE RENOVATION. In this case, you generally will kill the existing turf via a non-selective postemergent herbicide, dethatch to remove thatch and debris down to the soil level, fill in any potholes, plant the seed, fertilize, water and watch for your new lawn. When all goes well, this is a very effective method of renovation, but there are several steps you need to perform properly to get the results you want.

One of the most important steps in this approach involves killing the existing grasses. There is a big difference between *spraying* and *killing* weedy grasses. In the rush to get the job done, some people simply spray the existing turf with glyphosate and a week later prepare and seed the area. Within a year, the undesirable weedy grasses have often recovered leaving the same mess you started with. Obviously, you didn't kill the grasses you were trying to get rid of.

What is the secret to controlling weedy grasses prior to renovation? First, you need to know what the weedy grasses are. Bentgrasses, roughstalk bluegrass, velvetgrass, tall fescue, quackgrass, bermudagrass and, of course, annual bluegrass are some of the common weedy grasses in most cool season grass regions.

Bentgrass, quackgrass and bermudagrass have rhizomes (underground stems) that may not be affected by foliar sprays if conditions aren't perfect. Velvetgrass has a pubescent leaf surface that may not absorb herbicides readily. Particularly under drought stress, velvetgrass may not absorb glyphosate and thus will often survive sprays. Annual bluegrass is easy to kill, but will quickly reinvade from seed if preemergence herbicides are not used to prevent germination.

To get a thorough kill of weedy grasses, you need to stimulate vigorous growth with water or fertilizer, quit mowing for a few weeks and time sprays properly. Most grasses are easy to kill in

the spring when they start to flower and in the fall when growth slows. At both times, translocation of herbicides to crowns, roots and rhizomes occurs, which enhances herbicide activity and maximizes kill of regenerative structures.

Velvetgrass (*Holcus lanatus*) is difficult to kill most of the time, but is susceptible in the spring when flowering occurs. Some prefer to spray in the spring at flower time, wait for several weeks and respray as needed if recovery occurs.

Annual bluegrass presents a special problem because it often comes back from seed after mature plants have been killed with herbicides. Until recently, there was no way to control annual bluegrass in new seedings, either chemically or culturally. With the development of ethofumesate (i.e. Prograss) we now have a chemical that can be sprayed on new seedings and renovation sites and selectively control annual bluegrass from germination up to the three- to four-leaf stage. Best results oc-

cur when new plantings of perennial ryegrass are sprayed at the one- to two-leaf stage.

Ethofumesate works best on moist soils low in organic matter. We normally irrigate after application to work this herbicide into the soil. Our tests show that commercially available cultivars of perennial ryegrass are quite tolerant to ethofumesate, even at the one-leaf stage of development. Limited tests indicate tall fescue is also tolerant, but other cool season grasses, particularly the fine fescues, are not tolerant to ethofumesate.

Currently, Prograss is registered for use only on seedling stands of perennial ryegrass. Testing at Oregon State University has consistently given 100 percent control of annual bluegrass in new seedings and renovated sites that were broadcast seeded. On no-till renovated sites planted with a slicer seeder, we generally get 90 percent to 100 percent control of annual bluegrass.

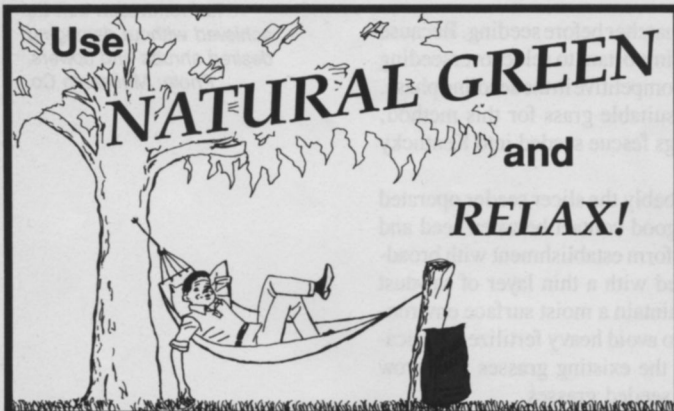
Regardless of the type of renovation you are attempting,

there are several key steps to keep in mind.

1. Choose grasses suited to renovation.

Grasses that germinate rapidly and establish quickly increase your chance for success. Perennial ryegrass has the highest success rate regardless of the actual type of renovation. Of the fine fescues, red and chewings are most competitive and will work where turf is suppressed or sprayed out prior to seeding. Hard fescue works best when existing grasses are killed prior to planting. Tall fescue is similar to red and chewings fescue. Bentgrass can work on suppressed turf or where existing turf has been killed. It is often quick to germinate, but slow to develop.

We have had good success with bentgrass/ryegrass mixtures broadcast on complete renovation sites. Generally, the ryegrass dominates early and the bentgrass shows up as the turf matures. Kentucky bluegrass is difficult to establish on overseeded or suppressed turf sites because



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it is slow to germinate and has a weak juvenile period. Your best chance with bluegrass is on completely renovated sites where existing grasses have been killed, eliminating competition.

2. Ensure good seed soil contact.

Establishment of renovated sites is often slow and stands are often very spotty. Many times this is due to poor germination because seed was sitting on the surface of compacted soil or hung up on top of thatch or organic debris.

Planting with a slicer seeder will generally avoid this problem, though small seeded grasses like Kentucky bluegrass may not emerge from deep slits. The slicer seeder is perfect for perennial ryegrass. Broadcast seedings are generally much more successful when mulched with sawdust, compost or straw. In fact, this is one of the most important keys to success on renovated sites. In spite of the ease of renovation, it is very difficult to produce a seed bed as good as that achieved by tilling and grading.

3. Seed relatively heavy.

Since surface conditions on renovated sites are often suboptimal, try to compensate in any way possible. One rule of thumb is to increase seeding rates by about 50 percent of the normal seeding rate. In the case of perennial ryegrass, increase the seeding rate from five pounds/1,000 square feet to seven to eight pounds/1,000 square feet. A similar approach works for most other grasses.

4. Plant at optimum times.

Spring and fall are good times for renovation. Throughout most of the northern states, Aug. 15 to Sept. 15 is hard to beat. The combination of warm days and cool nights promotes rapid germination and development. Midsummer is a very poor time because it's hard to keep seed moist enough to germinate without increasing the chances of damping off from fungal pathogens.

If you renovate in midsummer, either use treated seed or spray fungicides for damping off shortly after planting. Remember that root initiation is poor in the heat

of summer, so stand development is slow. Often, lawns renovated in July are no further along in October than lawns renovated in mid-August. April through mid-June works very well in many areas and is a great time to renovate athletic fields needed for fall sports.

It is important to renovate at times of least seed germination so that desired turfgrasses get a good head start.

5. Fertilize intelligently.

It is important to renovate at times of least weed seed germination so that lawngrasses get a good head start.

On complete renovations where existing grasses have been killed, it's recommended to push young plantings to speed fill-in and promote dense turf. This usually means a complete fertilizer applied at planting with nitrogen rates of one to two pounds N/1,000 square feet followed four to five weeks later with a second application at the same rate.

On simple overseedings and renovations on suppressed turf, fertilizer is counterproductive.

Nitrogen will stimulate growth of existing grasses and help them out-compete the seeded grasses. On these sites, try to starve the existing grasses by withholding fertilizer and removing clippings during mowing. Once the seeded grasses are up and somewhat mature, resume fertilization, but don't push the stand. High rates of nitrogen may favor the existing grasses more than the seeded grasses. This is more of a problem with the fescues, bent grasses and bluegrasses than with perennial ryegrasses.

6. Water carefully.

Properly planted, renovated sites require no more water than new seedings. In both cases, the goal is to keep the seed consistently moist to encourage rapid and uniform germination. Heavy irrigation on broadcast seedings may cause displacement, so light, frequent irrigations are best.

— Tom Cook ■

The author is an associate professor in the department of horticulture at Oregon State University.

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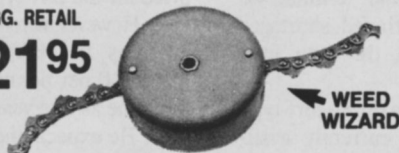
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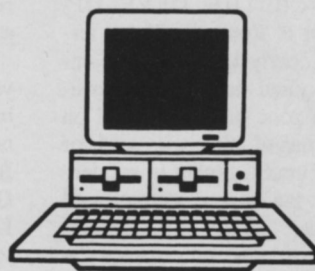
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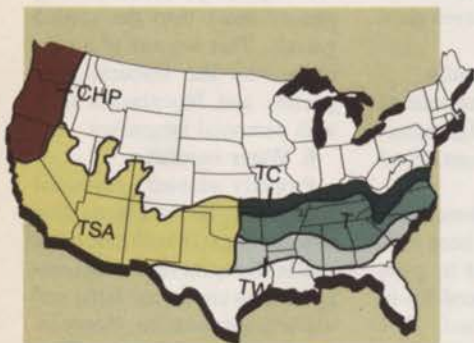
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FOCUS ON:

SEEDING

NEW TURF-TYPES ARE BEST ADAPTED TO TRANSITIONAL ZONE



Best adapted to the transitional zone (T). Can be used in Pacific Northwest (CHP) and the semi-arid transitional zone (TSA) if irrigated.

DEMAND HAS BEEN PARTICULARLY strong in recent years for the new improved turf-type tall fescues.

Although the turf-types have been around for several years, production of the high quality seed has not increased quickly enough to meet growing demand. The new turf-types have, however, been a shot in the arm for the seed industry — opening up the transitional overseeding market and creating a competitive frenzy

among growers.

Turf-types are most commonly used in polystands with Kentucky bluegrass and perform well on sport fields, lawns, parks, cemeteries, roadsides and similar minimal maintenance areas.

The new turf-type tall fescues are best adapted to the transitional zone between the cool and warm climatic regions. Its northern extension is limited by cold stress and the far southern extension may be limited by heat stress. If irrigated, the tall fescues do well in the Pacific Northwest and the semi-arid transitional zone. Shade adaption and wear tolerance are good.

The turf-type tall fescues are widely adapted to soils, but prefer fertile, moist, fine-textured soils having a pH of 5.5 to 6.5. Certain cultivars have good tolerance to saline soils and to flooding.

Turf-types form a semi-open, erect growing turf with a coarse leaf texture and bunch-type growth habit; a leaf rolled bud-shoot, stiff flat blades with prominent veins above but glossy below, tapering to a pointed tip; ligule minute and

membranous; small, narrow auricles; inflorescence an erect, lance-shaped, semi-contracted panicle; and established primarily by seed. Numerous cultivars are available.

According to The Lawn Institute, other characteristics of turf-type tall fescues include:

- Finer leaf blades and better sod forming characteristics than the older types, including Kentucky 31 fescue.
- Extensive root systems that make better use of available soil moisture and mineral nutrients than any other turfgrass.
- More resistance to diseases and insects than older types.
- Greater tolerance to mowing than the older types.
- Shade tolerance as good as any turfgrass including the fine fescues.
- They don't form thatch because they don't spread by stolons or rhizomes.
- Produce best turf cover when seeded alone to form a monoculture. Most uniform turf results from pure seedings of turf-type tall fescues.
- Withstand traffic and heavy use.

• Seed germination is rapid — within seven days under favorable conditions.

• Increased heat tolerance is an important asset, particularly in the transition zone between North and South.

• Depending on length of the growing season, from two to four pounds of nitrogen per 1,000 square feet per year will produce excellent quality turf. Use standard lawn fertilizers to supply this amount.

Seed standards:

- 98 percent pure.
- 90 percent germination.
- 230,000 seed per pound.
- Eight pounds seed per 1,000 square feet seeding rate for 13 potential plants per square inch.
- In mixtures, not more than 10 percent bluegrass should be used with 90 percent tall fescue by weight. Such a mixture seeded at six pounds per 1,000 square feet will provide 12 potential plants per square inch.

TURF-TYPE FORECAST: DEMAND EXCEEDS SUPPLY

SINCE THE DEVELOPMENT of Kentucky 31 tall fescue nearly 40 years ago, Kentucky and the rest of the transition zone have been sold on the use of tall fescue seed for turf establishment in residential lawns and commercial areas.

So it was no surprise that the newer turf-type tall fescues were readily accepted when they came onto the market several years ago.

"The demand has increased tremendously. People are realizing that it can be maintained as a formal lawn rather than a pasture grass," said A.J. Powell, an agronomist at the University of Kentucky.

In Kentucky, almost 100 percent of seed renovation is with the turf-type varieties, he said.

Despite strong benefits de-

rived from the seed, demand still surpasses its availability.

"It's a little better than a year ago and next spring will be even better, but it continues to be on the short side," said Bill Hill, vice president of Geo. W. Hill Co., a Florence, Ky.-based wholesaler. "The varieties are with us to stay, but the market just didn't foresee the demand. I think we will see continued shortages for the next three to four years."

More than a dozen turf-type varieties are currently available, with several new varieties expected in limited quantities this year and next. Fine Lawn FGL, Bonzai, Trailblazer and Winchester will soon be available in limited quantities, according to Hill.

Johnstone is a new tall fescue variety from the University of

Kentucky, but it's a forage-type variety rather than the popular turf-type, Powell said. It can be used as a low maintenance turf, but it's low in endophyte whereas the newer turf-type varieties have high levels of endophyte.

Because of the different varieties and use locations, it's hard to determine an average price for the turf-type tall fescues. However, across the board averages fall between \$1.15 and \$1.40 per pound — about the same as one year ago, Hill said. He expects the prices to drop to 95 cents to \$1.10 in the fall.

With virtually all of the turf-type tall fescues being grown in limited acreage in Oregon, and the on-going field-burning controversy, growers are turning to New Zealand for additional sources of land.



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FOCUS ON: TREES & ORNAMENTALS

IT'S NOT TOO EARLY TO CHECK FOR DISEASE IN WOODY PLANTS

TREES, SHRUBS, FLOWERS AND turfgrasses in the landscape are important for their aesthetic, amenity and monetary values.

Investments in landscape plantings that are expected to perform well each year should be protected from the ravages of diseases and other problems detrimental to plant health. Since the health of diseased plants is difficult if not impossible to improve after diseases occur, most control measures are designed to prevent disease occurrence.

Now, in early spring, it is not too soon to plan or begin disease control measures even though disease symptoms may not appear for several months. Plant disease control activities for woody landscape plants for the spring will center around two phases of plant growth — dormant and bud swelling.

WHAT TO DO WHILE WOODY PLANTS ARE DORMANT. Prunus spp.: Leaf curl disease — spray twigs and branches once with ferbam or fixed copper before buds swell. Recent warm weather may have caused enough bud swell to make it too late for this treatment.

Oak and Maple: Leaf blister — a single application of ferbam or fixed copper is needed before buds swell.

Elm: Dutch elm disease — remove and destroy all dead elm trees in the neighborhood of valuable elms.

Hawthorn and Crabapple: cedar apple rust — if possible, remove and destroy nearby common juniper and red cedar.



Tree deline (whole tree).

Flowering Pear and Crabapple: fire blight — Prune out all of last year's blighted twigs. Spray copper sulfate on twigs and branches before buds break.

Prunus spp.: black knot — prune out swollen twigs and branches.

Pine: Diplodia tip blight — prune out all dead branches, if possible all infected cones.

Juniper: Phomopsis tip blight — prune out all dead twig tips.

Redbud: Botryosphaeria canker — prune out all dead branches.

Rhododendron: Botryosphaeria dieback — prune out all dead branches.

Spruce: Cystospora canker — prune out all dead branches.

Cedar: cedar-apple rust — prune out galls to prevent problems for nearby hawthorn and crabapple.

Landscape trees: dieback, decline — relieve soil compaction with vertical mulching, fertilize if needed.

Turfgrasses: patch disease — if nitrogen fertilizer is needed, apply it now, not in late spring or summer. Later applications may encourage patch diseases.

Woody landscape plants: high soil pH induced chlorosis — if this problem was observed last year, take a soil sample to your county extension office and have it analyzed for pH level. Add sulphur as needed to increase soil acidity.

WHAT TO DO AS WOODY PLANT BUDS SWELL. Maple, Sycamore, Ash and Oak: anthracnose — make first application of captan, benomyl, fixed copper, dodine maneb, chlorothalonil or zineb.

Pine: Diplodia tip blight — make first application of benomyl or fixed copper.

Ivy: leaf spot — hand pick and destroy spotted leaves and begin captan or mancozeb sprays.

Where control measures are to be used for landscape plant diseases, be sure that there has been a history of the problem on those plants, or that sufficient threat of disease exists in the neighborhood. —

John Hartman ■

The author is an extension plant pathology specialist at the University of Kentucky.

SHADE TREE PESTS ALREADY EVIDENT IN TREES

ARBORISTS MAY WANT TO check ornamental trees for the presence of three insects that may have caused damage this winter.

Pine needle scale is common on pines, firs, spruces and yew. Heavy infestations on Austrian and mugho pines may cause yellowing and premature needle drop, said Lee Townsend, extension entomologist for the University of Kentucky College of Agriculture. The needles of infested plants are lined with

one-tenth of an inch long, flat, white scales.


In winter, eggs can be found under the female. These eggs will hatch in late spring. The tiny crawlers will move and settle on the needles to feed. There are two generations each year, Townsend said.

Pine bark adelgids are most common on white pines, but also attack Scotch and Austrian pines. The adelgids are similar to aphids. They may overwinter in all stages, but the most com-

mon is as immature females.

White pine aphids are the largest that feed on pines. They are about one-eighth of an inch long. They have shiny dark brown to black bodies and feed on the twigs and branches.

Heavy infestations may kill young trees or parts of older trees. Infested plants usually have a heavy growth of sooty mold on the branches. Sooty mold is a dark fungus that grows on the "honey dew" and is produced by aphids.



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LEASING: IS IT THE RIGHT CHOICE FOR YOU?



OBVIOUSLY, LEASING ISN'T FOR EVERY lawn or landscape operator, or for every piece of equipment. An important consideration before leasing is how long the equipment will be used. The more likely that it will be used for its entire life, the less likely that leasing will make sense.

Unfortunately, technology is increasing at such a rapid pace, equipment is often obsolete upon delivery. So, it's often better to lease a piece of equipment for a short period of time, get rid of it and lease new equipment when needed rather than tie-up the capital required to purchase it.

Leasing equipment has long been used to reduce business costs. Although recent tax legislation had the effect of increasing the after-tax cost of leasing, for many it also increased the cost of buying even more.

Partnerships may find a special advantage in leasing. The IRS could, under our present tax rules, treat the money that a partnership borrows to buy equipment as income the partners should be taxed on — even though it is not distributed. Lease payments would be just another tax deductible expense.

If the lease arrangement qualifies for tax purposes, it is often the cheapest type

of financing since most major leasing companies — affiliated with manufacturers, banks or insurance companies — can borrow at a lower interest rate than the average small maintenance business. In other words, by leasing, the maintenance operator can acquire a lower effective borrowing rate than would have been paid had the same equipment been purchased.

In addition to payments that are usually lower than the cost of buying the equipment, leasing benefits the purchaser through lower start-up costs (usually the first and last month's lease payments). Leasing also helps keep credit lines free for other purposes.

In addition, some interesting balance sheet consequences can sometimes result from leasing. Currently, generally accepted accounting principles require a buyer to reflect the amount of his loan as a financial statement liability. Although the buyer's statements would also reflect the equipment as an asset, his working capital and debt-to-equity ratios would be adversely affected.

Were the same asset to be leased, those same generally accepted accounting principles allow for the "possibility" that neither the asset nor lease liability need be reflected on the balance sheet (except as a footnote). Of course, the amount must be characterized as an "operating" lease — i.e., one in which the present value of all rental payments, discounted back at the lessee's borrowing rate, are less than 90 percent of the cost of the leased equipment.

From the standpoint of cost alone, the decision to lease or buy equipment is ordinarily reached by undertaking lease/buy analyses (LBA) of the after-tax cash flow of both transactions. For a pure cost comparison, using an LBA focuses on the present value of the cash flows generated by both alternatives. — *Mark E. Battersby* ■

The author is a tax and financial adviser in Ardmore, Penn.

DECIDING FACTORS IN LEASING/BUYING DECISIONS

RATHER THAN PRESENT a mythical set of figures and attempt to walk through a comparison that would have little bearing on any one business, consider leaving the figures to the accountants and remember one general rule of thumb:

If the piece of equipment depreciates or declines in value, it is better to lease it. If it increases or grows in value over time, it is better to purchase it.

When comparing leasing with the outright purchase of equipment, the average business owner can usually expect lease payments to be lower than the payments that would be made if he borrowed the money to buy the same equipment.

At the end of the lease term the equipment that a business returns is likely to have residual value — that is the lessor can sell it — and this value should also reduce the lease payments. The operator doesn't have to worry about finding a

buyer for equipment that is being replaced.

All else being equal, non-economic issues will probably provide the deciding factor in the lease/buy equation. One of those issues is flexibility. With leasing, the owner gains options that may come in handy if the business changes. A business owner who leases equipment only for the term of a contract is less likely to have to scramble to find additional work merely to support that equipment at the end of a contract.

Finally, timing is also a factor in deciding whether to lease or to buy. Tax Reform 1986 contains a provision to keep businesses from claiming a full year's depreciation for equipment they put in service late in the year. Instead, most operators will have to figure their depreciation allowances as if they put a piece of equipment into use halfway through the year, no matter when they ac-

tually do.

However, if the operator puts more than 40 percent of his equipment into service during the last three months of his tax year, the tax law requires him to treat all equipment purchased that year as if it were put into use halfway through the quarter that the business actually started to use it. Depreciation on equipment bought in the last quarter wouldn't be based on six months of use but on a month and a half. To keep under the 40 percent limit and preserve tax deductions, it may be advisable to lease whatever additional equipment is needed during the last quarter.

In the end, of course, such factors as the availability of cash for a down payment, the cash flow of the business equipment needs, and the owner's personal feelings on the subject will have more impact on the lease/buy decision than the opinion of the tax or financial adviser.

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PEOPLE



Meier



Duncan

STEINER TURF EQUIPMENT RE-
cently appointed **Tom Meier** as director
of finance. He will be responsible for all
finance and accounting functions as well
as data processing and purchasing.

Meier joins Steiner after four years at
Ransomes Inc. where he most recently
served as controller.

Sheryl Bunker Schnering has been
appointed controller for Ransomes Inc.
Previously, Schnering worked with

Price Waterhouse for five years, where
she most recently served as senior ac-
countant. Schnering is a certified public
accountant.

Both Ransomes and Steiner Turf Equip-
ment are independent subsidiaries of Ran-
somes, Sims and Jefferies of Ipswich,
England.

David Morris has been elected presi-
dent of The Toro Company. Morris, 46,
joined Toro in 1979 as the controller in
the company's international division. He
became vice president and general mana-
ger of the international division in 1984.
The following year, he became vice presi-
dent and general manager of Toro's irriga-
tion products. In July, Morris was pro-
moted to chief operating officer of Toro,
a post he will retain.

Sandra Nelson has joined the turf divi-
sion of Anderson Fertilizer Services Inc.

Nelson will be responsible for market-
ing and sales of both dry and liquid fer-
tilizer products to the commercial turf

and lawn and garden industry throughout
Michigan.

Precision Laboratories Inc. recently ap-
pointed **Bob Williamson** as national sales
manager. He will direct all phases of
sales, marketing and technical support for
the company's specialty sales division
throughout the United States.

He has previously worked for Oil Dri
Corp. of America and the Illinois Central
Railroad in various sales and management
positions.

David Duncan was recently promoted
to director, greens business for Monsanto
Agricultural Co.'s Industrial, Greens and
Residential division.

Duncan will manage the market devel-
opment, introduction and sale of new
products into greens markets as well as
explore new opportunities for current and
future products. Duncan will also oversee
the development of the green center dis-
tribution concept.

(continued on page 68)

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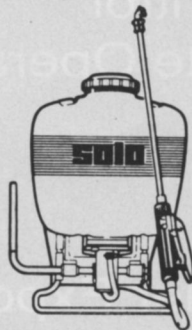
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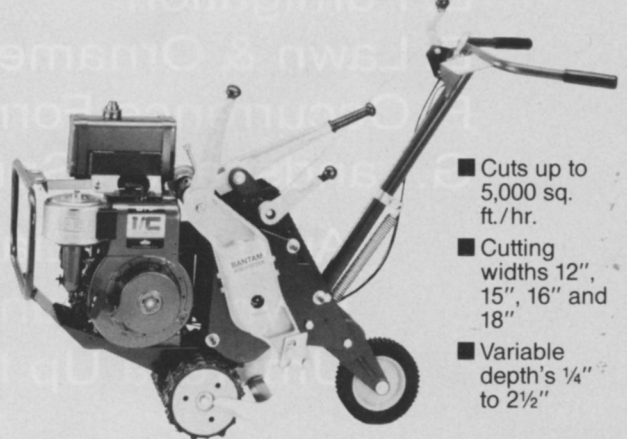
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TURFCO

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- An OSHA Hazard Compliance Program
- Developing an effective telemarketing program
- Preparing a marketing plan
- A regular update on small business law
- A Group Health/Life/Major Medical Program
- A Credit Collection Service
- A Liability Insurance Program
- A newsletter on lawn care issues
- A public relations program
- Gather major suppliers of lawn care products and services

As the only international trade association of lawn care professionals, PLCAA has a strong history of providing the right information at the right time for the lawn care industry. Our staff and Board of Directors are dedicated to providing you with the professional business assistance you need to stay strong and informed.

To learn more about how to put your Business Partner to work — for less than a dollar per account per year, contact the Professional Lawn Care Association of America today. Clip and mail the return coupon today, or call toll free 1-800-458-3466.



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ala

Duncan joined Monsanto in 1978 and has held numerous positions, including product development representative; product supervisor; government affairs manager; manager, product development; and most recently, product development, director, industrial, greens and residential division.

Chemlawn Services Corp. named **Andrew Coulter** general counsel. He will be responsible for all activities of ChemLawn's law department.

Before joining ChemLawn, Coulter was senior attorney, securities and finance for Ecolab Inc. Earlier, he was international attorney in Ecolab's international division, working on legal matters worldwide.

Wayne Burke was appointed specifications manager in north Texas and Oklahoma for the turf division of Rain Bird Sales Inc.

Burke will be responsible for keeping specifiers, contractors, irrigation consultants, developers and city and state officials abreast of current irrigation products and applications.

Prior to joining Rain Bird, Burke served as a sales representative for a major Texas irrigation distributor. He is a lic-

ensed irrigator in Texas.

Riverdale Chemical Company appointed **Lonnie Pell** regional sales manager. Pell will be responsible for Riverdale's sales activities in the southeastern U.S. He was an ornamental and turf specialist with North Carolina State University Extension Service for six years and previously owned and operated his own landscape and grounds maintenance business.

He was formerly employed by Elanco Products as a lawn care specialist and as a sales representative for both Howard Johnsons Enterprises and Riverdale Chemical Company.

Alan Levanson was appointed president of the Homelite Division of Textron Inc.

Levanson, who had been vice president, marketing and sales for the Homelite Division since 1985, succeeds Robert Batting, Homelite's president since 1985. Batting moves on to become Group Vice President for Textron, the parent company of the Homelite Division. Levanson will be responsible for the worldwide operations of all Homelite products.

Levanson joined Homelite in 1973 as marketing manager for consumer products and then became director of marketing.

Snapper Power Equipment appointed

Mark Zuccolo vice president/international; **John Ulmer**, vice president and general counsel; **Russell Rouse**, vice-president/engineering; **Elizabeth Jeffares**, treasurer; and **Frank Hancock**, vice president/customer service.

Zuccolo will be responsible for all sales, marketing and product development responsibilities associated with the international market.

Ulmer joined Snapper in 1977 as legal officer and has been principally involved in corporate law, litigation, labor and antitrust. Ulmer is a member of the American and Georgia Bar Associations.

Rouse joined Snapper in 1977 as product engineer and after several promotions was named director of engineering in 1986. Rouse will be responsible for all engineering activities.

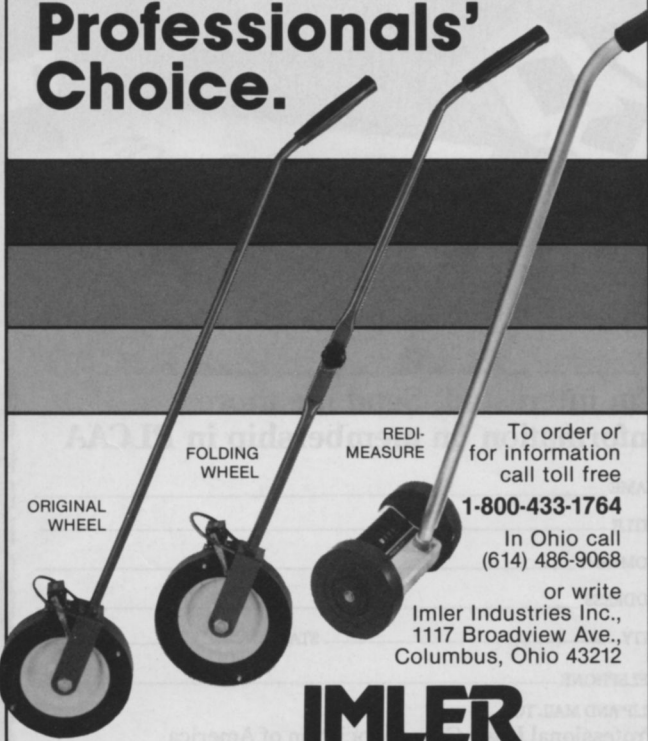
Jeffares joined Snapper in 1973 and has served as assistant treasurer, controller and manager of financial planning.

Hancock joined Snapper in 1977 as customer service coordinator. He was promoted to assistant customer service manager in 1979 and has been manager of customer service since 1982.

Hancock will be responsible for all aspects of customer service, including dealer and distributor training and warranty. ■

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PRODUCTS

A NEW GAS-POWERED EDGER FOR cutting turf along sidewalks, curbs and gardens is now available from **LESCO Inc.** The LESCO Edger is a durable,

heavy-duty machine, powered by a 3-h.p., industrial/commercial Briggs & Stratton engine.

The edger features single-lever controls

to adjust the depth of cut and power the blade. The control lever not only lowers the blade into the selected cutting position, from zero to three inches deep, but also applies tension to the drive belt.

The blade is a standard, 10-inch diameter, reversible edger blade which rotates at 3,600 rpm. The edger has four wheels for stability and the front wheels are adjustable. All the wheels have grease fittings. The machine is simple in design with few moving parts and welded construction for minimum downtime and maintenance.

102 on reader service card

TWO NEW TURF ROLLERS, the Ryan Rollaire® and the Riding Rollaire® are now available from the Cushman

PRODUCT SPOTLIGHT

THE ENVIRONMENTAL Protection Agency has approved a label for **Ciba-Geigy's** newest turf product, Pace® fungicide. Pace provides control of *Pythium* blight and yellow tuft in all turfgrasses and downy mildew in St. Augustinegrass.

Pace's packaging is at the forefront of technology, according to company officials. The non-contaminated container reduces potential environment and applicator exposure. The product is packag-

ed in water-soluble bags.

Pace's synergistic action against disease, as well as its systemic and contact characteristics, act to minimize potential for resistance.

Pace is prepackaged for golf greens, but can be used on any turf where *Pythium* and/or yellow tuft is a problem. The recommended rate for Pace is 6.3 ounces per 1,000 square feet in three to five gallons of water.

Pace can be applied in mid-March for yellow tuft with a se-

cond spray about four weeks later. Up to three applications can be used for *Pythium* blight. When disease pressure is high, a seven-day spray schedule should be followed.

Research shows that Pace also suppresses diseases like brown patch and dollar spot, if they are already under control through a preventive program. Pace is also said to aid in the control of *Helminthosporium* leaf spot.

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The rollaire units provide a convenient way to put a smooth finish on new sod, freshly seeded turf or wherever the ground surface needs a smooth, packed finish.

The walk-behind rollaire has a 30-inch wide drum and weighs 840 pounds when filled with water. The riding rollaire covers a 24-inch swath, with a 24-inch diameter front drum and an 18-inch diameter rear drum. The riding rollaire weighs 1,107 pounds with the water drums filled. The water drums have rounded edges to minimize chances of leaving ridges in the surface.

Both models are powered by a 5-h.p. Honda gas engine and hydrostatic drive. The riding rollaire has a clutchless twin planetary transmission with a single lever shift for forward and reverse. The rollaire and riding rollaire can be operated up to 4.2 miles per hour.

Circle 103 on reader service card

TRIAMINE™ JET-SPRAY SPOT WEED killer, the newest Triamine product, is now available from Riverdale Chemical Company.

The weed killer is another three-way postemergent, selective broadleaf herbicide containing the amines of 2,4-D,

Mecoprop and Dichlorprop to be used as a spot treatment on lawns, ornamental turf, hard-to-reach places or where broadcast spraying may be harmful to or-



namental plants and/or flower beds.

It controls dandelions, chickweed, plantain, oxalis and spurge, as well as many other broadleaf weeds on both cool and some warm season grasses.

It contains a foam tracer to show where the weeds have been treated.

Circle 104 on reader service card

TERRACARE PRODUCTS CO. IS introducing a new top dresser called the Terra Topper. This machine is powered by an 8-h.p. Briggs & Stratton engine and fully hydraulic.

The spinners can be set for whatever speed is required and can be tilted to throw the dirt directly on the ground. The spinners can run independently or together, making it possible to throw the dirt from the side without driving on it. Dirt can be spread from 15 feet to 32 feet depending upon the volume and weight of material being distributed.

The Terra Topper is 63 inches wide, 60 inches long, 55 inches high and has a 30 cubic foot hopper. It can be pulled with any small tractor or truckster. The controls can be operated from the tractor seat.

Circle 105 on reader service card

A COMPLETE ORDERING CATALOG for hazard communication labels for chemical, safety, transportation and general use labels, signs and placards is now available from Safety Specialists Inc.

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The labels provide compliance with the rapidly changing laws regarding use and disposal of hazardous materials and special equipment. The ordering catalog describes in detail how Safety Specialists' rugged, readable labels will meet the toughest requirements for a variety of chemical, hazardous materials, waste storage and safety and health applications.

Circle 106 on reader service card

THE MODEL 85 SEED 'N THATCH from **Olathe Manufacturing** is an all-purpose thatcher that can seed at the same time.

This 5-h.p. unit has an operating width of 21 inches. The seeder is ground-powered with 1.5-inch centers and the hopper holds 15 to 20 pounds of seed. Features include easily adjustable depth handle, depth sight gauge, large diameter wheels



for easier movement and double belts to blades.

The model 85 seed 'n thatch is an ideal low-cost efficient unit for smaller areas where turf loss has occurred.

Circle 107 on reader service card

THE NEW **PRO INC.** 1587B3 IS A commercial grade edger designed for operator comfort, maneuverability, durability and ease of service.

The low-profile 1/4-inch steel gull wing frame assembly provides exceptional balance and stability and is warranted for five years against defects in workmanship or material.

Three heavy duty 8.25-inch by 2.75-inch wheels with 600-pound rated hubs, replaceable ball bearings and 1/2-inch diameter steel axles offer excellent maneuverability and additional stability. The front wheel locks into three different positions to accommodate most popular curb sizes.

ALA/MAINTENANCE • APRIL 1989

Standard features on the **PRO 1587B3** include a 10-inch cutting blade; 14-gauge replaceable blade and debris guards; operating controls conveniently located on handlebars; multi-position, single lever blade depth control including blade disengage located on handlebars; indexing head for edging and bevel cuts; and waffle style handle grips.

A 3-h.p. Briggs & Stratton engine is offered as standard equipment; however, other engines, including Wisconsin Robin, Kawasaki and Honda, are available as options in quantity lots.

Circle 108 on reader service card

THE **TTA-550 TOTAL TURF AERATOR** from **Salsco** brings together the proven technology of the **FTA-60-24** aerator and a comfortably efficient riding unit.

Powered by a 20-h.p. Kohler, the **TTA-550** is a riding aerator for sports fields, large turf areas and greens, tees and fairways. And with variable core spacing from one inch to six inches, the **TTA-550** is capable of aerating more than 60,000 square feet per hour.

The tines, raised and lowered hydraulically, are driven by Salsco's patented "camshaft free-floating tine system." The operator is able to adjust hole spacing to

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conditions without stopping the machine.

The TTA-550 total turf aerator is commercially designed and built with four-inch-square steel tubing and 3/4-inch steel plate.

Circle 109 on reader service card

DEUTZ-ALLIS RECENTLY INTRODUCED two new center grooming mowers for its compact tractor line.

The new model 60B fits the Deutz-Allis 5215 synchro shift gear-drive compact tractor and the new model 61C is designed for the 5220 hydrostatic-drive compact tractor.

The first has a 60-inch cutting width, right-side trimming and full tire width cut, while the second model offers a 61-inch cutting width and left-side trimming.

Circle 110 on reader service card

AMERICAN INTERNATIONAL MANUFACTURERS has resumed production and assembly of the Uni-Hoist, a conversion kit for changing 1/2-ton and 3/4-ton pickup trucks into dump trucks without altering the styling or appearance of the truck.

The unit has a load capacity of 4,000 pounds. Installation is in accordance with original equipment manufacturers' recommendations for mounting accessory equipment. No welding is required.

Circle 111 on reader service card

Fear of Living

(continued from page 43)

and subcommittees, the undermining of seniority in Congress and the development of the primary electoral system, have given advantage to single-issue special interest groups. Direct-mailings have provided special interest groups, as well as candidates, with direct access to the voters without having to work through the established political institutions that could have forced them to adjust their own aims to accommodate the broader national interest.

Never has it been so evident that, as Macaulay wrote to his American correspondent H.S. Randall, the biographer of Jefferson, "your Constitution is all sail and no anchor." Those now filling the sails are the special interest groups, of whom the risk-averse are the most successful. European countries, in contrast, simply have not permitted the sacrifice of their political systems to the single-issue special interests.

But these groups could not have been so destructively successful if Americans had not already suffered a loss of faith in their nation — a loss of faith in the science and technology on which American progress has been built (while para-

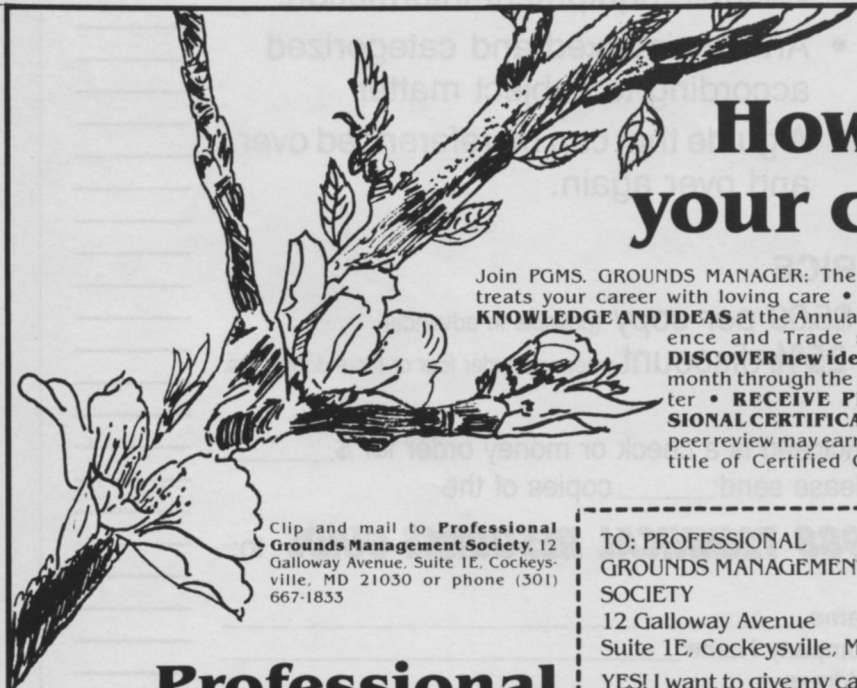
doxically they look to science to create their version of a risk-free country).

A loss of faith in America's inexhaustible possibilities, its sense of limitlessness. A loss of faith in the ever-advancing frontier, even, as Kennedy proclaimed, the exploration of the new frontier in space. And with it all, a loss of the American adventuring spirit, of the American gusto whose absence the world now laments, the gusto that, until the 1960s, blew like a fresh wind around the globe, showing what could be accomplished in so short a time by a nation that did not shrink from risk but found it a challenge.

There is something grossly at fault in the conception of the Vietnam War Memorial and the false veneration it excites. It is not, like the Iwo Jima Memorial, a monument to heroism, or even to sacrifice. It is a monument to a loss of life that is seen as wasteful and dishonorable. The feelings it excites reflect a nation that is coming to believe that even war should be fought without risk to its fighting men or risk of defeat.

A nation should lament the deaths, and aid the survivors. But it cannot forever be counting its dead. — *Henry Fairlie* ■

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EROSION PROBLEMS CONTROLLED BY NYLON MATTING



The banks of Stewart Creek after grass had grown up through the Enkamat matting.

OVER THE YEARS, THE PEOPLE WHO live along Stewart Creek in Charlotte, N.C., faced the constant threat the creek would overflow and inundate their homes.

Frequent heavy rains were also eroding the creek's banks, carrying silt and sediment into lakes and rivers. Until recently, about all residents could do was depend on Mother Nature's benevolence to spare them from flood damage and erosion.

To deal with these problems, Mecklenburg County voters approved general obligation bonds totaling \$8 million in 1983 and 1987 for storm drainage and flood control. A program was adopted to help flood-prone areas by reducing the flooding potential and controlling accelerated erosion, preventing water pollution

and damage to downstream property.

Residential areas along two sections of Stewart Creek received particular attention. One of these was an area where homes were not only in the 100-year floodplain, but were actually in the more susceptible 10-year storm floodplain.

A "10-year storm" is defined as the surface runoff resulting from a rainfall of an intensity expected to be equaled or exceeded, on the average, once in 10 years, and of a duration that will produce the maximum peak rate of runoff. In another section, severe erosion had caused the creek banks to become so unsightly that residents filed a petition to have flood control measures implemented.

Traditional methods used by contractors to deal with erosion and runoff problems include use of concrete and riprap to build structures that provide a channel to better contain water.

Instead of using these more traditional methods, contractors turned to a three-dimensional, resilient black nylon erosion control matting called Enkamat to tackle the problems along Stewart Creek.

"People were skeptical about Enkamat at first because they were not familiar with it. They were used to using more traditional products for stabilizing soil

and preventing erosion," Gore said.

"Once they found out how easy it was to handle, and how effectively it worked, they changed their attitudes."

Enkamat is rolled out and secured with wooden stakes. Two people can do the job and no heavy equipment is required.

"It's very cost-effective," Gore said. "The matting is only half-an-inch-thick, versus a minimum of 12 to 18 inches that would be required for rock or riprap. The matting can be installed much quicker than using stone. Having the contractor use riprap could have cost us two or three times as much as the Enkamat."

The three-dimensional nature of the matting provides a grid that grass roots become tangled in.

"Enkamat connects the root masses and they act as a unit to hold grass so it can't wash out," Gore said. "This prevents scouring action on the individual grass and spreads out the force of water over a wide area."

Prior to installing the matting along Stewart Creek, slopes were compacted and shaped to specifications and the site dressed so as to be free of rocks and soil clumps.

Contractors then installed the Enkamat and hydroseeded. Before vegetation develops, the matting protects bare ground against erosion by wind and rain and prevents seed wash-out. It allows silt to fill the geomatrix, developing a media for root development.

In a matter of a few weeks, grass had grown up through the matting, making it invisible.

Today, with the help of Enkamat, the banks in the areas where residents had complained about excessive erosion are lined with grass and present a pleasing appearance. The residential area subject to flooding is now out of the "ten-year storm" flood plain.

Enkamat has been approved by departments of transportation in 33 states and has been used in a variety of applications including slope protection, storm channels, converging channels, ditch liners, pond banks, landfills, pipelines and shore protection. ■

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ENKAMAT PROMOTES REINFORCED ROOT SYSTEM

MANUFACTURED BY AKZO Industrial Systems Company in Asheville, N.C., Enkamat's open construction enables natural vegetation to anchor its roots in the matting forming a tough, permanent, mechanically reinforced root system.

It is designed to stabilize slopes where water volume and velocity are high, and channels with heavy flow rates of up to 20 linear feet per second.

The lightweight nature of the material makes it much easier to handle than riprap or concrete. It can be cut with hand shears, and wooden stakes are all that is needed to anchor it in place.

"We first used the matting

in 1985 in an erosion-prone area where two streams came together," said Mecklenburg County's Floodway and Storm Water Engineering Supervisor Fred Gore. "Aesthetics was a major reason for choosing Enkamat. People don't seem to care for the appearance of riprap. Children get hurt playing on it, and it can become home for undesirable animals. Enkamat, on the other hand, is eventually covered up by the vegetation and leaves a much more natural appearance."

The county next used Enkamat on erosion-plagued stretches of Little Sugar Creek, a 20-mile stream that winds through some of the busiest parts of downtown Charlotte.

The idea was to stabilize the badly eroded banks, and to build a jogging path alongside the stream.

"We have been pleased with the way Enkamat performed along Little Sugar Creek," Gore said. "We had several heavy storms and it held up very well."

The success of the geomatrix matting along Little Sugar Creek prompted designers to specify it to deal with the problems along residential sections of Stewart Creek.

Approximately 15,000 square yards is being used in areas that stretch about a mile in length. The project started in July and is scheduled to be completed next spring.

CLASSIFIEDS

RATES

All classified advertising is 55 cents per word. For box numbers, add \$1 plus six words. All classified ads must be received by the publisher before the 10th of the month preceding publication and be accompanied by cash or money order covering full payment. Submit ads to: ALA Lawn and Landscape Maintenance magazine, 4012 Bridge Avenue, Cleveland, Ohio 44113.

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Lawn care companies of all sizes in U.S. and Canada being sought by national corporation. Complete buy out or stay and grow with us. If interested please call me directly: Don Karnes, Senior Vice President, Tru Green Corp., 404/442-8700. Strict confidentiality maintained.

WANTED TO BUY

Lawn care companies of all sizes anywhere in U.S. wanted to purchase by national corporation. If interested please respond to: ALA/Maintenance magazine, Box 329, 4012 Bridge Ave., Cleveland, Ohio 44113. Strict confidentiality maintained.

FOR SALE

LAWN CARE EQUIPMENT

Hannay reels new in-the-box, E1526s, E1530s, \$349; lawn spray hose, 275 psi and 20 psi, all sizes; original Imler measuring wheels, \$48; glycerin-filled gauges, 0-6 psi to 0-1,000 psi, \$19.95; polypropylene ball valves, 1/2-inch to 2-inch; ChemLawn guns, \$75.95; lawn spray boots, \$16.95; lawn spray gloves, \$1.75-pair. Call Hersch's Chemical Inc. 800/843-LAWN — outside of Michigan 313/543-2200

TURF TIPS FOR LAWN CARE

Video tapes by the Cooperative Extension Service at Michigan State University and the Michigan Turfgrass Foundation. Excellent for training and educational programs. Can be used by lawn care companies, golf course superintendents and all grounds supervisors. LAWN ESTABLISHMENT, GENERAL LAWN CARE, LAWN GRASSES, FERTILIZATION, WEED CONTROL, LAWN MAINTENANCE and, soon, CALIBRATION. VHS or Beta. \$60 each or 7 for \$375. For information call 517/355-0270 or write Michigan Turfgrass Foundation, Box 80071, Lansing, Mich. 48908.

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Custom design sprayers; Professional spray consultation, Flo-jet 12-volt pump; Backpack sprayers; Hannay reels; JD9CT guns; Glycerin gauges; Spray System parts; Hypro and Udor pumps and replacement parts; High Pressure Cleaners. Selling directly to lawn care companies with discounts on parts and proudly shipping 90 percent of same day orders. Canann Industries, 800/842-7515 (AL); 800/633-7560 (U.S.)

SOUTH DAKOTA BUSINESS

LAWN CARE & GARDEN BUSINESS FOR SALE. Edge of the Black Hills. Call or write Olga Warner, Wyatt's Real Estate, 309 N. River, Hot Springs, S.D. 57747. 605/745-3140.

MAINTENANCE EQUIPMENT

MOWING EQUIPMENT: Toro Hydraulic lift; 7-gang, 5-bladed mower. Excellent condition, low hours; new in 1987. \$8,700 or best offer. Locke Reel Mowers: 1 single, 1 Triplex. Seldom used, engines like new. Will sell both for \$2,400. Call Steve at 301/850-6907 for details.

BUSINESS OPPORTUNITY



WHAT DIRECTION IS YOUR FUTURE?

Are you considering your own business? Do you need help? Our franchise opportunity may be the vehicle to help you travel the road to suc-

cess. The lawn care industry is on the move and has room for more good companies. Even if you own your own company, our professional team can help. Please call collect: Keith Waller or Don Friihauf at 216/255-0380.

AGENTS/DISTRIBUTORS

Twenty-five-year-old manufacturer of specialized pump and spray equipment is expanding its product line and marketing areas. We're seeking qualified agents and distributors calling on lawn maintenance dealers. Several territories available. For more details, please send information about your company to: Jevco Manufacturing Co. Inc., P.O. Box 21059, Sarasota, Fla. 34238, Attention: Mike Hobbie. Or call, 800/541-0737.

HELP WANTED

FOREMAN POSITION

Top firm needs foreman. Quality conscious Texas-based landscape management firm has immediate opening for detail-oriented landscape maintenance foreman. If you have outstanding professional and horticultural skills and are not afraid of hard and healthy teamwork, then you could qualify for a top position with the finest landscape firm in the Southwest. Outstanding compensation and opportunity. Reply today to: ALA/Maintenance, Box 325, 4012 Bridge Ave., Cleveland, Ohio, 44113.

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KT Enterprises Inc., a commercial landscape

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ADVERTISER'S INDEX

management firm serving the Washington, D.C.-metropolitan market is now accepting applications for employment in the landscape maintenance department for the 1989 season and beyond. All positions offer excellent salary, health benefits, retirement and most important, an incomparable opportunity to work in a quality organization that will continue to offer growth and professional satisfaction. Please send resume to and/or call our personnel director, Caroline Fennimore, if you're interested in any of the following positions:

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Sales-New Sales — Service Representative.

Landscape Senior Estimator — Familiar with large commercial landscape projects.

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LANDSCAPE FOREMAN

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MOTIVATED FOREMAN

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*Depicts regional advertisement

Liability

(continued from page 36)

solutions may be in the making. They include:

- National insurance consultants of Orlando, Fla., which administers the Florida Pest Control Association Property and Casualty Insurance Program, may bring a similar proposal to an association in the lawn and landscape maintenance industry.

The company operates as an agent, broker and reinsurer. In the latter role, according to Michael Schmidt, one of the firm's principals, the company may underwrite a portion of the coverage beyond the limit set by a major insurance underwriter.

Some insurance carriers want to limit exposure in writing pollution liability coverage and some don't write completed operation coverage, he said, adding that only about a dozen major insurance companies write pollution liability coverage on a large scale.

- B & D. A. Weisburger, is looking for a major insurance carrier to offer pollution liability insurance to the lawn and landscape maintenance industry.

Weisburger said it is particularly important that companies obtain occurrence pollution liability coverage rather than claims-based. Under occurrence coverage

anything reported either during or after the policy period is covered rather than claims-based, which covers claims made only during the policy period.

Typically, he explained, coverage needed by these industries includes contamination and pollution (covering spray drift contamination and well water pollution); care, custody and control (work in progress); bodily injury; property damage; completed operations; and workmen's compensation. A general liability policy may not include contamination and pollution and care, custody and control coverage.

- Major trade groups, including the Outdoor Power Equipment Institute continue to lobby Congress and state legislatures to pass reforms in product liability litigation. While 30 states have passed tort reform legislation, Senator Robert Kasten, (R-Wisc.), predicted there are enough votes in Congress to pass a product liability bill this session, the issue remains in doubt.

Industry is working together in its efforts to bring about a federal law setting up uniform standards for product liability through the Coalition for Uniform Project Liability Law. — *Michael Marcellino*

The author is a free-lance writer based in Cleveland, Ohio.

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