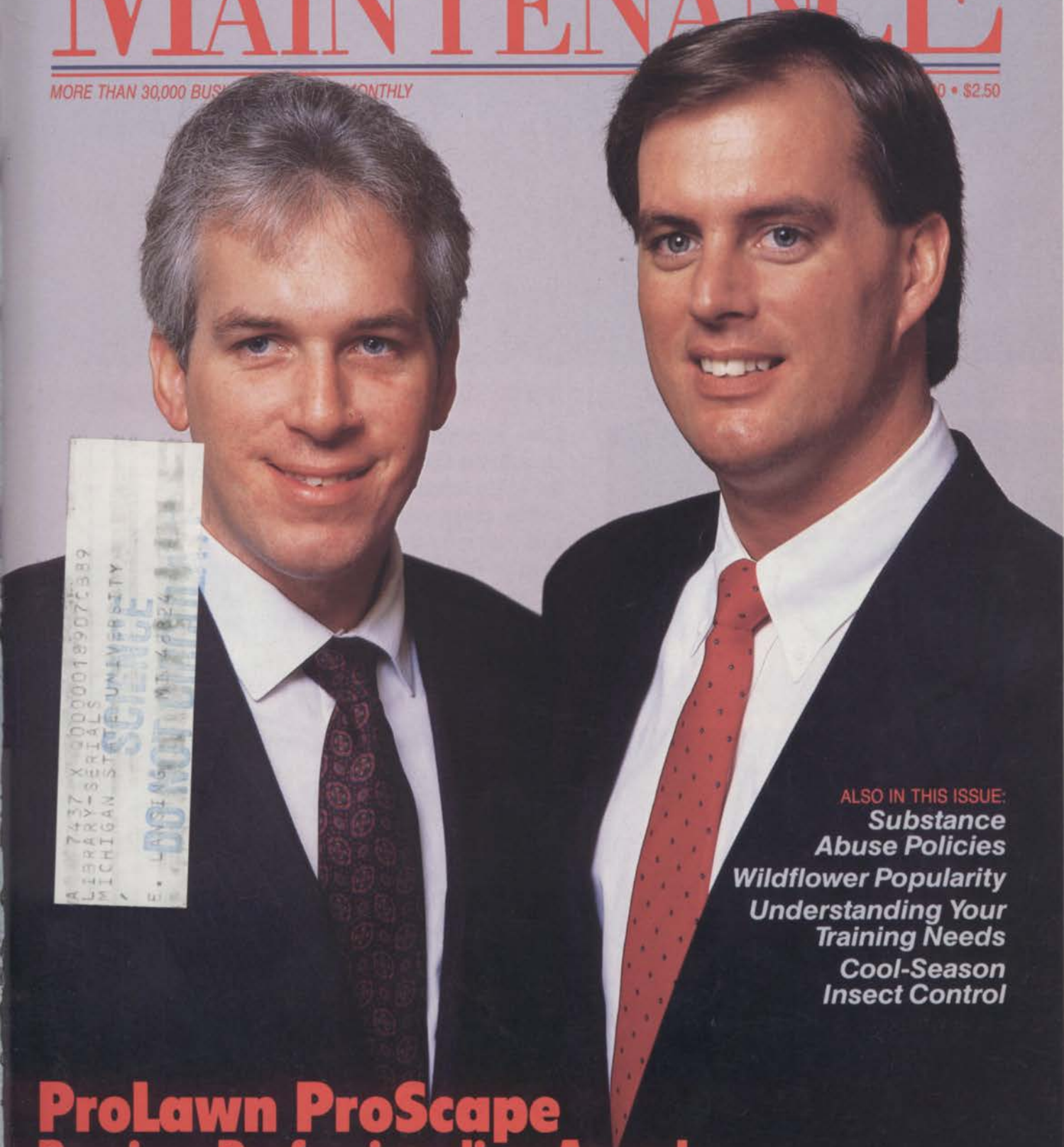


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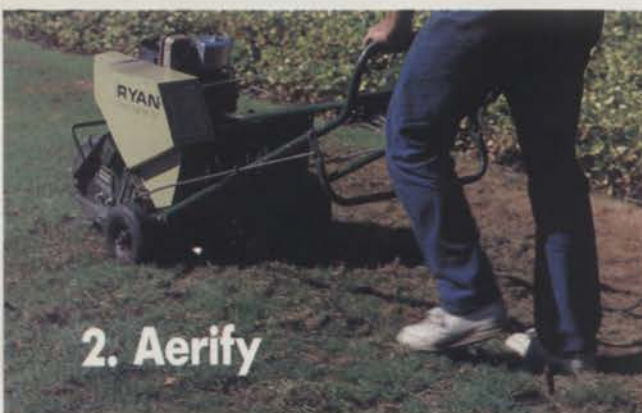
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Cincinnati, Ohio

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EDITOR'S FOCUS

IF YOU'VE EVER BEEN FRUSTRATED by the workings of Capitol Hill or callously passed legislation, there is an answer.

More than two dozen green industry operators will travel to Washington, D.C., later this month to gain first-hand knowledge of the inner workings of Congress.

The two-day congressional "Day on the Hill" program is being sponsored by the Professional Lawn Care Association of America and Monsanto Co.

The program is designed to inform attendees about dealing with Congress, and what path proceedings follow on the Hill.

A discussion of vital topics affecting the industry will also be presented with suggestions on how to get the industry's point across when meeting with state representatives.

A summary of pending legislation will be presented, as well as background information on the importance of the Farm Bill to the lawn maintenance industry. Proper Washington protocol will also be shared with attendees.

General topics expected to be covered are environmentally based issues such as the groundwater, air quality and the issue of grass clippings.

Day two will start with a breakfast at the U.S. Chamber of Commerce and be followed by meetings with individual congressmen. An afternoon debriefing will be held to share information from the morning meetings.

To date, the association has more than 20 people registered to attend, however, the total could reach as many as 50, according to Jim Altemus, public relations manager for Monsanto Co.

Members from Ohio, Pennsylvania, New Jersey, Delaware, Maryland, North Carolina, Georgia, Oklahoma, Arkansas, Michigan, Wisconsin, Oregon and Montana are expected to attend. Altemus said he was pleased that attendee interest was not focused in the East.

Rick Steinau, PLCAA president, said the idea comes from the National Pest Control Association. "I saw a need for it. It's a great opportunity for members to participate."

The program will provide many advantages: Member involvement, industry presence on a national level and unlimited educational benefits.

The Day on the Hill program couldn't



have come at a better time. With increasing regularity, it seems the lawn and landscape maintenance industry is being called to answer claims of unsafe practices.

And this year is no different as a new wave of interest in the lawn maintenance industry is spreading across Capitol Hill.

Tentatively set for March 29, Senate subcommittee hearings are scheduled to discuss potential regulations on such issues as groundwater, air quality and integrated pest management.

Consumer advocate Ralph Nader is expected to be in attendance along with the usual crowd of environmental activists.

Subcommittee hearings just happen to coincide with "Day on the Hill" events, but attendees are encouraged to sit in if time permits.

Strong support is particularly important this year as a wide range of attempts to attach innocuous amendments to the Farm Bill are expected.

"This is another reason members of PLCAA need to tell everyone that we are a separate part of the chemical use industry," Altemus said.

The "Day on the Hill" is expected to be an annual event — one which will go a long way in educating the lawn and landscape maintenance industry and those on Capitol Hill.

The program is scheduled for March 28-29. If you cannot be there, it would be wise to contact an operator who plans to attend to learn the latest legislative issues and what you can do to help present the green industry in a positive light. — *Cindy Code*

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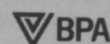
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RESEARCHERS ADVOCATE NEW TURFGRASS SELECTION THEORY

A NEW PHILOSOPHY IN THE SELECTION and irrigation of turf will significantly increase water conservation and reduce irrigation costs, according to turfgrass researchers at the University of California, Riverside.

UCR investigators said it's an obsolete practice to select one grass and one irrigation schedule for an entire area, such as a golf course, park or home lawn. To conserve water, turf types and irrigation schedules should vary and be determined by facility usage patterns. The information is based on the results of a four-year study.

Of the 1.4 million acres of turfgrass statewide, up to one-half in golf courses, parks and home lawns is used intensively for sports play. As a result, it must be maintained with optimum irrigation water for the grass to recuperate from wear and tear. Otherwise, bald spots and poor ground cover contribute to player injury.

The other 50 percent of the turf receives minimal foot traffic because it's located near clubhouses, along fairways or in remote places of the park or lawn.

UCR research showed that minimal traffic or non-use areas require little irrigation — up to 80 percent less than intensively used turf, if planted to particular grasses. This is the first time researchers have identified which grasses respond well to severe irrigation cutbacks in California.



Irrigation schedules should vary to conserve water.

Bermudagrasses and seashore Paspalum performed the best in the UCR study. Two species of saltbush, buffalograss and two varieties of Phalaris also gave comparatively good cover and quality under irrigation stress in low traffic areas.

"In areas receiving little or no wear, there is no need for irrigation regimes that support recuperative ability from heavy foot traffic. We have shown that irrigation water can drop to 20 percent of normal for these grasses, and they still look green, have a uniform appearance and give adequate ground cover in non-use areas," said Victor Gibeault, director of the UCR Turfgrass Research Project.

TRIAZONE EXPANDS LINE OF LAWN CARE PRODUCTS

Triazone, a division of Arcadian Corp., has

expanded its line of lawn maintenance products to include N-SURE, Formolene Plus, urea and urea solution.

The expanded product line is the result of a series of acquisitions that brought six major fertilizer producers — Arcadian Corp., Columbia Nitrogen, Triazone Corp., Hawkeye Chemical Co., Nitrex and the fertilizer assets of Olin Corp. — together under the name

of Arcadian Corp.

President of the newly formed division is Jerry Higdon, a 34-year veteran of the fertilizer industry and formerly president of Hawkeye Chemical Co.

Arcadian now produces urea, UAN solution, anhydrous ammonia, ammonium nitrate, superphosphoric acid and liquid ammonium phosphates for agricultural markets.

Triazone operates as a division of Arcadian and markets nitrogen fertilizers to the lawn maintenance industry, as well as a line of foliar fertilizers for agricultural markets.

Both Arcadian and Triazone are headquartered in Memphis, Tenn.

In addition to an expanded product line, the new Triazone division has more production points and more terminals on line. The integrated distribution system is expected to serve a wider geographic area.

WASTE MANAGEMENT MERGES OPERATIONS

WASTE MANAGEMENT Inc. has reorganized its lawn maintenance and pest control businesses into a single subsidiary under the name WMI Urban Services.

A merger between TruGreen Corp., and WMPC Inc., a pest control operation, led to the new name. The corporation will be based in Oak Brook, Ill.

Changes will be reflected primarily in the firm's internal affairs, since the businesses will continue to offer services under their original names.

The new entity will be headed by John Slocum, a 15-year veteran of Waste Management

Inc. who was past immediate head of TruGreen. Former WMPC president Jerry Seegers, from a "semi"-retired stance, will still take an active part in the business as a consultant.

The subsidiary was subdivided into two regions, with the northern region, more heavily involved in lawn care, headed by Don Karnes, a former TruGreen executive.

The southern region, which does more of its business in pest control, will be led by Dave Quarterson.

Said Quarterson, "The most important thing this change has given us is management

strength. It's allowed us to combine the strengths of both operating groups and bring the best of each to the table. It's also eliminated some redundancies in facilities."

Other corporate officers are Norm Goldenberg, vice president, government affairs, a position denoting WMI's increased emphasis on monitoring new legislation; Don Chapel, vice president, finance; Joe Winland, vice president, administrative services; and Steve Stanczak, vice president, legal, who takes over that position from the retiring Frank Krohn.

SAFER SELLS COMMERCIAL BUSINESS

Safer Inc., a manufacturer of environmentally sound pesticides and plant care products, sold its commercial pesticide division to Mycogen Corp. as part of a \$10 million financing plan.

The sale will allow Safer to focus on the rapidly growing retail market for its products and to increase its capital reserves. The agreement also establishes a scientific collaboration between Mycogen and Safer to develop new environmentally sound products.

(continued on page 10)



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The company once expected commercial sales to greenhouses and other professional growers to significantly impact the industry, however, the products proved a difficult sell particularly since they cost up to 10 percent more than traditional pesticides, according to a report in *The Wall Street Journal*.

The collaboration combines Mycogen's biotechnology to developing insecticides based on *Bacillus thuringiensis* (B.t.) with Safer's expertise in fatty-acid technology.

B.t. are naturally occurring bacteria that produce toxins that can be used to control specific insect pests. The synergistic combination of the two pest-killing technologies is covered by a Safer patent.

Under the agreement, Safer also obtains exclusive rights to sell Mycogen's biopesticides and bioherbicides in consumer markets in the United States and in other geographical areas.

The total financing package includes a \$2.25 million cash payment and a \$3.25 million equity investment in Safer by Mycogen, a royalty stream based on product sales and a conversion of debt and equity

investment by Safer investors. The total value of the transaction to Safer is \$10.15 million.

24-HOUR PARTS SHIPMENTS GUARANTEED BY ONAN CORP.

Onan Corp. has announced a special guarantee designed to ensure availability of replacement parts for specific models of Onan engines used in turf and other industrial equipment.

Onan's new "parts on demand guarantee" states that replacement parts will be immediately supplied from stock by participating distributors and dealers, or will be shipped direct from the factory within 24 hours.

If the order is not shipped within that time, the parts will be supplied at no charge to the customer.

This new guarantee applies to Onan Performer Series engines and is available only through authorized Onan service centers. Dealers should contact their Onan distributor for full details.

RHONE-POULENC PLANT LEAKS CHEMICAL IN W.VA.

A Rhone-Poulenc S.A. pesticide plant in Institute, W.Va., recently leaked about an ounce of methyl isocyanate, the chemical that killed thousands in Bhopal, India.

The leak, which occurred Feb. 2, injured seven workers, according to a report in *The Wall Street Journal*.

The French company bought the former Union Carbide Corp. plant in 1986. The leak occurred when the part of the plant that makes the chemical was closed for routine maintenance.

Methyl isocyanate is a raw material and is not used alone in the formation of pesticides. It appears in a variety of pesticides, but represents no danger in an end-use product, according to Vern Wenger of Rhone-Poulenc.

Workers on the repair crew weren't injured because they wore protective equipment. But seven contract workers building a nearby incinerator reported eye irritation, headaches and nausea. All were treated and returned to work the same day, according to a Rhone-Poulenc spokeswoman.

That part of the plant involved in the leak was temporarily closed for investigation by the company and the Occupational Safety and Health Administration, the spokeswoman said.

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Nick Truano, president of Valley Manufacturing Inc. said the move to focus on fleet sales promised great returns since saving time on labor is one of the best ways to improve the bottom line. A two-ton payload can be unloaded in seconds with the E-Z Dumper.

E-Z Dumper units are designed to be installed in standard pickup trucks (as a special order item available at dealers nationwide) with just a handful of bolts using holes already on your truck. No alterations are required in most trucks.

For further information contact, Valley Manufacturing 800/233-5532 or 717/762-1211.

PESTICIDE SHIPMENTS TO GROW 9% ANNUALLY

The dollar value of shipments by the pesticide industry is projected to grow 9 percent annually to reach nearly \$19 billion by the year 2000.

However, roughly two-thirds to one-half of this growth in sales will be inflationary. The remainder of the increase will be through product improvement and changes in product mix.

Volume shipments are projected to increase in average by more than 2 percent annually to 1.3 billion pounds by the year 2000, according to a recent study, "Pesticides: Trade, Technology, Markets and Regulations."

Despite a number of fundamental market changes, the dollar value of shipments by the pesticide industry has more than doubled between 1977 and 1988. The value of shipments by U.S. producers increased by 8 percent annually over this period, reaching \$6.6 billion by 1988.

However, the volume by weight declined nearly 30 percent. The total volume of pesticide shipments for 1988 was 1 billion pounds, down 3 percent annually from nearly 1.4 billion pounds for 1977.

According to the study, released by Leading Edge Reports, a Cleveland, Ohio-based market-research company, a number of factors, both short-term and long-term, have contributed to the decline in shipments over the last decade.

On the long-term side are fundamental improvements in pesticide effectiveness as a result of technology leading to improved formulas, biopesticides, naturally derived products and better application methods.

In addition, demands from environmentalists, expected to persist through the foreseeable future, are leading to increasing regulatory restraint on pesticide production and use. ■

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ASSOCIATION NEWS

A RECORD-BREAKING CROWD OF 9,055 growers, landscapers, suppliers and others attended the **Mid-Am Horticultural Trade Show** Jan. 19-21 at the Hyatt Regency, Chicago, Ill.

This year's attendance was up 9 percent from last year's figure of 8,303. Those attending included: 6,760 buyers; 1,749 exhibitors; 511 students; and 35 media.

Next year's show is scheduled for a Thursday through Saturday run and should alleviate some first day crowds that appeared this year when opening day was on a Friday, said Donn Sanford, the show's managing director.

The show is sponsored by the **Illinois Nurserymen's Association, Illinois Landscape Contractors Association and Wisconsin Landscape Federation.**

The **Outdoor Power Equipment Aftermarket Association** has published its second in a series of pamphlets designed to help dealers understand their rights when working with sales representatives who make unreasonable and sometimes unlawful demands on them about aftermarket parts.

Titled "It's Your Right," the pamphlet gives examples of pressures which may be placed on dealers by outdoor equipment manufacturers. The examples were taken from case studies contained in OPEAA's files and gives dealers appropriate information about their legal rights in resisting demands made by some sales reps.

The issue of requiring dealers to permit spot inspections by manufacturers to determine whether they are stocking any generic aftermarket parts and the resulting loss of their franchise agreement is addressed.

The following is the response given for that situation: "When a manufacturer

prohibits a dealer from stocking after market parts, but allows the dealer to sell replacement parts of other original outdoor equipment manufacturers, serious antitrust questions are raised."

Association members distributed more than 100,000 free copies of the first pamphlet "You Have a Right to Know" in 1988 and 1989. This second brochure is expected to generate even more interest.

The **Nebraska Turfgrass Foundation** has elected new officers and directors for 1990. New officers are: Hans Bross of Westlawn-Hillcrest Cemeteries, Omaha, president; Carlos Stimson of O.M. Scott & Sons Pro-Turf Division, Omaha, vice president; and Dale Amstutz, Northern Lawns of Omaha, secretary-treasurer.

New board members elected to three-year terms are: Craig Ferguson, Lochland Country Club, Hastings and Bill Jensen, Big Bear Equipment, Omaha.

The foundation also recognized outstanding turfgrass industry professionals for contributions to the industry.

Edward Kinbacher of the Department of Horticulture at the University of Nebraska, Lincoln, received the distinguished service award. In addition, two scholarships for \$250 each were awarded to two students enrolled in the university's horticulture department.

Mat Akers was named recipient of the Nielson-Wit scholarship.

Citing the uncertain status of the previously selected site and a wish to offer attendees high-quality accommodations, the **American Association of Nurserymen** has relocated its 1991 Annual Convention and Nursery Industry Exposition to Orlando, Fla.

The show was moved because of pending legislation in Missouri that could possibly lead to the destruction of the hotel that used to serve as the site for the show, said Lawrence Scovotto, executive vice president.

Many cities were considered for the 1991 show, but most were either already booked or did not have enough hotel rooms to accommodate the show.

The Walt Disney Dolphin Hotel on Disney grounds in Florida was judged to meet all the logistical specifications while offering economic value and an appealing location.

Unsafe practices can cost any company money. "100 Two-Minute Safety Talks," published by the **Associated Landscape Contractors of America**, help companies provide employees safety training in efficient and interesting ways.

The publication discusses ways to conduct safety talks, presents ideas to make company meetings more productive and supplies the 100 sample safety talks. Topics cover steps to take when someone is injured, common sense safety, defensive driving and information about heat strokes and heat exhaustion.

The cost for members is \$5 for up to nine copies and \$4 for 10 or more copies. For non-members, the costs are \$8 and \$10. Contact ALCA's publications department to place orders.

The **New York State Turfgrass Association** has elected officers and directors for 1990.

Stephen Smith, Buckner Sprinkler Co., Thompsonville, is president; Michael Maffei, Back O' Beyond, Brewster, is vice president; and Timothy Madden, CGCS, Mt. Snow, is treasurer.

Directors for 1990 are: Eugene Bowler Jr., Green Gene's Inc., Port Washington; J.R. Brundage, Brundage Lawn Maintenance, Medina; Thomas Corell, J & L Adikes, Jamaica; John Fik, Park Ridge Hospital, Rochester; Steve Griffen, Saratoga Sod Farm, Stillwater; John Liburdi, Heritage Park, Loudonville.; Karl Olson, CGCS, National Golf Links, Southampton; Tom Strain, Vestal Hills Country Club, Binghamton; and William Stark III, Turf Renovations, Homer.

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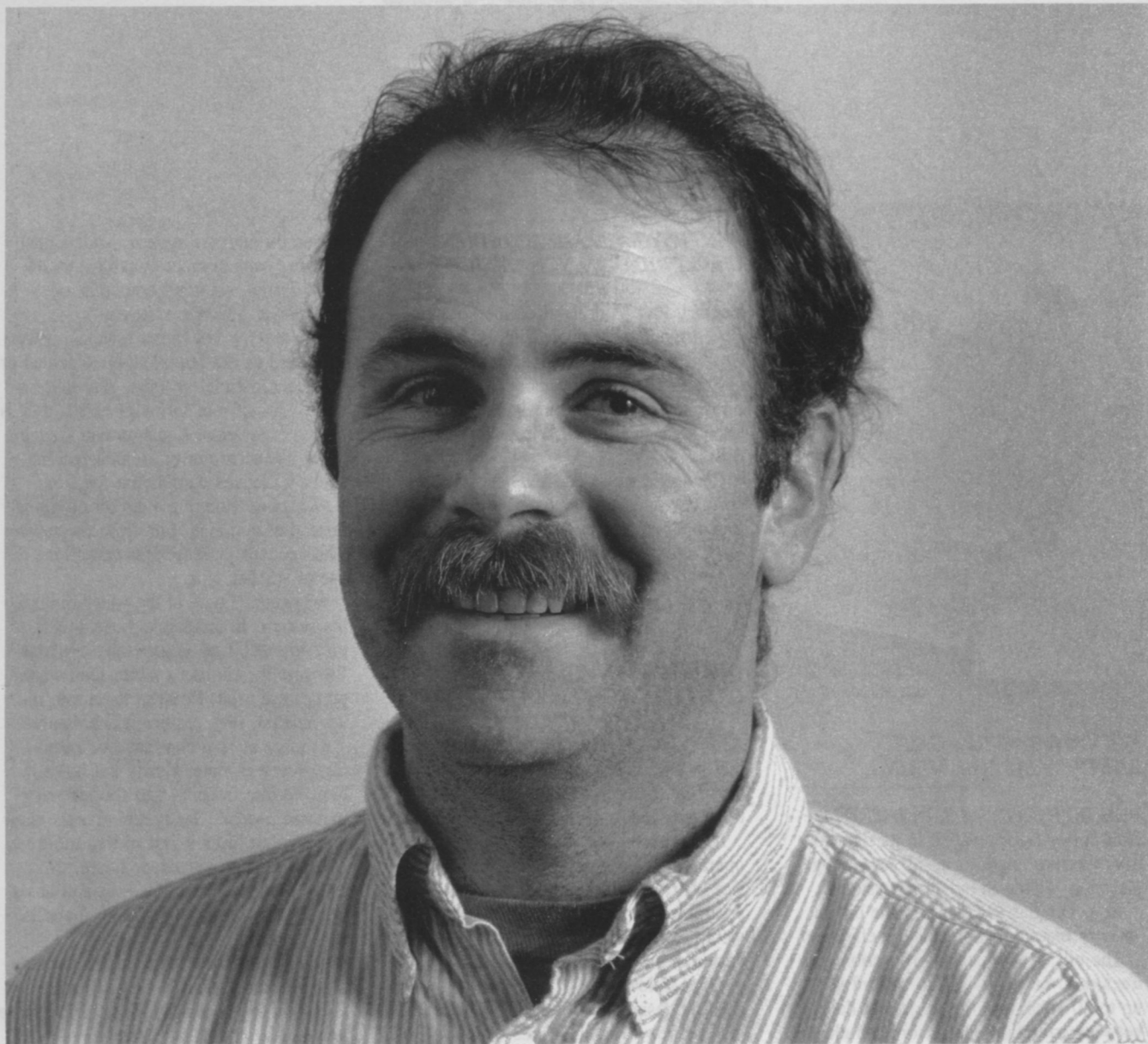
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N.J. CONTRACTORS GAIN RIGHT TO INSTALL WIRING

THE IRRIGATION ASSOCIATION OF New Jersey has prevailed in its fight to have the legal right to install low-voltage electrical wiring in irrigation systems.

Gov. Thomas Kean signed the bill in January making it immediately effective.

The bill, which permits irrigation contractors to install irrigation control wire up to 30 volts, was the subject of debate between irrigation contractors and electricians before being signed.

In municipalities where a permit is required for low-voltage wiring, the irrigation contractor can now take out a permit without an electrician's signature or seal.

The law only applies to low-voltage wiring. Contractors are still required to have an electrician perform the work when a line voltage (120 volts) needs to be run to the controller or a pump needs wired.

The State Electrical Board had actively opposed the bill claiming safety issues. The state association, however, countered that argument by claiming the electricians were attempting to make it an issue of protectionism.

Before the current legislation, contractors were required to hire an electrician to perform any wiring higher than 10 volts. Many times, according to irrigation contractors in the state, they would have to pay an electrician to take out the permit and then end up doing the wiring because electricians viewed it as nuisance work.

CENTURY RAIN AID ACQUIRES 7th FLORIDA BRANCH OFFICE

Century Rain Aid acquired the Orlando, Fla., branch of Melrose Supply & Sales Corp. The move expands Century's sprinkler irrigation business to 15 locations, seven of which are in Florida. Others are in Illinois, Wisconsin and Indiana.

Century designs and sells supplies for sprinkler irrigation systems, aerators, fountains, landscape lighting and sprinkler installation equipment and machinery to commercial, industrial, office, residential and consumer irrigation markets.

QUALITY IRRIGATION DESIGNS LEAD TO COST-EFFECTIVE SYSTEMS

As irrigation systems become more prevalent in landscapes, maintenance operators may find themselves being asked questions they really don't have answers to.

It may be a good idea for maintenance operators to become familiar with the basics of irrigation maintenance as well as several area irrigation installers they would feel comfortable recommending to customers if needed.

What follows is a brief overview of irrigation design. While the information may be new to maintenance operators, irrigation contractors may want to use it as a way of describing their work in laymen terms rather than technical terms.

Understanding factors such as soil type, water velocity and pressure are keys to displaying the cost-effectiveness of professional sprinkler irrigation design.

Explaining these and other elements will help irrigation contractors and landscape architects tell clients and bosses why quality design will save them money.

Designers need to keep several things in mind when designing irrigation systems. These include:

- Auto CAD.** An advanced computer aided design for sprinkler systems. The system digitizes elements of sprinkler irrigation designs for quick turnaround and accuracy.

- Coverage.** Uniform coverage is vital to turf health. Close-in coverage of gear driven heads can be spotty. Impact rotors can be placed farther apart and still get uniform coverage.

- Distance.** How far water must be

moved through the system. Maintaining pressure over distance is critical to efficient design, especially on some of today's lower pressure systems.

- Electricity.** For larger systems, power is needed to run pumps. On residential or small commercial systems, electricity is needed to activate sprinkler heads, as it is on larger systems. Location and availability of electrical power is important because it dictates pumphouse location.

- Looping.** Running a circuit of piping instead of a straight line from the source. This reduces pressure loss and allows the use of smaller pipe.

- Pressure.** Force of the water through the system. In residential installations, pressure of 60 psi is generally available. Pressure loss is less a factor than where pumps are used. Because these systems are smaller, they require less pressure.

- Soil type.** Is it clay, sand or loam? Clay receives water slowly but holds it best, so less frequent and shorter waterings are needed. Sandy soil accepts water quickly, but loses it fast so that more frequent watering is needed. Loam, or decayed organic matter, receives and holds water most evenly. It's usually found in the topsoil.

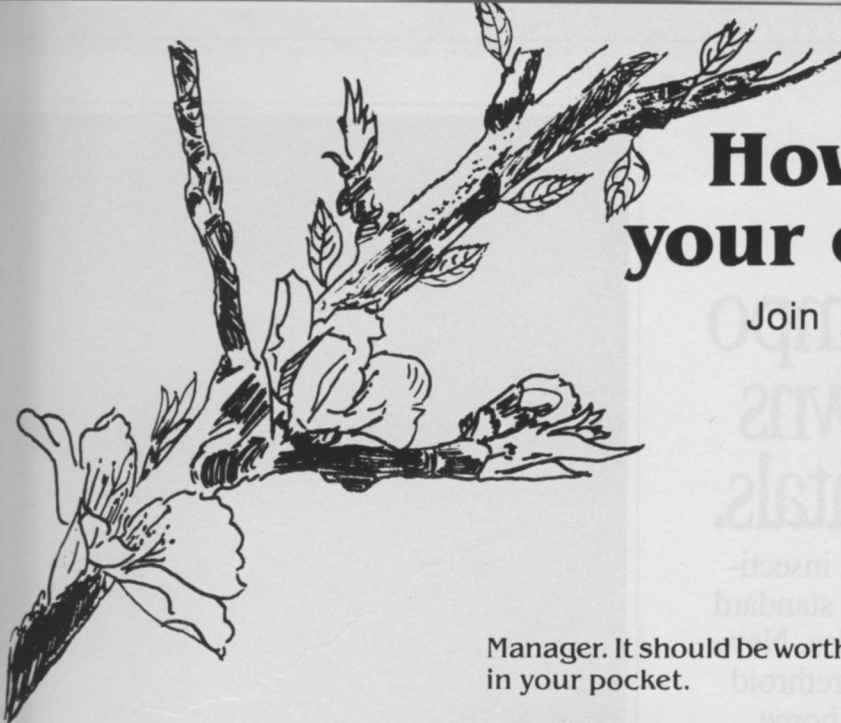
- Surge.** The rush of pressure when a pump-driven system is first activated. Surges in under designed systems can raise pressure by about 300 percent and threaten piping, heads and connections.

- Throw.** The distance a sprinkler head propels water. For large installations, impact sprinkler heads are recommended because they lose less pressure through the sprinkler body and give longer throw than gear-driven heads. Their lower trajectory minimizes loss of throw due to wind drift, and delivers more uniform distribution.

- Velocity.** The speed of water through pipes. It is regulated so as not to exceed five feet per second.

- Water location and quality.** Larger systems in parks or commercial installations may use natural water supplies. The location of the water source in relation to the farthest sprinkler head dictates design parameters such as pipe diameter, sprinkler orifice openings and pump horsepower.

Poor water quality may require heavy-duty pumps, aerator fountains to clean up algae in ponds or filters to remove potentially harmful mineral elements before it enters the system. ■



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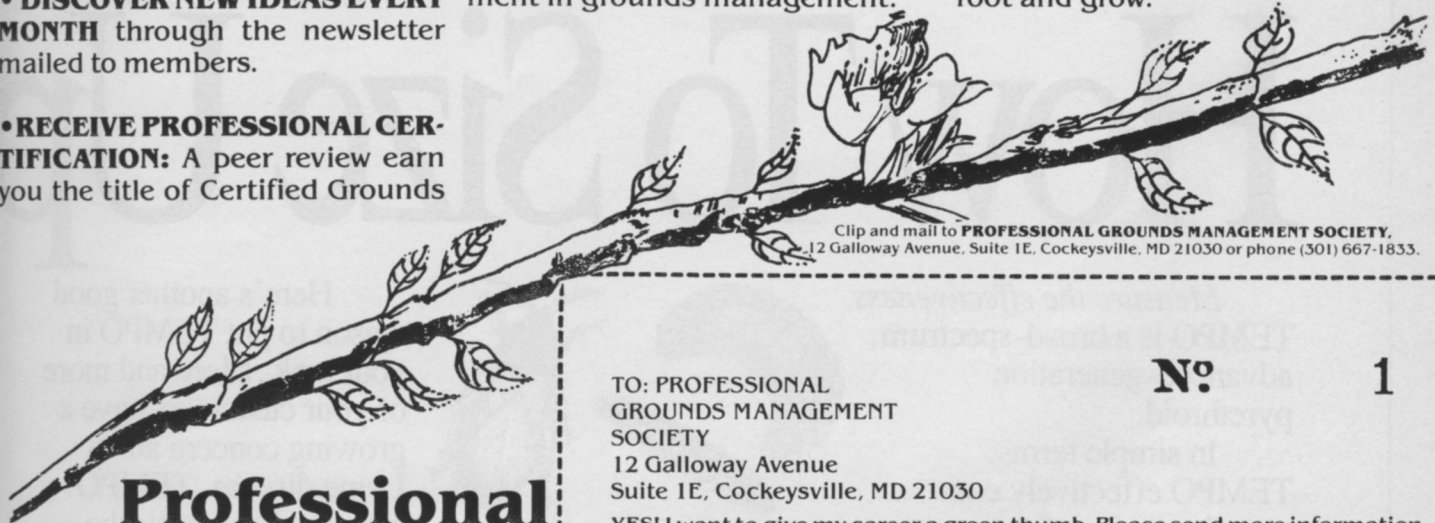
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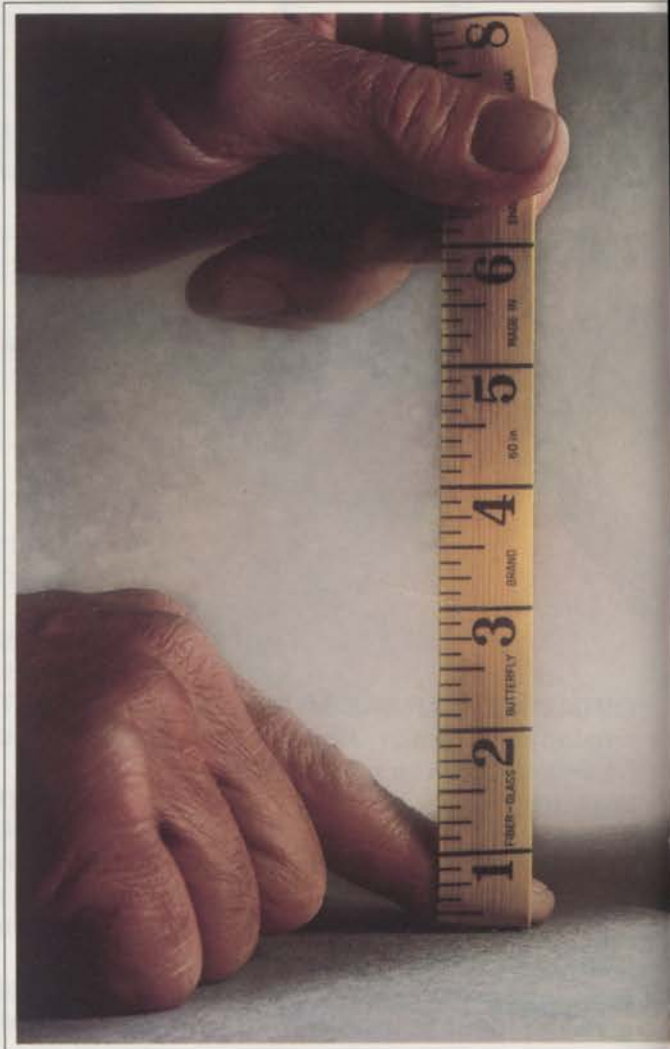
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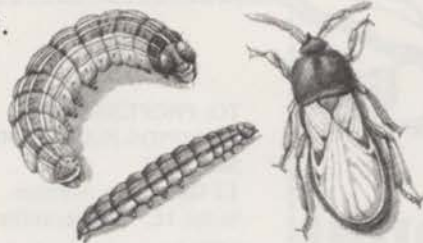
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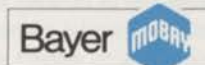
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LANDSCAPE CONTRACTING TODAY AND IN THE YEAR 2000

IN 1975, WHEN THE ASSOCIATED Landscape Contractors of America Crystal Ball committee first met, the group estimated that 18,000 landscape firms operated in the United States.

Fifteen years later, the committee is estimating that the industry has grown to 73,000 firms — a net increase of about 3,600 new firms a year.

In addition, the committee determined that the landscape contracting business remains largely entrepreneurial. But where 50 percent of the firms in 1975 were unincorporated, only 10 percent were unincorporated in 1989.

The Crystal Ball committee recently met to evaluate, update and predict the future of the lawn and landscape maintenance industry. What resulted was recognition of accurate and some not so accurate 15-year-old predictions for the future of the green industry.

The mission of the committee was to minimize roadblocks and stress and maximize productivity and profit, according to committee chairman Tom Lied, Lied's Nursery Co. Inc.

"We can't do the work, but we can lay the groundwork," he said.

After re-evaluating its 1975 report, the committee found it had established a relatively good track record.

Some predictions which became realities:

- Landscape maintenance has become a major profit center in the landscape contracting industry. In fact, the maintenance segment of the industry may be the fastest growing. As the size, complexity and importance of landscape increases, the maintenance segment of the industry will continue to grow

- Environmental awareness opened up new growth and opportunities. Governmental units promoted landscape opportunities by legislatively requiring quality landscaping for new developments.

- Government intervention has caused problems for the industry, magnified by the lack of control, direction or modification from landscape operators.

- The high cost of new development led to renovation of existing single family homes and commercial properties.

Predictions which weren't on target:

- In 1975, the committee predicted the trend toward interiorscaping would not become a significant part of the industry.



Maintenance needs will increase as the year 2000 approaches.

Interiorscape contractors, however, have not only grown in quantity, but also in size, visibility and profitability.

- Landscape as a natural energy source failed to meet its potential.
- A new landscape contractor specialist — the environmental contractor — did not materialize.

Of the 73,000 firms or individual practitioners estimated to be operating in the landscape contracting industry, only 23,000 were considered identifiable contractors who provide services in landscape installation, maintenance, tree work and specialty areas of irrigation, erosion control and interiorscape.

The remaining 50,000 are considered unidentifiable — those operating outside the recognized industry, but probably working as one-person companies and part-time or private gardeners.

Nationwide, the committee estimated up to 650,000 persons are involved in the industry.

INDUSTRY VOLUME. The industry produces an estimated \$30 billion in gross receipts in services and products. This volume includes contract, design-build services, interior and specialty areas and

excludes wholesale nursery stock and related wholesale products and mass market retail sales.

Since 1975, the number of firms involved in maintenance has almost doubled, and the design-build and interiorscape segments increased substantially.

Many of the 23,000 identifiable firms combine several specialties, claiming an average of three out of seven selected disciplines within the industry.

The number of firms claiming to operate in the following specialties are estimated as: design-build landscape contracting, 17,000; exterior landscape contracting, 15,000; landscape management/maintenance, 14,000; interiorscape, 7,000 to 10,000; and other specialties including golf course, irrigation and erosion control, 4,000 to 7,000.

Increased awareness by clients and quality landscaping has grown, although haphazardly, and with little coordinated promotion by the landscape industry. The changes have been forced through governmental restrictions or enforced adherence to environmental requirements.

New markets emerging since the 1975 report include: interiorscape; seasonal color as a specialty market in perennials and annuals; maintenance, protecting landscape investment; irrigation and water management, spreading from the West to other regions; storm water retention and control; and wastewater management and recycling water.

OPERATION OBSTACLES. Existing firms face the problem of attracting formally trained individuals who want to work from the bottom to the top and stay with the firm.

Although the number of formally trained individuals is growing, the demand for both two-year and four-year degreed persons remains high and probably exceeds supply.

Some students might join production staffs of existing companies, but leave six months later to start their own businesses.

This situation, in part, also leaves the industry short-handed of good production help.

The industry will face more restrictions on employment procedures and production from federal and state governments including: minimum wage, mandatory health insurance, restrictive working hours and conditions, mandated leaves of absences and general anti-management labor rules and laws.

To maintain adequate labor force to fulfill industry services, labor rates of at least \$7.50 to \$10 per hour plus benefits must be recognized.

The committee foresees continued urbanization of suburbs and the creation of "mega-opolises" in many parts of the United States, much like the continuous cities that now appear along the East and West coasts.

The suburban housing expansion will follow the path of the industry and jobs, and provide opportunities for landscape contractors to service the needs of those owning the smaller, subdivision lots.

Growth opportunities will continue to be tied to the construction industry and interest rates. The outlook for both of these areas is positive for the early 1990s.

.....

***The industry could expand by
30,000 to 35,000 jobs annually by
the year 2000.***

Single family housing starts may level off by the mid-1990s, from the 1.7 million new housing starts in 1986 to possibly only 1.5 million a year by the mid-1990s.

Cities will move to renovate and rebuild downtown areas to serve as community gathering areas, to improve a city's image and to keep business from moving to the suburbs.

Labor and government regulations and legislation could restrict market growth in landscape contracting. Immigration legislation threatens to limit the labor force, and the changing population means fewer available workers between the ages of 18 and 35.

As the landscape contracting industry moves toward the year 2000, opportunities look enormous. The industry could expand by 30,000 to 35,000 jobs a year.

Some of these opportunities will come in the following areas:

- Smaller unit developments will mean more intensive landscaping.
- More maintenance will be required because of increasing construction and two-income families willing to spend money on landscaping.
- Interiorscape should expand with

more offices, shopping centers and businesses whose employees and customers seek improved interior environments.

- Expansion of maintenance beyond horticulture and into hardscape areas, such as lighting services, janitorial duties, water features and hard surface maintenance.

- Corporations looking to contract out duties previously done by in-house divisions.

- Full services: Design, build and maintain. The challenge will be expanding into maintenance.

Problems restricting the industry's growth: Pollution and the possible greenhouse effect, restrictions preventing horticultural waste from being dumped into landfill sites will cause operational and cost problems, water shortages in some areas, unsatisfactory image of the landscape contractor, seasonal nature of the industry, undercapitalization of the industry, low bid mentality and the perception of the work within the industry, low profit margins and high failure rates of individual members.

Some of the problems and opportunities the industry will encounter over the next 10 years are beyond the capacity of sepa-

rate contractors to meet and solve. As a result, the industry should band together and pool separate resources of time and money in a coordinated effort to take an active role in shaping its destiny.

Crystal Ball committee members include: Tom Lied, Lied's Nursery Co. Inc., Sussex Wis.; Bruce Hunt, The Brickman Group Ltd., Long Grove, Ill.; Joe Skelton, Lifescapes Inc., Canton, Ga.; Gary Thornton, Thornton Landscape Inc., Maineville, Ohio; Ron Kujawa, KEI Enterprises Inc., Cudahy, Wis.; Bill Wilder Jr., North Carolina Association of Nurserymen, Knightdale, N.C.; Jim Keener, Landscape Association, Newbury Park, Calif.; Tom Garber, Colorado Landscape Enterprises, Arvada, Colo.; Ritch Skelton, Lied's Nursery Co. Inc., Sussex, Wis.; Jerry Lankenau, Lankenau-Damgaard and Assoc. Inc., Plymouth, Mich. and Dallas, Texas; and Michael Agin, University of Kentucky, Lexington, Ky.

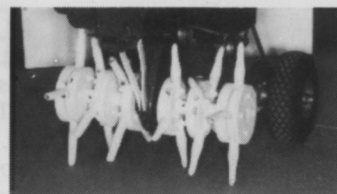
A copy of the Crystal Ball report, "Landscape Contracting in the Year 2000," is available for \$3 from ALCA, 405 N. Washington St., Falls Church, Va. 22046; 703/241-4004. ■

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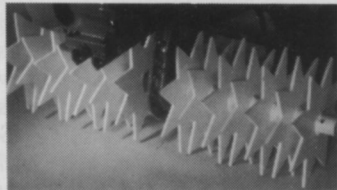
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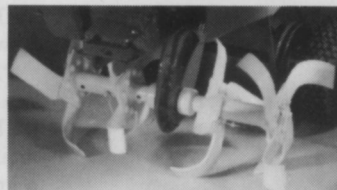
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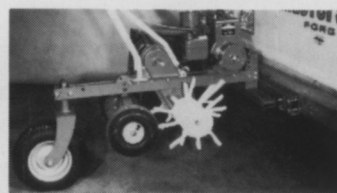


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Growth Key To Success for ProLawn ProScape

PHOTOGRAPHY AND AVIATION IS WHAT THEY ORIGINALLY studied, but the lawn and landscape maintenance industry is what won their undivided attention.

It was just eight years ago that brothers Barton, now 31, and Clayton, 29, Sheeler were tinkering with the idea of combining their separate mowing maintenance jobs into one full fledged career. Add brothers Scott, 27, and Kent, 25, to the package and what followed was Sheeler Lawn Care.

With 1989 sales surpassing \$1.5 million, the once small family company now maintains a new name; 30 year-round employees, about 60 during peak season; offers services through four fully staffed divisions; and is ready to expand business offices locally, and eventually elsewhere.

Meet ProLawn ProScape of Cincinnati, Ohio, the recipients of *Lawn and Landscape Maintenance* magazine's fourth annual Award for Professionalism. Atwood LawnCare, Sterling Heights, Mich., Greenlon Lawn Care Services, Cincinnati, Ohio, and J & D Landscape Contractors, Newton, Mass., were our previous winners.

Some of the criteria we evaluated when selecting our award winner included community support, involvement with industry events, customer satisfaction programs, condition of equipment, training programs and proper disposal of chemicals.

ProLawn ProScape also received strong support from our advisory board.

Offering services to meet their customers' every need is what ProLawn ProScape thinks separates them from their competitors.

"It's important to represent the lawn and landscape service industry at a level higher than the neighborhood kid, which is how we got into the business," said Bart, president of the company. "We like to present an image our customers can trust. A company which will give them a knowledgeable answer on a timely basis."

Clayton, vice president of operations, added that ProLawn ProScape prides itself on offering services to both its customers and employees over and above what other companies do.

"It's important for our employees to be involved with the organization as well as the community," he said. "We're not just in business for ourselves."

ProLawn ProScape offers employees achievement awards for promoting the company, takes a positive approach to management and maintains an open-door policy. "If we point out enough of the good things, the bad will generally correct themselves," Clayton said.

SERVICES. ProLawn ProScape offers turf, tree and shrub spraying through its lawn care divi-



Steve Salatin, a grounds foreman, pruning a taxus. ProLawn ProScape offers a variety of services through its grounds maintenance division including mulching, pruning and spraying of trees and shrubs, as well as complete bed care.



sion; mowing and landscape maintenance services through its grounds maintenance division; landscape design, installation, spring clean-ups, mid- to late-season mulching, pruning, renovation and repair through its landscape services division; and irrigation installation and repair and floral displays through its irrigation division.

Additional services offered by ProLawn ProScape include: bush hogging, weed eating, watering service, mid- to late-season mulching of landscape beds, core aeration, fall floral displays, tree services, mole control and snow removal services.

Anticipating an industrywide full service trend, the Sheelers initiated expanded services early on.

"It takes planning on a daily, weekly and monthly basis. You need to think about how the market will change in one or two years," Clayton said. "Three or four years ago, we realized the industry was diversifying and it's paying off for us now. Lots of customers are switching over to us."

The full service trend will be particularly important in the 1990s, he added, as the labor market gets tighter making it harder for small companies to survive.

It was that understanding of market trends and customer needs that started the company's landscape division. "We were beginning to see a big need for the replacement of trees and shrubs on an annual basis. It was a natural break for us," Bart said.

The company now has about 80 commercial grounds maintenance customers representing about 110 to 120 sites. In addition, the grounds maintenance division maintains 25 to 30 residential mowing accounts.

The number of residential mowing accounts is expected to drop off this year, placing more emphasis on the company's commercial accounts.

"The market is still young in full-service residential maintenance, but 10 years from now, it will probably go full circle," Bart said.

ProLawn ProScape represents 700 residential lawn care accounts in addition to its grounds maintenance customers which also receive lawn care services.

The other two divisions, landscape services and irrigation, naturally experience more turnover as projects are initiated and completed. The landscape division averages about 300 to 400 customers a year.

(Left) Dave Osborn, lawn care branch manager, deep-root fertilizing a deciduous tree. (Above) Doug Wells, grounds maintenance manager, and Mike Bussey, grounds supervisor, inspecting the turf at the Century Office Park.

New BlueBird Lawn Seeders Rejuvenate A Lawn Without Tearing It Up



Utilizing the latest technology in the science of overseeding existing lawns and seeding new lawns, the new BlueBird Lawn Seeders are available in two models, F-20 and F-20B.

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Delta Reels are standard equipment on our new Lawn Seeders. The blades in the Delta Reel do not tear up the turf due to their swept-back, beveled, leading edges. This blade design is unique in the lawn care industry.



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While newest to the company, the irrigation division will undergo some dramatic changes in 1990. Started in 1989, the division represented about 20 full-time customers. What used to be a one crew division will grow to two this year — installation and maintenance — representing about 30 customers.

The irrigation division also has direct responsibility for the flower care crew which includes the installation of all annuals as well as their maintenance. As market needs expand, the flower care crew could be its own division, Bart said.

In addition to Bart and Clayton, other managers include: Dave Osborn, lawn care branch manager, lawn and tree care operations; Mike Amaral, landscape services manager, landscape installation/design operations; Scott Sheeler, irrigation manager, sprinkler system installation/maintenance; Kent Sheeler, business systems manager; Doug Wells, grounds maintenance manager, grounds maintenance/production operations; Ron Mills, residential lawn care service manager; Lee Stoll, landscape supervisor, production/quality control; Mike Bussey and Tracy Murray, grounds maintenance supervisors; and Rob Williams, landscape sales/design.

BEGINNINGS. ProLawn ProScape started in 1982. Bart just graduated from college, while Clayton had one year remaining. The two, along with brothers Scott and Kent, combined 70 residential mowing accounts to form the company.

Parents, Don and Arta Sheeler,

were integral in areas of maintenance and office work, respectively, and in keeping their sons motivated during difficult times.

In its first year, the four Sheeler brothers were the company's only employees, working out of their parents home and transporting their equipment in the trunk of a car. Scott and Kent worked whenever they weren't in school.

"We decided to give it a shot for a year; if it worked we'd try again for another year," Bart said.

The company reported \$52,600 in sales the first year, quickly doubling that figure to \$102,000 in 1983. But with growth came adjustments such as an office, overhead, payroll and equipment.

"Sales were up, but we figured out we weren't covering costs," Bart said. "So going into our third year, we raised mowing prices and started commercial work."

In 1983, Sheeler Lawn Care became ProLawn followed by ProLawn ProScape in 1984 identifying its increased focus in the landscape services market.

ProLawn ProScape ran on a cash basis its first two years since credit lines were hard to come by. It wasn't until recently that ProLawn ProScape received a bank line of credit to support operations and growth.

Sales increased to \$231,000 in 1984. The company represented 300 lawn care accounts that year, and was doing more landscape work and commercial accounts.

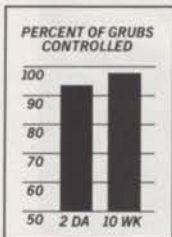
The company doubled its sales

(continued on page 26)



Kent Sheeler and Raleigh Moore working on inventory items.

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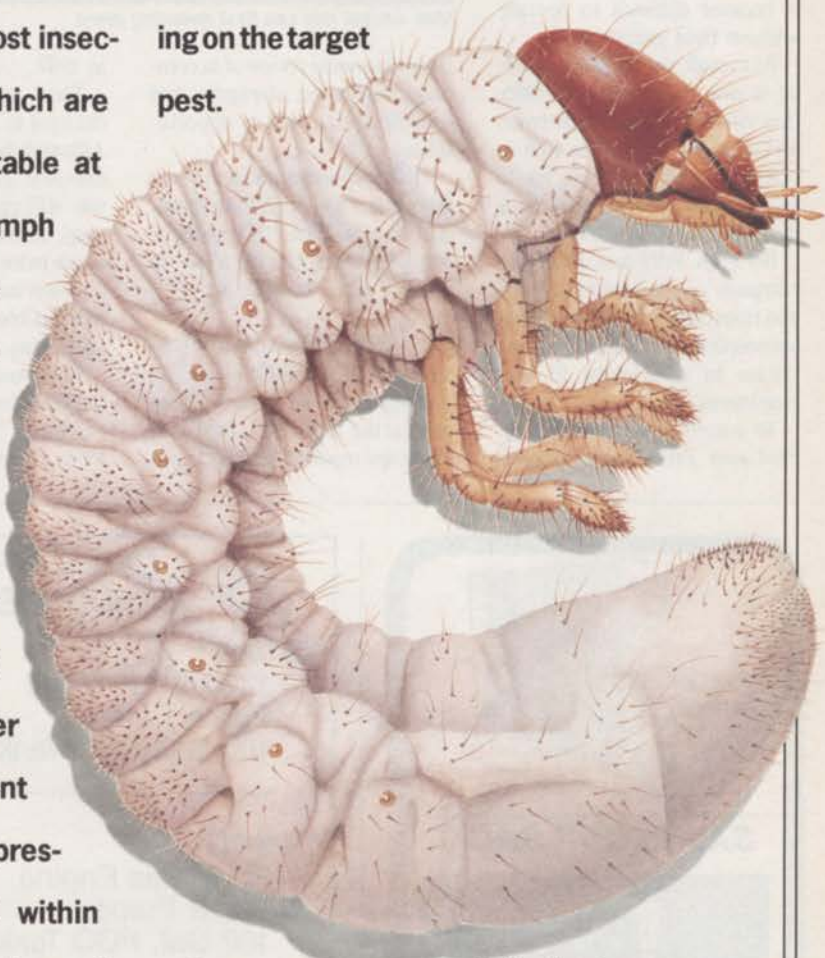
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ProLawn ProScope

(continued from page 24)

again in 1985, bringing in \$466,000.

After completing its fourth year, the company began experiencing some growing pains.

"We weren't being efficient in the field. Our philosophy was lots of employees for low pay," Bart said. "It didn't work. We were spinning our wheels."

Clayton added they were still trying to oversee every detail, and it became difficult to operate without field supervision.

As a result, the company decided to slow down sales. In 1986, they started paying their foremen and employees better as well as offering more benefits. While sales didn't double, they rose significantly to \$605,000.

Between 1985 and 1986, the company's peak employees dropped from 30 to 20 workers. They accomplished a 30 percent increase in sales with 10 less employees.

To control their own destiny, ProLawn ProScope managers



Mike Amaral and Lee Stoll reviewing plans.

began an annual review of its company evaluating strengths and weaknesses as well as opportunities.

"It's important to document your plans and stick with them, according to Bart. "If you don't, you'll have to shoot from the hip when a project comes up."

CONTROLLED GROWTH. Between the 1986 and 1987 seasons, the managers decided to keep sales at the 1986 level. ProLawn ProScope reported \$610,000 sales

in 1987.

That year brought more changes to ProLawn ProScope. Although the company had shown dramatic growth since 1982, it was still operating as one company. It was time, however, to create more structure, letting each division stand on its own and be responsible for budgets, hiring and firing.

Mike Amaral was hired to head the landscape services division, bringing "big-picture" experience to the company, Bart said.

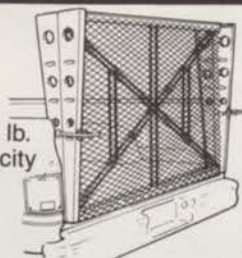
Amaral previously worked for B.L. Cohen Landscape, a multi-million dollar California firm. In two years, the division has become the company's second largest.

Other managers at the time were Clayton, heading the grounds maintenance division, and Osborn, heading the lawn and tree care division. Osborn originally worked with Tru-Green.

Wells, now grounds maintenance division manager, came to the company in 1989 from Davis Landscape in Maryland.

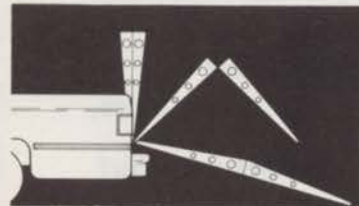
The next two years brought in sales of \$854,000 and \$1,758,000 in 1988 and 1989 respectively. 1989 divisional sales looked like this: \$810,000 in complete grounds maintenance contracts, plus an additional \$100,000 in non-contract work; \$480,000 in landscape services; \$325,000 in lawn and tree care; and \$43,000 in non-contract irrigation work.

About \$2.5 million in sales has been projected for this year. "We've always stressed that we've grown by design rather than



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luck or market conditions," Bart said. "It makes sense that you understand where you're going and only go that far. If you don't when you're changing that fast, it could destroy you before you know it."

The only thing that's consistent at the company is that it's always changing and growing. Between 1987-89, ProLawn ProScape tripled its sales.

Another change for the company came with the acquisition of Excel-Lawn of Cincinnati. The one-truck operation brought a number of residential accounts to ProLawn ProScape and Ron Mills who is now lawn care manager of all residential accounts.

The company's 1990 focus will include office operations and job costing. An office manager was recently hired and Kent will be the company's business systems manager, monitoring job costing procedures. Two more mechanics will be added to the in-house maintenance crew.

Customer service is the main key to growth in the 1990s, according to Clayton. If a property

needs an immediate facelift for a special event, the company is in a position to pull workers together to accomplish the task.

Although all four Sheeler brothers and their parents remain actively involved in the business,

ProLawn ProScape's goal is not to be just a family business, but rather a \$10 to \$15 million corporation.

Future plans include initiating a profit sharing plan, opening branch offices, possibly adding

interiorscaping and/or a nursery/garden store operation and eventually consulting work.

Although there are advantages and disadvantages to being a family run company, the Sheelers said they haven't stepped on each others toes too much over the years.

"During the trials and tribulations of growing so fast, we could lean on each other," Bart said. "We're all strong in different areas."

Some advice for those just getting into business: Find a good lawyer, accountant and banker first and then worry about what services you'll offer, according to Bart.

"You have to be in love with your work. You have to go into it knowing it will be tough and that you can't make it happen overnight," Clayton said.

ProLawn ProScape is the recipient of a number of civic beautification awards for its work at condominiums, churches and bank offices.

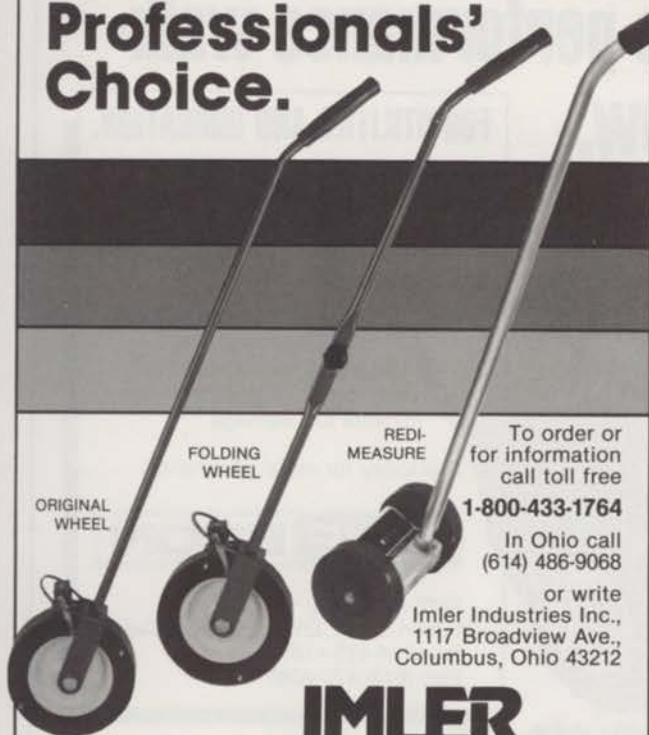
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Mike Tetrault performing a tune-up on a production truck.

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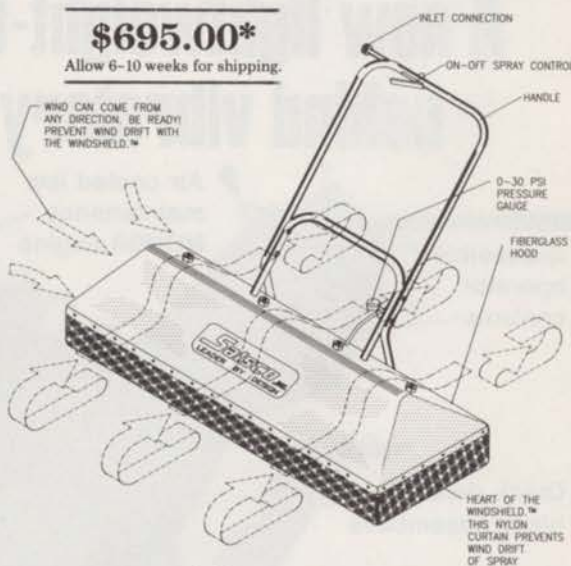
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Commerce, the Cincinnati Better Business Bureau, the Associated Landscape Contractors of America, the Professional Lawn

Care Association of America, the Professional Grounds Management Society, the Ohio Turfgrass Foundation, the Na-

tional Arbor Day Foundation, the Ohio Nurserymen's Association, the Kentucky Turfgrass Council and the Irrigation Association

among others. — *Cindy Code* ■

The author is Editor of Lawn and Landscape Maintenance.

OUR RUNNER-UP PROFESSIONAL AWARD GOES TO...

WITH THE TOUGH JOB OF SELECTING THIS YEAR'S professional company of the year behind us, we found ourselves left with a number of deserving candidates.

Although we'd like to acknowledge all of these companies, unfortunately space prohibits us. We would, however, like to award Zendt Brothers Landscape Contractors Ltd., with our runner-up award.

Zendt Brothers, Auburn Hills, Mich., was established in 1928 as a basic lawn maintenance company offering turf services and landscape bed preparation.

Today, the multi-million dollar company is a true full service company offering every conceivable design, installation or maintenance project through its diverse staff. Jack and Barbara Zendt run the company.

The company employs about 25 workers year-round and about 50 during peak season.

Zendt Brothers goes beyond the role of an average business through its community involvement, state and national association affiliations and equipment safety training.

"Professionalism starts with pride within the company," Zendt said. "It includes equipment, work ethic, pride in doing the job correct the first time and better than anyone else."

Equipment safety is a priority with Zendt Brothers. Regular maintenance of all machinery, vehicles and trailers is perform-

ed daily. If the crew or in-house mechanic is unable to repair something, it goes to the dealer for service.

Participating in association contests and award programs is another way for the company to instill pride in its work, while giving its staff a chance to see how they stack up with the rest of the country.

Continued education plays an important role in the company as it constantly searches for the best educated employees and strives to offer competitive wages.

"We show the rest that they can be legitimate businesses," Zendt said. "If you pay your dues and understand how to make money, you'll do all right."

Legislation regulating those entering the field is needed, he said.

Over the years, Zendt Brothers has won a number of environmental improvement awards at the local, state and national levels.

Zendt Brothers is a member of the Irrigation Association, the Associated Landscape Contractors of America, the Professional Grounds Management Society, the Lawn Sprayers Association of Michigan, the Michigan Association of Nurserymen, the Metropolitan Detroit Landscape Association and the International Society of Arboriculture among others.

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Wildflowers Bring Color, Variety to the Landscape

ATTITUDES ARE OFTEN DIFFICULT TO CHANGE. PEOPLE turn a deaf ear to the latest argument about why they should alter their thinking. But a picture — or more specifically a nice landscape — is worth a thousand words.

At least this is what people in the wildflower industry believe. The use of wildflowers in landscapes — both residential and commercial — has been steadily increasing.

As the use rises, the negative perception that wildflowers are nothing more than a "patch of weeds" has greatly diminished. People's attitudes change when they see a good example of a wildflower application.

"Maybe a part of the reluctance is caused by the name; it conjures up an unkempt image in people's minds," said Roger Lemke, director, Association for the Use of Native Vegetation in Landscaping. "But when they see an example of how wildflowers can be nicely integrated into a landscape, they lose a lot of that reluctance and begin to ask about the benefits and care."

The benefits include added color to the landscaped area and greatly reduced maintenance needs.

INDUSTRY SIZE. Wildflower seed experts have grappled with the size of their industry, but have not come across any definitive answers, said Gene Milstein, president, Applewood Seed Co., Arvada, Colo.

At a recent trade show, Milstein said, he was among several wildflower seed growers who were trying to determine the annual sales for the industry. The "guesstimates" they arrived at ranged from \$25 million to \$50 million a year, including resales from grower, to distributor to landscaper to customer, or about \$5 million to \$10 million in sales by just the seed companies.

"The differences between some of the guys' estimates were pretty large, but we all agreed on one thing. We're selling more seed than we ever have before," Milstein said.

A small indication of the industry's rapid growth can be measured by the wildflower seed sales at Pennington Seed, Madison Ga. Sales have increased five-fold in six seasons. In 1985 the company sold 5,000 pounds of seed, and projections for the 1990 season call for 30,000 pounds to be sold, said Don Roberts, company agronomist.

The increased interest in wildflowers is hitting a smattering of green industry markets, Roberts said. From golf courses to commercial landscapers to backyard gardeners, sales have increased.

Pennington has made the use of wildflowers easy by marketing a one-pound seed cannister for commercial uses covering 4,000 square feet. The company also offers a 1.75-ounce shaker

Increased interest in wildflowers is hitting a variety of markets. Photos: Lofts Seed Inc. (below) and Roger Lemke (bottom).





cannister for homeowner use.

Roberts said interest will grow as university research continues to refine wildflowers, making them adaptable to larger areas in residential and commercial landscapes.

Currently, Pennington is working with researchers at the University of Georgia. A large part of the research deals with wildflowers in different regions. Because they are literally natural flowers, seed companies market different blends to regions where those flowers are natively found.

Such research continues along with efforts to refine and discover varieties that grow to shorter heights — a common request among commercial accounts, Roberts said.

Advantages to using wildflower blends with both annuals and perennials is the color annuals provide the first year while perennials are establishing, said Marie Pompei, wildflower specialist, Lofts Seed Inc., Bound Brook, N.J.

Depending on the specific varieties planted, germination can take place anywhere from seven to 24 days after planting. Wildflowers are most successful on sites at least 2,000 square feet, she said.

When they are planted on smaller sites, the competition with weeds is much greater.

The more wildflowers there are in an area, the better chance they have of winning the war against weeds.

While the exact size of the market cannot be determined, you don't have to look far to find an example of wildflower use.

They are commonly used by park districts and highway departments as well as residential and commercial/industrial landscapers.

Lower maintenance needs are often cited as the driving force behind wildflower use.

When planted, most wildflowers require about the same treatment as turf until establishment. Afterward, that maintenance attention totals about 30 percent of the needs of turf. Mowing is usually only needed once a year in the fall.

As a maintenance operator, reducing the maintenance needs of



Photos: Bergen Park, Colo., Applewood Seed Co. (top); Rolf C. Campbell & Assoc. (middle); and black-eyed Susan from Lofts Seed Inc. (bottom).

your accounts is probably the last thing you want to do. But wildflowers are never going to replace turf and the need for regular mowing.

In fact, wildflowers can free up some of an operator's time during peak summer months, said Jim Safran, McGinty Brothers, Lawn Grove, Ill. McGinty Brothers is involved in maintenance work rather than installation, but the increased use of wildflowers has benefited the company.

"The main attraction to the customer, of course, is that they need less maintenance — basically being mowed once a year," he said. "But that doesn't mean we're only on their property once a year. Most people integrate it with turf."

Residences with established wildflower beds still require grass mowing during the summer. There is just less of an area to cut, which means more accounts can be done each day, he added.

Creating a prairie look has become popular in the upper-middle class suburbs of Chicago, Safran said. As a rough estimate, his work with wildflowers has probably doubled in the last several years.

Generally a one-acre site will have traditional landscaping and turf in the front and up to the house. But along property lines or further in back toward wooded areas, wildflower plantings appear.

"In the areas we work there's a real awareness of nature and trying to achieve that look," he said. "Many of the homes in this area are heavily wooded so creating a prairie-type look fits in well."



Photo: Roger Lemke.

While maintenance operators don't determine whether their accounts will incorporate wildflowers, designers and installers obviously do.

Jack DiClementi, director, landscape architecture, Rolf C. Campbell & Associates, Highland Park, Ill., creates prairie and meadow looks for some of the firm's commercial/industrial accounts.

"It's a good selling point," he said. "Once you tell someone that the maintenance costs are lower and that they'll have mowers out on the property less, they're pretty interested."

But before clients are completely convinced, they usually want to see several treatments themselves to make sure a manicured, professional image is kept.

"We basically work with our established clients," he said. "Wildflowers are a small but growing part of the market. There's great potential, especially as seed companies continue to refine them."

The industry has responded to the increased interest by refining the seed for different uses, Milstein said. Tamed wildflower mixtures have been introduced in the past several years.

"Some people have always objected to the weedy and unkempt look of some wildflowers," he said. "The newer tamed wildflowers aren't so weedy looking, don't grow as high and are more controlled."

In addition, Applewood is the first seed producer to introduce wildflower sod under the brand name Wildflower Carpet.[®] Its introduction should increase the attraction to homeowners and the landscape designer's ability to sell a client on wildflowers.

The sod is a mat of densely packed, 3-inch high perennial wildflower plants with well developed root systems, Milstein said. Once laid on the site, they begin blooming within two to three weeks.

The sod's appearance changes throughout the year. Each set of growing conditions will determine the color scheme, Milstein said.

Pinks, whites and purples should typically be dominant in the spring while yellows and reds take charge in the summer and fall.



Photo: Rolf C. Campbell & Associates

A major advantage of the sod is quick establishment. When grown from seeds, perennial varieties do not bloom the first year. That's why most wildflower seed is a mixture of perennials and annuals.

The annuals provide color the first year and in the second season the perennials take over.

"As with turf sod, the real selling point here is the fact there is almost immediate establishment and color," he said. "We think it's just the next step in the growth of the market."

It's too early to make sales projections for the first year of sod sales, but there was a "good amount" of interest and curiosity while the sod was still in the planning stages, according to Milstein.

PLANTING SEED. When planting wildflower seed, preparations are quite similar to seeding turf.

The ideal site for wildflower growth is one with little or no weed growth and access to supplemental water, Lemke said. Weeds tend to compete heartily with wildflowers and can overtake a planting.

Getting rid of weeds before

planting seed is probably the best way to deal with them. But that is easier said than done.

Some of the most common ways of killing the weeds are tilling, mowing and spraying Round-up.[™] Roberts said.

But depending on the area of the country, the soil and the specific weed, results from each method will vary.

The best time for seeding is early spring just before an expected rainfall.

A fall planting of annuals will bring some color earlier in the following season.

If you're interested in adding grass to the wildflowers for density or soil stabilization, the only two varieties the seed companies recommend are sheep or chewing fescues.

In some areas and under some conditions the two should be mixed, but in other regions one is better than the other.

It'd be best to consult a cooperative extension agent for more specific recommendations most conducive to your area. — David Westrick

The author is Assistant Editor of Lawn and Landscape Maintenance magazine.

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Bayard Sheldon, left, president of Silver Creek Landscaping in Sacramento, says that they use Embark as an edger and trimmer to keep Bermuda from creeping into flower beds or growing ragged around tree wells and

fence lines, as well as encroaching on sidewalks, driveways and walls. Center is Nick Subia, general manager of the maintenance division; and, right, is Charles Sheldon, Silver Creek vice president.



Robert McKindles, supervisor of grounds maintenance at Northwood Institute near Midland, Michigan wanted his entrance road to have a manicured look comparable to the ornamental turf on the main campus. He used two

treatments of the PBI/Gordon fine turf program, the first in early spring, and the second in mid-summer. "The roadsides were only mowed twice," says McKindles, "and the color was as beautiful as any turf on the campus."

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Everett Mealman, President
PBI/Gordon Corporation

Because Embark is a true plant growth regulator that redirects energy from seedhead development and stem elongation to root growth, there is almost no limit to the ways a turf professional can use it by adjusting the rate to fit the problem.

The experiences of Kevin York and Gil Chapel are one illustration of the many ways we have found that professionals are using Embark beyond the standard PBI/Gordon fine turf program.

York and Chapel work closely together in suburban Kansas City. In fact, they actually share office space. York owns York Lawns, Inc., and specializes in mowing, trimming, installation of sod and ornamentals as well as irrigation systems. Chapel owns Lawn Pro of Olathe and specializes in lawn and landscape management of fertilizing, insect, weed and disease control.

Chapel has very carefully followed the development of PGRs since they first

came on the scene. Little wonder, since he has a Ph.D. in chemistry and is active in the monthly Professional Grounds Maintenance Society educational programs. His expertise in landscape management is highly visible on many of suburban Kansas City's most beautiful commercial and residential developments.

...and from such knowledge he was able to help his friend Kevin York use Embark in his mowing contracts last year when abnormal rainfall caused excessive growth that threatened to get out of hand.

"Most of my accounts are on a per-mow basis," says York, "so my mindset is inclined toward investing in mowing machine maintenance and em-

ployee training rather than buying chemicals to reduce growth. But I was willing to try anything that would help me keep up with the avalanche of growth and scheduling problems caused by all the rain."

And thus it was that Chapel applied a low rate of Embark and Limit[®] on several of the properties York was mowing — to slow down the growth. The chemical cost to York was only about \$10 per acre.

According to York, it was one of the most profitable investments he has ever made. It not only slowed down the growth so that double mowing was eliminated, but it also reduced the man hours and mowing machine maintenance per acre.

But this is just one way professionals are experimenting with low rates of Embark PGR in the Kansas City area.

Consider the experience of Northwood Institute, near Midland, Michigan.

The entrance road at Northwood Institute is almost a mile long and winds through natural ground covers of majestic oaks and pines. The berm tapers off into a ditch on



Use rates and timing vary according to geographical area and with weather conditions, as well as with turf species.

each side that is well turfed but extremely difficult to mow.

Because the entrance road is such a vital element of the overall campus image, the Institute wants it to have a manicured look rather than your conventional highway look.

After considering all of the alternatives, Robert McKindles, supervisor of grounds maintenance at Northwood Institute, elected to treat the roadside with the fine-turf rate of Embark in a tank-mix with Ferromec® AC Liquid Iron — one pint of Embark plus 2.75 gallons of Ferromec AC per acre.

"The first treatment went down in early spring," says McKindles, "and it held the grass in a neat, attractive condition for six to seven weeks. Ten weeks after the first application went down, the roadsides were mowed and a second application went down.

"It held the growth sufficiently that only one more mowing was needed," continues McKindles, "and the color was as beautiful as any of the turf on the entire campus."

While use rates and timing may vary in other geographical areas and with weather conditions, Embark proved an invaluable tool at Northwood Institute.

Embark is also a priceless tool for edging and trimming. Just ask the folks at Silver Creek Landscape in Sacramento, California.

Sacramento has to be the ground cover capital of the world. At least 50% of the landscape consists of creative placement



Kevin York, left, owner of York Lawns, Inc. and Gil Chapel, right, owner of Lawn Pro, show Everett Mealman one of the commercial properties where they slowed down the growth

of the grass. "Using Embark to reduce the man hours per acre for mowing is an idea whose time has come for mowing contractors," says York.

of rocks, bark, ivy, and a wide variety of trees.

"We use Embark as an edger and trimmer," says Bayard Sheldon, president of Silver Creek Landscape, headquartered in the suburban Rancho Cordova area of Sacramento. "Sometimes I think we should call ourselves *manicurists*," laughs Sheldon, "because it seems that so much of our effort revolves around keeping Bermuda from creeping into flower beds or growing ragged around tree wells and fence lines, as well as keeping our ivy ground cover from encroaching on sidewalks and driveways and climbing up the sides of buildings. I don't know how we could keep up with it without the use of Embark to keep everything in its place.

The standard program for using Embark on irrigated fine turf

If Embark is a tool with virtually endless applications in landscaping, the standard Embark/Ferromec AC/Trimec® Herbicide program for fine turf is surely becoming the most significant development in recent years for reducing mowing costs, while at the same time brightening up the color of turf and strengthening its root system.

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nitrogen-iron bonding process, works within 48 hours to fix the color. The Embark kicks in later with its task of suppressing the growth rate of the turf by redirecting the energy from seedhead development and stem elongation to root development.

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The program will save two to four mowings during a seven- to eight-week period and, since the cost of mowing is known to be at least \$45.00 per acre, the savings can be as much as \$135 per acre per treatment.

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Designing Programs To Guide Your Firm's Work Force

Editor's Note: This article is the first of a three-part series on training. This month's article discusses the importance of correctly establishing a training program, and what it means to the future of your employees and the success of a company. The next two parts will explain the development of a lesson plan and implementing a program and follow-up training.

TRAINING IS AN essential part of any business today. The employee pool is shrinking, wage demands are high and qualified personnel are at an all-time low.

As a result, training must be used to mold available and affordable talent into the productive, technically competent individuals your business needs.

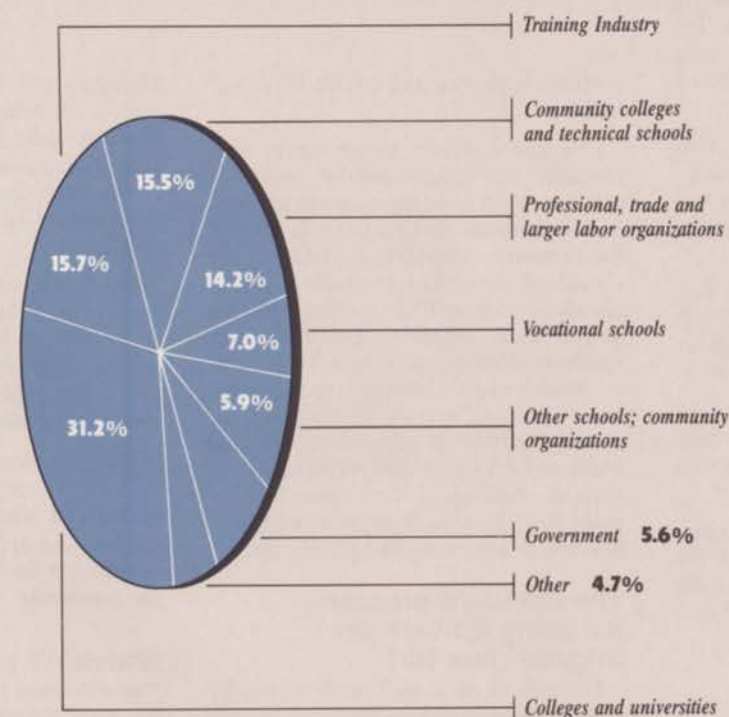
The term "training" has been used for years for the development of training programs. Facilitating the programs, however, has never been as important as it is today. Today's training has to cover a multitude of topics.

Training must be provided to ensure legislative compliance such as right-to-know regulations and pesticide certification requirements. It must also provide precise technical information pertaining to job function and procedure.

Training may also be used to convey ideas concerning people skills such as communication, management and sales. Training affects all aspects of today's business.

After understanding and accepting the fact that training is important and that a program

SOURCES OF EMPLOYER-SPONSORED TRAINING



Source: Small Business Administration and U.S. Census Bureau.

must be developed, how do you establish one? There are a number of questions that must be answered before the first word of the presentation is penned:

- Why will this training be done?
- What subject matter will be taught?
- Who is going to teach it?
- Who is going to attend?
- When, where and how should it be taught?

Let's address each topic.

WHY IS TRAINING DONE?

Training can be used to explain a task, influence a behavior, improve a skill, introduce a new procedure or product and for a number of other reasons.

Training will not correct a flaw in equipment, improve the ef-

ficacy of a product if it's used improperly or compensate for wordiness in a sales piece.

Make sure that training can solve the problem. Evaluate all factors involved to be sure they are correct and working properly. A simplified example of this follows: A service technician is required to make at least 20 stops per day, but it's not being done. Instead he is only performing 12 stops per day. What is the problem? Is it a training function?

It's very difficult to evaluate the problem with the limited information provided. It's important to remember, however, to evaluate the situation before beginning the task of developing and implementing a training program.

WHAT SUBJECT MATTER WILL

BE TAUGHT? An evaluation has been performed and a determination has been made that training is necessary. All of the elements involved with performing the task are intact.

Does the training have to describe a function, teach a procedure or acquaint an individual with the "pieces and parts" of a machine or other technical devices? You must ascertain what the needs are by questioning and observing individuals or devising some evaluative process.

This process can be as simple as a verbal quiz or as complicated as the assembling of some equipment. Once the subject matter is determined, training program planning can begin.

WHO IS GOING TO TEACH IT?

Most organizations today have some type of training process, be it formal or informal. Generally, a veteran employee ends up doing the training. Is this necessarily the right person?

It's probably true that this person knows the job, but is he doing it correctly and/or can he communicate this to the trainee? The first step to teaching a subject is to know it. That doesn't necessarily mean that the trainer works at this task, but it does mean that he has a working knowledge of it.

The next characteristic of a good trainer is that he be a good communicator. Without good communication skills all the technical information available about the task is useless. It's far better to use a good communica-

(continued on page 38)

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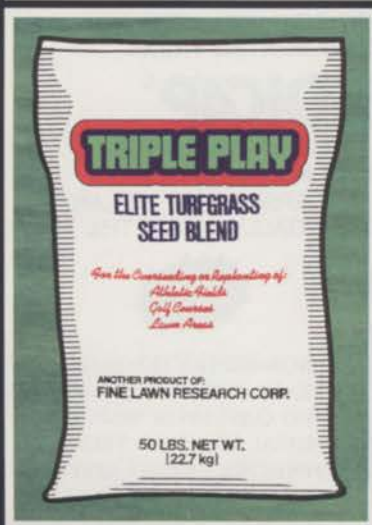


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Employee Training

(continued from page 36)

tor with limited job knowledge than a veteran with no communication skills.

If your company doesn't have a good in-house trainer, you must look outside your organization. It's not particularly necessary to go find a professional training company, of which there are many. Depending on the material necessary, however, it may be a viable alternative.

Trade organizations, business clubs, government agencies and industry consultants are also outside sources you can tap for training. No matter what avenue is selected, make sure all the material necessary is communicated well.

WHO IS GOING TO ATTEND?

It's essential to know the composition of the audience. Differing levels of education and experience demand differing levels of training.

The terminology used must fit the group, ranging from basic to highly technical depending on the

10 PRINCIPLES OF LAWN MAINTENANCE TRAINING

1. Develop a training objective.
2. Decide on an approach and be consistent throughout training.
3. Adapt training to the needs of an individual as well as the company.
4. Keep training basic and simple.
5. Teach one thing at a time.
6. Repeat, Repeat, Repeat.
7. Keep trainee busy learning.
8. Encourage out of classroom training.
9. Reward.
10. Follow-up with three Rs — Renew, repeat and review. — *Whitmire Research Laboratories Inc.'s Pest Management Quarterly, Vol. 1 No. 2.*

composition. The pace of the class is also related to the experience of the people present. The newer the people, the slower the pace as a general rule.

Reiteration and examples are also necessary to a greater extent with new trainees. More breaks may be necessary to allow their heads to clear between topics.

The main difficulty arises when the composition of the class is quite diverse. How can a trainer keep the attention of all experience levels? This is a difficult situation and is typical in many operations today.

One solution is to involve veteran employees in training new workers. Get the veteran employees involved with the training program. Keeping everyone's attention and cooperation is essential to quality training.

WHEN, WHERE AND HOW SHOULD IT BE DONE? Training should take place whenever there is enough time to do it. Do not rush through it. Plan, practice and time a presentation so enough time can be scheduled to do it properly, allowing for questions and conversation.

Schedule the training session when the trainees will most likely be attentive. This may be first thing in the morning or some other convenient time when the trainees are not in a rush.

Try to avoid times when the

(continued on page 40)

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Employee Training

(continued from page 38)

trainees are fatigued. Rainy or windy days are excellent times to train.

The location of the training session may vary depending on the subject matter. It must be convenient to all attendees. If those you are communicating with

POOR TRAINING EQUALS HIGH TURNOVER

Five key areas of training:

- Orientation and indoctrination.
- Vocation and job skills.
- Management and supervisory training.
- Professional and technical skills.
- Specialized training.

can't get to the training site, the session cannot be held.

The site must be large enough to accommodate all those invited. The training area may need materials for tables or other work space. Avoid overcrowding. Care should be taken to avoid large areas where trainer/trainee contact cannot be maintained.

Be aware of distractions that could disrupt a class such as open windows, telephone calls, vehicle noise, unusual odors and the like. Find an area that is conducive to training and maintain it. If it doesn't exist in your facility, look for a place elsewhere.

Site selection exceptions must be taken when field training is performed. This training must be performed outside, but the distraction must be limited. Securing areas away from busy road ways and the public is imperative. An industrial park or other large commercial property may work extremely well.

All training programs must be designed to communicate the information in a form that the trainee can comprehend.

FOUR SITUATIONS THAT POINT TO TRAINING NEEDS WITHIN AN ORGANIZATION

1. When workers have trouble with a task.
2. When workers tasks have changed.
3. When new employees are hired or when present employees are given new tasks.
4. When formulating long-range career development plans for an employee.

People learn in different ways. Some can learn merely by listening, others by seeing and still others by doing. A good program will contain elements of all three learning modes. Always back up lectures with examples in the form of hand-outs or other visuals. Videotape has recently been

adopted by our industry. Although, many good programs exist, they cannot stand alone. Interaction is needed to enhance the learning process.

Break up the sessions by varying the teaching techniques. Use all the ammunition in the arsenal, such as videos, slides, hand-outs and role-playing to drive the information home.

Trainees must be able to absorb the information offered or everyone's time and effort is wasted. Repetition through the use of alternative teaching methods will help make the program a success.

Attitudes concerning training are changing. It's no longer the "necessary evil" it was previously thought to be. It is now viewed as a valuable asset to companies in business for the long run.

Training, properly planned and facilitated, is one of the best investments any business can make. The bottom line is DO IT RIGHT.

— Dave Jones

The author is Director of Training for Lawn Doctor Inc., Matawan, N.J.

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Random Firms Providing Impetus for Drug-Free Workers

YOU'RE A SMALL BUSINESS owner with less than 30 employees. These are people you've handpicked. You have good judgment. You trust them. You probably feel that only larger companies — where the owner doesn't know all the workers personally — need to devise substance abuse policies to protect themselves, their clients and their workers.

A top consultant in the area of eliminating substance abuse in the work place claims that kind of thinking will probably lead to trouble for the small business owner.

Studies have shown that 65 percent of all work-related accidents somehow involve drugs or alcohol. Abuse of controlled substances also contributes to a higher incidence of equipment damage, absenteeism and productivity.

Smaller companies which haven't considered the need for such a policy often end up facing a lawsuit that could have been prevented.

Owners of lawn and landscape maintenance operations must recognize some of the aspects of their business that set them apart from other employers.

In many cases, employees are charged with administering and transporting what could be volatile chemicals. The work is also done on customers' private property, creating a wide open environment for lawsuits that many companies would never have to face.

Contrary to popular belief, it is the casual drug user who is more of a menace to employers than true addicts, said Bruce Wilkinson, president, Workplace Consultants, Gretna, La. Addicts don't pose as much of a problem in the work environment because they are easy to detect and often don't have the opportunity to hold a job let alone cause trouble.

"We call them (casual) the covert users, people who use drugs maybe two or three times a week," he said. "They are much more dangerous because they hold down jobs. Most times this

person doesn't react as quickly to situations that can lead to an unsafe act or an accident."

An important point to keep in mind when considering a substance abuse program for your company is that the intention is not to catch employees, but to make the business drug-free, Wilkinson said.

A good program is fair and equitable. To work properly and avoid lawsuits, an employer must not diagnose a worker as a substance abuser. Supervisors must be trained to look for and report possible signs of drug use — violations of company policy. They should not point fingers.

According to Wilkinson, good policies include distinct steps for a supervisor or manager to follow.

"Good programs get rid of drugs and not people," Wilkinson said. "If an employee is found to be using drugs, he should be given the

chance to clean up his act."

Specific conditions should be set for the person to return to work. These conditions can include professional counseling or enrolling in a treatment program. It should include a provision putting the person on probation with definite plans for a follow-up test before returning to work.

If the person doesn't agree to

(continued on page 44)



Photo: Wells Fargo Guard Services.

TESTING METHODS

X Pre-employment Testing

All applicants must pass a drug test before being hired.

X Periodic Testing

This will ensure that everyone is tested on a regular basis. It should be done as part of a driver's physical examination.

X Reasonable and Probable Cause Testing

Based on company supervisors trained to de-

tect signs of drug use, an employee can be tested.

X Random Testing

Having a computer pull names at random several times a year for testing.

X Post Accident Testing

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Substance Abuse

(continued from page 42)

such provisions, it can be cause for termination because it's a violation of company policy. First-time offenders deserve support in trying to change, but a second offense is inexcusable and a sign of bad faith. This most always leads to termination, Wilkinson said.

Wilkinson has 200 clients in 45 states. His extensive experience with drug abuse policies and violations show that most people nabbed by the policies do return to the same job.

"The casual user will usually give up using the drugs to keep his job," he said. "In many instances this acts as proof that there is a problem, and most people will take the necessary steps to correct the problem."

But the retention of those employees is dependent on management's attitude. If you view it as a serious error in judgment — but not an insurmountable mistake — the worker will be more likely to seek the proper help and return to work.

You as the employer are not obligated to pay for any counseling, but you should make employees aware of what's available and communicate to them that their job depends upon their willingness to get help.

The perception of fairness is important when devising a program. Including management as well as employees is crucial to the success of a policy.

If including drug testing in the policy, Wilkinson said, the best route to follow is what he calls "routine, periodic and intermittent." This differs from random testing because it involves everyone in the company.

Wilkinson said the best place for small companies to turn is their industry trade associations. Associations should make sample substance abuse policies — or a "cookbook" — available that will limit the cost of initiating a policy for the employer.

"This is really good for the little guy," he said. "By getting a sample and having something to use as a guide, he won't have to pay an attorney for the time to

devise the plan. He'll just have to pay the attorney to look it over and make sure its OK."

The Professional Lawn Care Association of America has a booklet available containing sample policies. It also explains current laws in various states that set regulations for what drug and alcohol abuse policies should and shouldn't contain. The booklet was written by Richard Lehr, PLCAA's general counsel.

A portion of the booklet explains the Federal Department of Transportation's drug testing procedures. The regulations cover drivers of trucks weighing at least 26,000 pounds and drivers carrying hazardous materials.

Under the regulations, companies with more than 50 employees were supposed to comply by December 1989 while smaller companies have until December 1991.

When an employee tests positive, the employee must be told what drug the test revealed. Applicants must be notified within 60 days only if they request it.

Because several court cases are currently challenging random testing, that portion doesn't yet have to be included in policies. Lehr said the main objection to random testing is that once a name is pulled it's placed back in the list, meaning someone could be pulled for testing several times.

In addition, a random test will not necessarily be representative of the company. It could possibly pick all minorities or all one age group.

CONFUSION. Ron Kujawa, president, KEI Industries, Cudahy, Wis., and past president of the Associated Landscape Contractors of America, said he is confused about what to do about drugs and alcohol in the work place.

"I am concerned about it and from talking to other company owners I know they are too," he said. "On one side there's a law that says it is your responsibility to provide a drug-free work place and on the other hand, companies that do random testing are constantly being sued over invasion of privacy. Employers are

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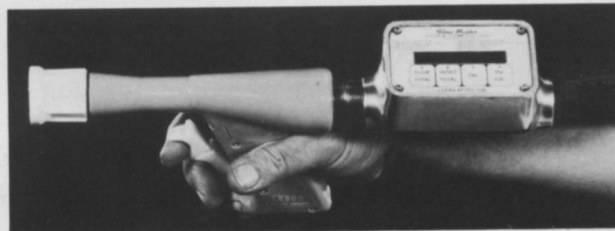


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caught in the middle and it is difficult to sort out. Nothing is black and white."

The company has stuck by two employees while they went through drug counseling and rehabilitation programs, Kujawa said. One has returned to work and is doing better than before, while the other returned for a short time and has since bounced from job to job.

Helping people after they've admitted they have a problem or need help is something Kujawa is willing to do.

"I've invested in these people, I trust them," he said. "I will stand by them. In fact, I really think of them as an extended family. But I don't think a person can be helped when they don't admit there's a problem."

While those are the only two that have been detected, Kujawa

said, he is fairly certain there are others now working for him who abuse drugs or alcohol.

"It's scary," he said. "We send them out everyday with trucks and equipment. If their judgment is impaired by drugs or alcohol, they could end up causing some serious, serious damage or even a death."

Kujawa has some questions he hasn't found any concrete answers to. They basically involve where and how to draw the line.

"Since alcoholism is recognized as a disease today, and we have right on our applications that we do not discriminate against race, sex, creed or the handicapped, does that mean we shouldn't hire someone we know is an alcoholic? Couldn't he say he was discriminated against because he has a disease — a handicap?"

A step in the right direction,

FOUR STEPS FOR SUPERVISORS TO FOLLOW

X Identify Policy Violations

An employee has come into work staggering, or he has not followed proper safety precautions when operating equipment.

X Document the Violation

Record such information for all workers in an employment file.

X Confirmation

An employer with reasonable suspicion of substance abuse can now require the employee to undergo a drug test. Remember that in the public sector, any employee involved in an accident is required by law to undergo a drug test. That is an ideal provision to include in a policy as a private business owner.

X Confrontation

If the test results are positive for drugs and the previous three steps were followed, this shouldn't be a problem. You have an air-tight, documented case.

But going back to the idea of the policy being equitable, and keeping in mind the policy was put in place to get rid of drugs and not people, an employee should not be fired at this point.

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according to Kujawa, is the company's detailed application form. The four-page form provides plenty of information about what the company expects of employees. These include using proper safety equipment, the strenuous work involved in the job and the company's expectation that they maintain their health.

It does its best to weed people out, but it's not perfect. Applicants are not required to provide a lot of information employers would like to know including whether the person is taking any prescription drugs or has filed for workman's compensation.

"We're doing a pretty good job attracting and maintaining good employees," Kujawa said. "I see other companies hiring what seem to be the real dregs of society and I think to myself I'm hiring a better quality. Yes we have problems and concerns, but it could be much worse than it is."

MUCH BETTER OFF. While Kujawa is adopting a wait-and-see attitude about implementing an exact alcohol and sub-

stance abuse policy, Jerry Moland, owner, TurfScape Landscape Care Inc., Chandler, Ariz., has a radically different approach.

He was appalled last summer when he learned two TurfScape employees were spotted smoking marijuana on a job site. He fired them immediately and he embarked on a mission to rid his company of drugs.

He now claims his firm is 100 percent drug free—a claim which is printed on employees' shirts.

Getting to that point turned out to be a tougher challenge than Moland thought it would be, but one that was worth it. He lost one-third of his employees after announcing the policy was being adopted, and that all employees would be tested for drugs in six weeks.

In addition, applications dwindled from an average of 75 responses to three when his classified ads stated all new hires would have to pass a drug test.

Moland wasn't prepared for the 10 weeks after starting the substance abuse policy.

"You bet there were times when

I wondered whether I did the right thing," he said. "I thought I had lost some good people. We were operating on a skeleton staff in the busy part of the year. We were losing money."

But his attitude changed when he saw the quality of work go up, even with fewer workers, and when people started replying to his ads because they wanted to work in a drug-free environment.

Even he has a hard time believing the turnaround.

"Being in a competitive industry known for hard work and pretty low pay, I don't think anyone would believe the morale level around here now," he said. I know if I wasn't seeing it myself, I'd have a hard time believing it too."

The TurfScape policy calls for testing everyone in the company—Moland included—once a year. It calls for all new employees to be tested before starting and requires anyone involved in an accident to be tested.

Technically, the plan calls for referring anyone found to be an abuser to proper counseling and permitting them to return to work

later. But Moland admits the two-week suspension an employee receives after testing positive for drugs is really meant as a deterrent to them coming back to work.

"Let's face it. People cannot live without two week's pay," he said. "They're going to go out and find another job. And that's fine by me because I don't want drug abusers working for me."

While Moland is proud of what he's done, he realizes it's not enough. Other companies have to get involved in adopting similar programs. He'd like to see the lawn and landscape maintenance industry strive to become drug-free.

"As far as I know there isn't another lawn maintenance company in my area with such a policy," he said. "I've literally pleaded with some of my competitors to start one. They say they can't afford to because they think they'll lose a good portion of their work force."

Moland calls that a cop-out. Yes it's true for the short run, but the problem corrects itself and even improves the whole working situation in the long run.

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People that can't get jobs because of testing are going to migrate to companies that don't test.

He also thinks it will take one of the "big boys" in the industry adopting a substance abuse policy for others to really take notice.

"People usually look up to the ChemLawns and the Waste Managements," he said. "If they would adopt them, I think many little guys would follow suit."

Carl McCord, president, Maintain Inc., Dallas, Texas, said he thinks the trend has even greater potential.

"If enough companies start adopting policies, there's going to come a point when others who have balked at the idea will be forced to accept it for survival," he said. "Because if I have a substance abuse policy, where are the people who don't pass my pre-employment tests going to go? To companies without policies. Those people that can't get jobs because of testing are going to migrate to companies that don't test. If you're a company not testing, you're going to be loaded up with the folks that have been rejected by the other companies."

McCord said he's considered implementing a plan for almost two years. It will go into effect in the next several months, certainly by the time the season starts.

His plan calls for preemployment individual testing and entire crew testing after an accident on a job site. There is no provision calling for the testing of every current employee as Moland did.

One reason McCord isn't going to test current employees is their number. In the off-season, he has a 160-member work force. That would be quite expensive to spend between \$25 and \$40 on each one.

He also said that during the time he's been considering the policy he and other managers have been trained to notice warning signs. None of them has noticed any employee displaying those signs.

"Right now, I think we have a very good group of employees, I'm confident there aren't any problems, but a few years ago I was really concerned," he said. "Also when the peak season comes, we'll add about 90 tested people.

Then one-third of the force will be verified drug free. I'm satisfied with that."

NOT MUCH CHANGE. Dave Sharp didn't have any problem implementing his substance abuse policy, didn't lose any employees when it went into effect and hasn't detected anyone using drugs. The policy has been in place for two years at Sharp Lawn Care Service of Birmingham, Ala.

"I basically did it out of a personal conviction against drugs," Sharp said. "We never had a problem in the past, but I thought it was a good safeguard to have."

The policy does not call for the testing of new employees, but Sharp said, the random testing is explained to all new hires. The random testing is done several times a year.

Sharp, like Moland, is the only lawn care company in his market with a substance abuse policy, and he can't wait for the idea to be adopted by others.

"A lot of them aren't interested in hiring good, clean people," he said. "You can tell just by looking at the crews and how they handle equipment and deal with customers. They're only concern is often finding a warm body."

While some owners might be joyous over the fact that his employees perform much better than the competition, Sharp looks at it as having an adverse effect on the whole industry.

"Let's face it. People do not have the best impression of lawn and landscape workers," he said. "We've tried to change that by encouraging our people to get further education. We offer tuition reimbursements. We pay a little more than the rest, but we feel we're getting more back than the others. Having industry-wide testing and policies would really clean up our image as a whole.

"And that can't happen soon enough." — *David Westrick* ■

The author is Assistant Editor of Lawn and Landscape Maintenance magazine.

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Suburban Sprawl Brings Foreign Markets Closer to U.S.

"THERE'S AN OLD story of the two shoe salesmen who were sent to Africa," said Des Rice, president, Turf Management Systems (Weed Man), Mississauga, Ontario, Canada.

"The first came right back and said, 'There's no market over there. The people don't wear shoes.' But three months later the second salesman called to say, 'There's a tremendous market over here. None of the people

same company. For instance, Weed Man's national marketing manager, Kent Jackson, is excited about the overseas potential, while Rice himself is much more skeptical.

Yet Rice believes that these differing perspectives are natural.

"It's Kent's job to be creative and look to the future," Rice said. "But I'm the one who has to deal with the realities of the here and now."

To start with the upside, Jackson said, "From our point of view there's a great deal of potential for lawn care specifically, and lawn and garden marketing generally, in the United Kingdom, France, West Germany and Australia."

Jackson is working toward setting up corporate offices in these countries and selling franchises to the local communities.

"Personal home services is a large growth industry throughout these countries," Jackson said. "People are getting homes and are losing their leisure time.

They are facing the same problems there as people are here."

Jackson pointed to the fact that Australia is undergoing an entrepreneurial wave and that the opening of the European economic community is improving the overall business climate.

According to Jackson, under Margaret Thatcher the U.K. has encouraged privatization and home ownership. The U.K. now has 73 percent home ownership as opposed to rental, which is a dramatic change over the past 10 years.

France, which has had more

retail franchises than any other European country, is now moving into personal services. West Germany is just getting into franchises, but the potential is there as well.

As citizens in other countries become better off economically, they are beginning to mirror the U.S. suburban sprawl, and that's good for the lawn care industry, said Efraim Donitz, president, EFCO Inc., North Hollywood, Calif.

"Now that people are becoming better off economically, they're starting to move into their suburbs," he said. "As they move from the city they'll also lead to the growth of the lawn care industry."

Donitz also noted the growth of the green industry in South America, though usually only in wealthy neighborhoods. But he was really amazed at the situation in Brazil.

"They're even starting to landscape industrial buildings, and we didn't start that until 25 years ago," he said. "Even in the poor neighborhoods you'll find a park with plants. When I remarked at how nice one of these parks was, I was told that Brazilians are very plant-oriented, and would rather not eat than lose their plants."

Clarke Staples, marketing manager, Cushman Inc., Lincoln, Neb., said broadcasting sporting events on television has raised the awareness of turf management on an international level.

"In the U.K. especially, it's quite common to have contractors come to do aeration and turf management for soccer, lawn cricket, rugby and other games," Staples said.

He added Sweden and Denmark to those countries designated as emerging areas of lawn care, as well as, to a lesser degree,

Belgium and Holland.

Then there's Canada. Many in the U.S. tend to regard Canada as a foreign market, but many Canadians think of themselves and the United States as part of the same North American market — at least in terms of lawn care.

"The only thing that separates us, really, is a hard dollar and a border," said Dick Raycroft, sales manager, G.C. Duke Equipment Ltd., Burlington, Ontario, Canada.

Though the Canadian population is smaller than that of the U.S. it is generally concentrated along the U.S. border and shares many of the same characteristics.

Bob Brophy, manager of Cushman's lawn care product sales, agreed that lawn maintenance in Canada pretty much paralleled that of the U.S. On a scale of 1 to 10, Brophy rated market maturity in both the U.S. and Canada at about a 7.

"I recently spoke to one gentleman who's been in the industry all his life, and he said that lawn care in the U.S. is where central air conditioning was in 1959. It's accepted by a lot of people, but not by everybody," Brophy said.

Nevertheless, it seems to be attracting the interest of people all over the world. "Our international business is exploding," he said. "One of the surprising things this past year at the International Lawn Garden and Outdoor Power Exposition was reading all of the attendee badges.

"There are always a bunch from Australia and Japan, but this year there were also many from Africa, Asia, the Arab states and Israel. The third world countries are becoming affluent and sending representatives to the U.S. to become educated in the care of their lawns."



Cologne, W. Germany. Photo: KolnMesse.

have shoes!"

Rice pointed out that this same dichotomy is present in the international lawn and landscape maintenance market. There's either nothing there, or great potential, depending on your point of view.

If you're looking toward the future, you're likely to see a lot of potential. However, if you are looking at the present situation, you're apt to be much less certain that the potential will really unfold.

Sometimes these differing points of view can exist within the

This educational process has taken some strange twists. Donitz pointed out that the widespread concerns over the environment are making local green issues global ones, especially on matters such as low volume irrigation and biological vs. chemical pesticide control.

Donitz said in many instances the United States is borrowing technology developed in other countries and adapting it to the green industry. Those countries then come to see how the United States has made that adaptation.

"It has to be pointed out that we are the leaders in the green industry," he said. "We take ideas from others and adjust them for our own needs. At times it is surprising to go into those countries and see how they are misusing their own techniques. They can't understand why we criticize them."

"Our population is green industry oriented. People like gardens with lawns. This is part of normal life in the U.S. But in most countries this is not the case, or it is just now becoming the case."

Rice agreed. "Other countries are always looking to see what happens in the U.S. and then trying to implement it. But it's a slow process. Because they're copying, they're always going to lag behind. They often don't know why they're copying. It's the North Americans who are usually innovating."

At first glance, it seems this desire for North American know-how would present an enormous opportunity to expand overseas. But at second and third glances the issue becomes more complicated.

First of all, a distinction has to be made between the international



Kiku-ningyo, a chrysanthemum-clad doll in Osaka, Japan. Photo: The International Garden and Greenery Expo.

market for golf courses, playing fields, commercial properties and residences. Residential markets in foreign countries are not similar to the United States, except for the suburban movement.

But foreign cultures are different from North America in terms of attitudes toward lawns.

"The grounds in Europe are so small," Staples said. "Many of the nicer homes are walled in for security reasons. It's not like the U.S. where you look down the street and a bad lawn stands out. There's not that peer pressure."

The yard is usually a walled in

garden area in back, the only approach to which is through the front door.

Cultures are different. In England, for example, people like to do their own gardening — primarily vegetables and flowers. People tend to hire a gardener only to do the heavy work. The typical gardener works out of his truck, staying perhaps several hours at one location before moving on to another.

Lawns are not that much of an issue. So simply adapting the high efficiency American system of moving from one house to the next

would not be applicable in England.

Jackson, who is enthusiastic about expanding internationally, is aware of the problem. "There are real pitfalls you have to be careful of," he said. "You can't expect to transplant what you're doing in Akron or Toronto directly to somewhere else because it won't work."

"Your techniques, customer relations, policies, all have to be adapted. Plant globally, implement locally. The best way is to personally study the market, then bring on good quality local

people.”

Jackson suggested the approach in England might be to focus less on lawns, and more on the gardening and horticulture side. The same underlying dynamics are present there as here — that people have less leisure time and therefore a need for more personal services.

Donitz pointed out that the adaptations might go both ways.

“I talked with a friend in a good-sized maintenance company who thinks that on one hand maybe he’s losing some business to the amateur gardener, while on the other he is getting it back, by doing exquisite little patios with just a few things,” he said. “It’s amazing what’s happening. This is not a static industry.”

The question remains whether there is really a market for North American companies to expand to other countries, or whether those countries might want to do it themselves.

“I would say that North American companies might sell their knowledge,” Staples said, “but as far as a company like

ChemLawn going over and providing that service as a franchise, I don’t think it would take off that well — in certain pockets maybe, but not as a general phenomenon.”

Rice reported that ChemLawn has offices in Australia operating under the name Ecolawn. On the other hand, a homegrown Australian company tries to give the impression that it’s an American company calling itself Eagle Lawn Spray.

Companies are not that easily transplanted.

“Baskin-Robbins went into Australia thinking it had a sure thing, for it is a hot country and people eat ice cream, but it folded three years later,” Rice said. “I don’t think North Americans are going to go out and colonize the world, especially in lawn care. There are too many things people don’t realize. Especially in terms of a total difference in the psychology of marketing. You have to understand the psyche of people, what motivates them to buy. Going into a foreign country and trying to sell lawn care is very

different than trying to sell a computer.”

Rice noted that you might look at a map of a city and estimate X number of lawns per the population base. But a comparable town in Germany may virtually have no front lawns at all. In addition, you can’t telemarket in England as you can in North America because telephones are not listed in the same way.

There’s also a question of supplies, which are readily accessible to professionals in North America, but may be non-existent in foreign countries. “You just can’t go down to the store and pick up some chemicals,” Rice said. “You may have to rethink your entire strategy from the supply side.”

Other obstacles Rice mentioned include trading laws, changing currencies between international borders and various withholding taxes.

Other cultural barriers foreign lawn maintenance businesses might experience is varying lifestyles. Australia, for instance, is a very laid-back country, so nobody works on the weekends;

in Germany it’s virtually impossible to fire an employee once you hire him; and in Canada, if the employee has been with you for three to five years, it’s difficult to fire him. He can be let go only with severance pay.

Yet, despite all these problems, Rice himself is opening up a franchise in Australia. He insisted he’s not motivated by the bottom line.


“The country is too far away for me to make a serious effort,” he said. “If I’m lucky enough to break even, and maybe make a couple of bucks, why that’s a reason to travel to that lovely country once a year for a couple of months.”

It may very well be that the international market is one of both vast potential and seemingly insurmountable barriers to fulfilling that potential.

Yet, this was exactly the same situation for the green industry in the domestic market just a few years back. — *Michael Major*

The author is a free-lance writer based in Port Townsend, Wash.

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Gain Experience Before Investing in Mowing



Hands-on experience is needed before trying to make a profit at mowing.

Editor's Note: Every entrepreneur has a different view of what it takes to operate a successful business. What follows is a profile of one man's ideas about what has made his mowing company a success. If you have an opinion on the topic or suggestions to offer, feel free to drop us a line.

MANY OF THE strategies of running a profitable mowing operation have less to do with the actual cutting of grass and more with the planning and managing of strategies.

First and foremost in developing a profitable business, according to Phil Rathgeb, Rathgeb Bros., Cape Coral, Fla., is selecting a niche of the market you want to serve.

"I think a big reason a lot of guys around here fail is because they're trying to cut the local gas station as well as the industrial complex, the condos and the high-priced prestigious homes," he said. "It is really difficult for the employee, the supervisor and the crew leader if one job is a prestigious home and the next job is the 7-11 store where all they're interested in is letting the mower suck up all the paper and beer cans, and keeping the grass level so people don't have to walk

through weeds to get to the door."

Finding that niche is important because it will affect many other decisions you make for the company.

For instance, more customers are interested in maintaining a well manicured look for the grounds. As a result, the company has to bag its clippings.

Because of that and the volume of mowing the company does, walk behinds have been rendered impractical. The company requires a large tractor because it cuts more grass before needing emptied.

Rathgeb foresees a problem with bagging and clipping regulations and has already implemented a plan to take care of it. Since the peak season requires the company to dump about five loads a day at \$30 per load, a barn was purchased for disposal purposes.

They are now dumping and composting clippings there, and plan to charge competition to dump there. The composted

have to mow in a little alcove or something like that. The old belly mowers come within about three or four feet leaving that area for hand mowing or edging. The out-front mowers go practically right up to it."

In addition to changing over to front-decks, the Rathgeb's are also using mowers with diesel engines. The company currently has seven John Deere diesel mowers all with a minimum of 4,200 hours.

"With conventional mowers, you get to 1,400 hours and they start needing engine work whereas the diesels don't need any substantial work until long past that point," Rathgeb said.

Another way of keeping equipment and maintenance costs down is to insure only the unassumable risks.

"You have to have worker's compensation. You cannot afford the risk of an employee getting hurt," he said. "But we can afford to have a trimmer stolen, so we don't insure it for theft. Along the same line, we can't afford to

.....

Once the equipment has been bought and the workers hired, you need to devise a plan to efficiently manage the two.

material will eventually be turned into fertilizer and sold to customers. Sales to customers are slated to begin in about two years.

The Rathgeb's have also switched to using all front-deck mowers because of higher efficiency.

"They generally turn in a tighter circle and are more maneuverable," he said. "They can get in and out of places, especially if you

have a tractor stolen, so they're insured."

Often just as important as the machinery is the person operating it.

"You have to find reliable dependable people with as few drug problems as possible," he said. "And you have to give them some sense of control. Even

(continued on page 56)

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Mowing Strategies

(continued from page 54)

though there's a set way we want each account handled, there has to be some perception that they have choices — that they're not just robots."

Once the equipment has been bought and the workers hired, you need to devise a plan to efficiently manage the two. Because the Rathgeb business is mainly condominium developments, crews usually spend an entire day and sometimes two days on the same grounds.

"If you pay \$13,000 for a tractor, you cannot afford to have that tractor sitting idle by the truck 30 percent of the time," he said.

The company uses four-man crews. Two men operate tractors and two operate edgers and trimmers. Typically, the tractor men mow along the perimeters so the ground men can first finish blowing before moving on to edging, trimming and weeding.

"If the crew leader planned the job properly and if we have assigned them the right job, then as the



Fenced-in property should be considered when preparing a bid.

tractor guys finish and go back to unload grass, the blowers are walking back, finishing off and avoiding down time," Rathgeb said.

In another attempt to eliminate down time, Rathgeb agrees to pay every worker 50 cents an hour to show up for work. If they don't show one day and do not call they forfeit 50 cents for every hour of work that week — generally at least \$20. That system creates some peer pressure to show up.

"Let's face it, if you have a four-

man crew with one showing up 15 minutes late, that's almost an hour of lost labor," he said. "If he doesn't come at all, you end up sending out three men to do a four-man job. These three don't appreciate doing the extra work even though it usually means overtime."

To eliminate travel time between jobs, Rathgeb first secures one account in a specific area then targets other nearby condominium developments.

"Another area crucial to the

success of a mowing operation but is taken care of away from the job site, is the writing of the contract. They have to be as specific as possible. There is no room for ambiguity.

"Our contracts are extremely specific," he said. "They state the frequency of each operation for each time of the year. It states when we trim, when we edge, everything. We never put 'as necessary' in a contract. If the client thinks he needs four trimmings a year, we give him four. We don't contract for a high quality of appearance because your idea of high quality and mine are probably going to be two different things."

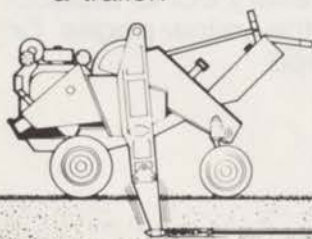
Rathgeb doesn't have a specific way of determining costs for a first time contract. Unlike many mowing companies, he does not measure the property's area. Instead, his son Pete, the owner, and he walk the grounds together taking into consideration the differing needs of the property.

Generally they look for basics such as: Is there water involved? Is the property fenced in? Is it

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thickly shrubbed? Is the property heavily treed? Those all increase the amount of time it takes to mow a property.

They also look for less obvious problems such as whether parking areas are close to the mowing areas and whether there is river rock along walkways.

"If you're mowing by parked cars, you have to figure that sooner or later a guy is going to back a tractor into a car," he said "The river rock is a problem because a trimmer could end up sending it through a person's window."

The pair's estimates became more accurate as they became more experienced. In the beginning, the estimates varied greatly.

"We look at it from experience now," he said. "We determine how full our schedule is for the equipment and number of men we have. If one account is going to force us to get more business to support a tractor we're using on that one account, then we know the contract has to be higher than it would be otherwise."

After the first year, Rathgeb insists on a multiple year contract

with his customers. This system has several distinct advantages.

The first is crews becoming accustomed to specific jobs. Crews generally become familiar with an account before the end of the first year, but the multi-year system gives them another two years of mowing at high efficiency. Rathgeb said this makes the operation cost conscious.

Also included in the second and third years of the contract is an agreement that prices will go up the same percentage of the

previous year's Consumer Price Index. If the CPI figure was below 3 percent, Rathgeb agrees to eat the increase.

When he met customer opposition to the company charging a 10 percent penalty for paying after the 10th of every month, Rathgeb simply reversed the policy. The cost of all accounts was jacked 10 percent and customers were offered a 10 percent discount for paying by the 10th.

"I got the idea that it's always better to express something in a

positive mode rather than in a negative," he said. "Rather than punish, why not reward?"

Rathgeb's best advice for someone wanting to start out in the mowing business is "Get some experience." Go to work for another mowing operator for a year or two before investing without knowing what you're doing.

Even so, problems are inevitable. But if you're honest and straightforward, people usually won't mind giving you a break.

"Early on we misbid low and got the job," he said. "About three months later we realized we were losing money. I went back to the board and told them I didn't want out of the contract, but I would like to renegotiate because we were new to this. I was asking for some understanding and they gave it to us. I think that's because we had been honest with them and they saw we were doing a good job." — David Westrick ■



Mowing close to a parking lot or near children affects your strategies.

The author is Assistant Editor of Lawn and Landscape Maintenance magazine.

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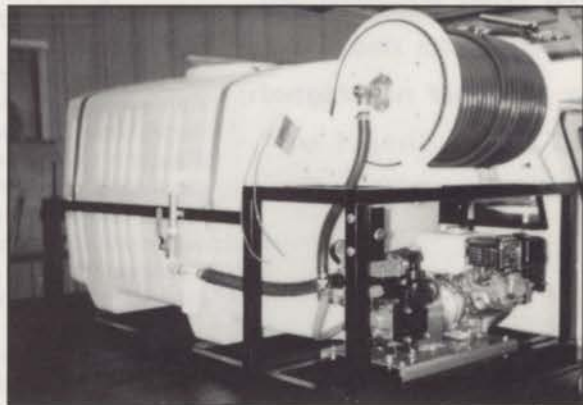


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THE 1988 AND 1989 seasons provided dramatic illustrations of the effects of weather extremes on turfgrass insect pests.

The droughty conditions of 1988 resulted in increases of chinch bugs, sod webworms and billbugs while white grub populations often collapsed. Areas subjected to cool temperatures and high rainfall in 1989 rarely saw a chinch bug or sod webworm.

Billbugs seemed to be somewhat tolerant of the wet weather and white grubs rebounded so dramatically that grub controls often appeared to fail.

Dry conditions apparently allow chinch bug populations to build up because a natural disease called *Beauveria* fungus does not grow well. It is also suspected that rain droplets falling when chinch bug nymphs are very small cause considerable mortality.

Sod webworm larvae are also susceptible to various fungal, viral and bacterial diseases which are suppressed by dry conditions.

Though billbug eggs and larvae may be protected once inside grass stems, the adults are fairly susceptible to *Beauveria* strains.

Above average rainfall or moist soil conditions in July and August benefit white grub populations. White grub eggs must absorb moisture from the soil in order to develop. The tiny first instar larvae also require good soil moistures in order to feed and develop normally.

Japanese beetles are somewhat different in their response to drought. The adults are active during the daytime and the females can visually search for green, dense turf for egg laying.

Therefore, turf allowed to go dormant in a droughty summer may not be as attractive to Japanese beetle females. On the other hand, high maintenance, irrigated turf is singled out for attack.

The other white grub adults (masked chafers, European chaffer, Asiatic garden beetle and May/June beetles) fly at night and tend to lay eggs near their emergence sites. As a result, they lay eggs in the same turf whether dry or moist.

Because of this behavior, the night flying adults tend to emerge right after a rainfall. This maximizes the eggs' chances of being laid in moist soil.

The turf infesting mites have also responded to weather conditions. Winter grain mites over the last couple of years have not been much of a problem even with moderate winter temperatures. This is probably due to the lack of a good snow layer which provides a necessary cover for this mite.

On the other hand, the clover mite has caused considerable damage to turf in the early spring in many regions. This mite does very well without snow cover and develops rapidly in temperatures just above freezing to about 70 degrees Fahrenheit.

NEW CONTROL TECHNIQUES. Several significant changes in the tactics for control of turf insects have occurred. Though no new insect or mite pests have been causing damage, some basic research efforts have provided needed information on pest biology and the action of insecticides in the turfgrass habitat.

Because of the necessity of presenting this newer information, we will assume that turfgrass managers can obtain information on the identification and

basic biology of turfgrass pests from cooperative extension publications or the numerous books which cover the subject.

WHITE GRUBS & IRRIGATION. Recent studies by Michael Vilani, Cornell University, have provided a better understanding of the reaction of white grubs to soil moistures.

As the soil surface dries, white grubs tend to move deeper into the soil (0 to 32 hours). In these studies, irrigation was applied at 32 hours and the grubs respond by coming to the soil surface within 48 to 72 hours.

This behavior helps us understand why poor control is often obtained when grub insecticides are applied to drought-stressed turf in July and August. It also implies that irrigation of dry turf several days before a grub treatment would be beneficial.

BINDING & DEGRADATION. Recent studies by Harry Niemczyk, The Ohio State University, OARDC, on the fate of insecticide residues in turfgrass have indicated that virtually all the registered insecticides are bound to thatch and organic matter associated with turfgrass.

In fact, 95 percent to 99 percent of these insecticides are hung up in the thatch. Irrigation before or after an application did not change this binding to any real extent.

Using a liquid vs. granular did not change this binding. The good part about this discovery is that turf insecticides pose little problem for groundwater contamination. The bad news from these studies indicate that white grub treatments may be rendered ineffective if the thatch layer is too thick or the soil moistures are inadequate to bring the white grubs

.....
Recent studies indicate that almost all insecticide residues are bound to thatch and associated organic matter.



Clockwise from the upper left: winter grain mites with feeding damage, hairy chinch bug adult, mature sod webworm larva with green frass, Japanese beetle grubs, bluegrass billbug adult, greenbugs and chinch bug damage to bluegrass lawn.

up to feed in the soil/thatch interface.

ENHANCED DEGRADATION. Virtually all current synthetic pesticides used in agricultural production are degraded by natural agents. Pesticides may be broken down by sunlight, chemicals in the soil and water, reactions in extremes of pH and microbes.

This breakdown is beneficial in reducing the chance of a pesticide moving to non-target environments (i.e. surface or groundwater contamination) or accumulating in the food chain. Of all the agents known to degrade pesticides, microbial degradation has received most of the recent attention.

Soil microbes, generally bacteria and fungi, seem to have the ability to "learn" to break down organic pesticides and use some of the byproducts for nutrients. Some pesticides seem to be more susceptible to microbial degrada-

tion than others.

Once microbes have learned how to use (degrade) a pesticide, they may build up high populations and destroy a pesticide so rapidly that it never reaches its target pest. This phenomenon has now been demonstrated for most of the turfgrass soil insecticides.

Again, relying on information generated in field crop usage of insecticides, several tactics can be followed to reduce the chances of establishing microbial degradation in turfgrass.

Continual usage of a pesticide, especially when pests are not known to be present, only allows the microbes additional chances to learn how to break down the chemical. Use an insecticide only once a season.

Since the microbial populations rise and fall during the seasons, their genetic make up changes constantly. By allowing them a single chance to learn how to eat a pesticide they may turn to other

things if that pesticide is no longer available.

If reapplications of a pesticide are needed, alternate products and preferably chemistry (i.e. use a carbamate if an organophosphate was used first). This should force the microbes to use different metabolic pathways in their quest to learn how to eat a pesticide.

NON-TARGET ORGANISMS.

Since most of the currently used turfgrass pesticides are relatively non-discriminating, other insects, mites or invertebrates are commonly affected.

Recent studies by Daniel Potter, University of Kentucky, and Patricia Vittum, University of Massachusetts, have illustrated these non-target effects.

Most of the turfgrass insecticides kill significant numbers of beneficial predators such as ground beetles and rove beetles. Other insects and mites suspected of helping reduce organic matter

(thatch) are also greatly reduced.

Fortunately, most of these beneficials appear to rebound within months or by the next season. However, this indicates the need to use pesticides only when necessary.

Probably a more significant side effect of insecticide usage is the destruction of earthworm populations. Though practically all the currently used insecticides may reduce earthworm populations to some extent, some reduce populations by as much as 90 percent to 99 percent after a single application.

Bendiocarb, carbaryl and ethoprop affect earthworm populations at this level.

Though earthworms may be considered a pest in some turf situations because they make "lumpy" lawns or deposit castings on golf course greens, they are the major thatch decomposing organism. Therefore, use earthworm reducing pesticides sparingly and, at most, only once a season.

INSECTS & DEGREE-DAYS. Our studies in Pennsylvania and

.....
Earthworms may be considered a pest in some situations, but they are also a major thatch decomposing organism.

Ohio with those of Jennifer Johnson-Cicalese, Rutgers University, have provided a better understanding of billbug life cycles.

Initial investigations reveal that the overwintering adults begin to lay eggs as soon as they become active. Therefore, we question the strategy of spring adult billbug control to prevent later damage by the larvae. A degree-day model suggests that only about 10 to 14 days are available for the adult control strategy to work.

If this window is missed, a significant number of eggs will have been laid and enough larvae will result to cause damage in late June and July. Where billbug populations are extensive, switching to a billbug grub control program may be necessary.

Recent studies by Niemczyk and

co-workers in Ohio have developed a degree-day model for hairy chinch bugs. This model indicates that the first generation of susceptible nymphs occurs in the turf during the last week of May and the first two weeks of June.

The second generation, which probably causes most of the damage, is in a susceptible stage during the last three weeks of August. This indicates a significant shift to later applications for chinch bug control.

ALTERNATIVE CONTROLS. Many turfgrass entomologists have been actively seeking alternatives to standard insecticide sprays. The currently registered products consist of milky disease, *Bacillus popilliae*, for Japanese beetle control, Bt (*Bacillus thur-*

ingiensis) for caterpillar control and entomophagous nematodes for cutworm control.

The standard milky disease is still only active against Japanese beetle grubs though other strains have been identified with activity on other grub species.

At present, the available strains seem to be marginal in cool soils, upstate New York and the North, and they may not be entirely effective in soils with extremes of pH or organic and mineral makeup. Considerable research will be needed to fully use this group of pathogens for grub control.

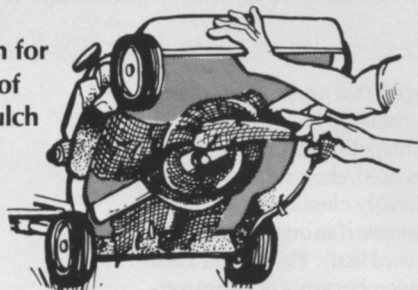
Several Bt products are registered for sod webworm control though little data exist confirming efficacy. Traditionally, Bt's have not been active against soil dwelling caterpillars, especially cutworms. Bt's also do not work well on larger caterpillars which is the stage most commonly detected in turfgrass.

The insect parasite nematodes, *Steinernema (Neoplectana)* and *Heterohabditis* are still under development though they are

(continued on page 62)

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Cool Season Insects

(continued from page 60)

currently available for use.

These nematodes seem to be effective against turf caterpillars if used at the one billion per acre rate and if irrigation is applied immediately. The soil active strains still do not give consistent control of white grubs and high rates of 3 to 5 billion are needed to get good control.

As the companies producing these nematodes develop, the cost and reliability of the nematodes should make them competitive with insecticides.

Turfgrass resistance has long been recognized as being a lasting pest management strategy. Unfortunately, resistance evaluations in the past have had to rely on factors such as turf growth characteristics.

Recent discoveries of fungal endophytes (fungi which grow within the plant but do not cause disease) in ryegrass and tall fescue have found that these symbionts confer resistance.

Endophyte-enhanced turf-

grasses are resistant to chinch bugs, sod webworms and billbugs. Therefore, turf renovation with establishment of high endophyte turf can eliminate a good number of insect pests.

TRADITIONAL CONTROLS.

The major new changes in turfgrass insecticides have been:

- Expansion of the Isazofos (Triumph, Ciba-Giegy) label to include golf course greens, tees and aprons.

- Registration of Cyfluthrin (Tempo, Mobay) for surface insects.

- The EUP (experimental use permit) of DowElanco's Curfew for white grub control.

Triumph 4E is a rapid acting organophosphate, contact insecticide with good activity on surface insects (1.0 lb. ai./a. rates) and soil pests (2.0 lb.ai./a. rates).

Tempo is a new pyrethroid with good activity on surface insects, in home lawns only. Caution is needed in reading the Tempo label because the rates are much lower than what is customary with turfgrass insecticides. Tempo 2E is

used at 0.09 to 0.14 lb. ai./a. This is equivalent to 4 to 6 milliliters per 1,000 square feet.

The Curfew IG will be used under an EUP in selected states this year. Its 1.0 lb. ai./a. rate has provided good control of white grubs.

It is evident that certain insecticides appear to be more or less effective in different regions of the country and against different species of white grubs. Therefore, we strongly recommend that you consult with your own state's extension entomologist for local efficacy information.

We would also like to point out that no insecticide is 100 percent effective in controlling insects. In fact, most have a 20 percent to 40 percent chance of failure (control less than 70 percent) which must be understood by the applicator and communicated to customers.

SUMMARY. The wise turfgrass manager can make use of weather extremes to eliminate certain pesticide applications or anticipate special needs.

Our growing body of informa-

tion about pesticide usage in turfgrass habitats suggest that judicious applications are necessary in order to reduce adverse effects such as beneficial organism destruction and microbial degradation. Some alternative controls are currently available, especially the use of endophyte enhanced turfs, but much more development is needed.

Use of traditional insecticides should be tempered with proper expectation. No insecticide provides complete control, but when used properly can serve as important management tools. — Paul Heller and David Shetlar.

The authors are professor of entomology, Pennsylvania State University, University Park, Pa., and research scientist of entomology for ChemLawn Services Corp., Columbus, Ohio respectively.

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Ecological Symptoms Of Pesticide, Fertilizer Use

TURFGRASSES, covering about 19 to 25 million acres in the United States, are often the most intensively managed plantings in the urban landscape.

More and more residential lawns, golf courses and other turf areas get regular applications of insecticides, herbicides, fungicides and fertilizers because the public demands dense, uniform, dark green turf.

Pesticides and fertilizers are indispensable tools of the modern turf

manager. However, it's clear from other agricultural systems that frequent or excessive chemical applications can sometimes have undesirable side effects.

Because pesticides may kill beneficial organisms as well as pests, their use can increase the risk of pest resurgences or outbreaks of secondary pests. For example, it's well documented that using insecticides against key orchard pests like the codling moth can severely reduce populations of predatory mites, allowing injurious spider mites to reach outbreak levels.

Pesticides and fertilizers may also affect earthworms and other soil-inhabiting creatures which play important roles in conditioning the soil, and in naturally breaking down plant litter.

In turf not receiving repeated applications of fertilizers and pesticides, excessive thatch accumulation and outbreaks of insects rarely occur. This situation suggests such turf is a relatively stable habitat in which thatch production is balanced by decomposition and in which pest insects are held in check by predators and parasites.



Many species of spiders help to reduce pest populations in turfgrass.

Surprisingly little is known, however, about the side effects of common turf management practices on these important natural processes.

The issue of the environmental side effects of turfgrass management has added significance because many charges have been leveled at the lawn maintenance industry.

Some people in the media and members of the general public have charged that the use of pesticides on lawns and golf courses is ecologically and environmentally unsound.

This article summarizes recent research which has begun to clarify how turf management practices may affect earthworms, predators and other beneficial creatures in turfgrass, and how these effects in turn may affect thatch decomposition and natural regulation of pest populations.

EARTHWORMS & THATCH. The Greek philosopher and scientist, Aristotle, called earthworms the "intestines of the earth." Indeed, earthworms and other soil-inhabiting invertebrates play a major role in the decomposition

of plant litter and nutrient recycling in forest and pasture soils.

These animals pull down and mix organic material into the soil, enrich the soil with their excreta and help fragment and condition plant debris in their guts before further breakdown by bacteria and fungi.

Plant litter decomposition is much faster with the combined action of soil animals and microorganisms than with microorganisms alone (4). The burrowing action of earthworms and other soil animals is critical to air and water infiltration in turfgrass.

Charles Darwin, known best for his theory of evolution, was also an early authority on earthworms. More than 100 years ago Darwin wrote: "The plow is one of the most ancient and most valuable of man's inventions, but long before he existed, the land was in fact plowed and still continues to be plowed by earthworms."

This process is especially important in lawns, golf courses and other turf areas which are "cultivated" mainly as a result of earthworm activity.

Thatch results from an imbal-

ance between production and decomposition of organic matter at the soil surface. Problems associated with excessive thatch accumulation include reduced water infiltration, restricted penetration of fertilizer and insecticides and shallow root growth with increased vulnerability to heat and drought stress.

Thatch is often a problem in cultivated lawns, especially when a high rate of nitrogen fertilizer is applied over four to six years.

THATCH BUILD UP. Excessive fertilizer may encourage thatch build up in two ways:

- By increasing organic matter production.
- By affecting earthworms.

Nitrogen fertilization commonly makes the soil more acidic (7), which may in turn inhibit the activity of microorganisms and earthworms. Earthworms, in particular, are intolerant of low soil pH and are generally sparse in acidic pasture and forest soils.

In a recent experiment (9), application of ammonium nitrate to Kentucky bluegrass at a rate of 5 lbs. of nitrogen/1,000 sq. ft. for seven years resulted in a decline in soil pH (6.2 to 4.8), a 50 percent decrease in earthworm populations and an increase in thatch accumulation from seven to 16 millimeters (about ¼ to ⅔ inches).

PESTICIDES & THATCH. It has been generally observed that thatch is rarely excessive where earthworms are abundant. For example, several studies have shown a correlation between increased thatch and reduction in earthworm populations following application of certain insecticides or herbi-



Changes in composition of thatch pieces buried under Kentucky bluegrass for three months (left) and for buried in mesh bags for 29 months (right).

cides.

Many pesticides commonly applied to turfgrass, including benomyl, bendiocarb, ethoprop, carbaryl and others are toxic to earthworms as well as pest insects (12).

Use of certain fungicides can lower the soil pH, which may in turn reduce the activity of microorganisms responsible for degradation of thatch. Alternatively, fungicides may contribute to thatch accumulation by increasing the rates of root and rhizome production (13,14).

EXPERIMENTAL EVIDENCE.

Recent experiments confirmed the importance of earthworms to thatch degradation. Preweighed pieces of intact thatch were sewn into nylon mesh bags and buried just beneath the surface of a Kentucky bluegrass turf.

The first experiment employed bags with either fine mesh, to exclude all soil animals except microorganisms; medium mesh, to exclude most earthworms, but admit smaller invertebrates such as soil mites; or coarse mesh, to admit all components of the soil

fauna including earthworms.

In a companion experiment, thatch pieces were buried in identical coarse mesh bags in untreated turf, or in turf that had been treated with insecticides to eliminate the earthworms.

Thatch pieces from each experiment were periodically dug up, reweighed and analyzed for mineral soil content and loss of organic material. Dramatic differences were apparent in both experiments after only three months. Without earthworms the thatch structure and composi-

tion remained nearly unchanged, but with earthworms the pieces were broken apart and dispersed (Figures 2 & 3).

The most striking effect of earthworm activity was that much more soil was incorporated into the thatch, from about 30 percent soil content by weight without earthworms to about 70 percent soil by weight with worms present.

The effects of this natural process are similar to that achieved by coring or by topdressing. Where thatch accumulation is a concern (i.e. turf receiving three

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to five applications of fertilizer annually), preserving earthworm populations is an absolute must to reduce thatch build up.

NATURAL ENEMIES. In addition to familiar pest species like white grubs, sod webworms and chinch bugs, turfgrass is inhabited by a great diversity of insects, mites, spiders and other small creatures which feed on plant debris, fungi or other insects. Many of these creatures are predators or parasites which play a role in reducing pest populations (Figure 1).

Insecticides applied to control pest insects are generally also toxic to beneficial invertebrates. In one study, a single surface application of an insecticide reduced populations of predatory mites, spiders and insects by as much as 60 percent (2).

More than six weeks after treatment, numbers of predators had still not recovered to levels found in untreated (control) plots.

A fair amount of circumstantial evidence shows that heavy or repeated insecticide applications can sometimes lead to increased

pest problems.

In Florida, for example, outbreaks of chinch bugs were observed on heavily treated St. Augustinegrass lawns but not on untreated lawns where predators and an egg parasite of the chinch bugs were abundant (10).

Similarly, reductions in populations of predatory mites following carbaryl applications apparently contributed to resurgence of hairy chinch bug pop-

.....

Turfgrass is inhabited by a great diversity of insects, mites, spiders and other small creatures which feed on plant debris, fungi or insects.

ulations and outbreaks of winter grain mites on home lawns in New Jersey (15,16).

In Kentucky, outbreaks of greenbugs appear to be more common on high-maintenance lawns than on untreated turf (8).

In another study (3), we compared the rates of natural preda-

tion on sod webworm eggs in untreated Kentucky bluegrass to turf that had been treated with a single surface application of chlorpyrifos at label rate. We got eggs from field-collected female moths and put them on disks of filter paper in small dishes set level with the ground surface.

Groups of 500 eggs were set out in untreated and treated plots at one, three or five weeks after the insecticidal application, and the

number of eggs that were eaten or carried off by predators was recorded.

We were surprised to find that predators, primarily ants, consumed or carried off as many as 75 percent of the eggs in the untreated plots within 48 hours. In addition, there was almost no

predation in the treated plots for at least three weeks after the treatment.

Predator populations were severely reduced by the insecticide, but had begun to recover by five weeks after the treatment. At that time, predation rates between treated and untreated plots were similar.

To date, this study is the only experimental evidence that natural enemies are important in reducing pest populations in turfgrass and that this process can be affected by pesticide applications.

POSSIBLE SIDE EFFECTS. Although applying pesticides and fertilizers can sometimes have undesirable side effects, a recent study (1) suggests that the overall impact of high-maintenance lawn care programs on the turfgrass ecosystem may be less severe than expected.

Plots of Kentucky bluegrass were maintained for four years on a schedule of fertilizer, herbicide and insecticide treatments. The plots received 5 lbs. of N/1,000 sq. ft. per year, broadleaf weed

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control in spring and fall, pre-emergent crabgrass control in early spring, two applications of chlorpyrifos for surface-feeding insects and diazinon in late summer for grubs.

This annual schedule is similar to that used by many lawn maintenance companies. Changes in soil and thatch characteristics, earthworm populations and numbers of pests and beneficial insects were monitored.

Even after four years on this relatively heavy treatment schedule, earthworm numbers are not significantly reduced in the treated plots. In fact, numbers of some beneficial soil mites actually increased.

In addition, soil pH declined only modestly (6.2 to 5.9), perhaps because the site was treated with agricultural limestone two years before the experiment began.

Thatch accumulation was significantly greater in the high-maintenance turf — 3.3 millimeters vs. 10.7 millimeters (about 1/8 inch to 1/2 inch), but was still not excessive.

While predator populations were reduced by insecticidal applications, the treated areas were by no means devoid of predators. Predators repopulated the treated plots by the following spring and some groups were, in fact, cap-

.....

Judicious use of insecticides and alternating materials may help delay or prevent the development of acquired resistance.

tured in greater numbers in the high-maintenance than in low-maintenance turf.

The apparent recovery of turf from disturbances caused by our relatively heavy schedule of treatments suggests that the impact of more moderate programs would be even less severe and of shorter duration.

Thatch accumulation, however, would probably have been greater had we used one or more of the aforementioned pesticides that are more toxic than chlorpyrifos or diazinon to earthworms.

OTHER CONSIDERATIONS. Two other problems may occur after repeated pesticide use on turfgrass:

- Pests may acquire resistance to insecticides or fungicides.
- Pesticide residues may have

enhanced microbial degradation.

Acquired resistance can become a problem when insecticides are applied repeatedly over several seasons. An excellent insecticide may become nearly useless within a few years because a resistant insect strain may develop.

Acquired resistance to organophosphate and carbamate insecticides has been documented for a number of turfgrass pests, including webworms, chinch bugs, billbugs and greenbugs, and less frequently for white grubs (II).

Judicious use of insecticides and alternating materials from different chemical classes (e.g. organophosphate followed by carbamate) when treatments are necessary may help delay or prevent the development of acquired resistance.

In enhanced microbial degradation of pesticide residues, an insecticide is degraded more rapidly than usual by microorganisms. Enhanced biodegradation apparently occurs because microorganisms become adapted to a pesticide to the point of being able to use it as an energy source.

The phenomenon has been demonstrated in soil for several insecticides, including diazinon, carbofuran, fensulfothion and isofenphos.

Recent experiments (5) indicate that this alarming pattern may also occur in turfgrass. When isofenphos was applied to golf course fairways with a history of isofenphos treatments, more than 90 percent of the insecticide degraded within three days. In contrast, practically no degradation occurred in previously un-



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treated fairways.

It appears likely that enhanced microbial degradation of isofenphos residues in thatch is the cause of at least some reported cases of poor residual control of white grubs (5).

Even more disturbing is the report that thatch from isofenphos treated plots rapidly degraded residues of carbaryl and diazinon, while plots treated with other insecticides, including diazinon, chlorpyrifos, carbaryl and isazofos, rapidly degraded the residue when retreated with the same chemicals (6).

CONCLUSIONS. This article does not intend to support or condemn chemical turf maintenance programs, but rather to provide "food for thought" for the professional turf manager.

Clearly, many situations occur in which using pesticides is essential to the maintenance of quality turf. However, pesticide applications, like human medicines, may have some side effects, and these must be weighed against the treatment's overall benefits.

The accumulated evidence suggests that turfgrass is a complex system with many buffers. However, we are only beginning to understand the roles of microorganisms, earthworms, predators and other creatures in maintaining this natural balance.

It does appear that excessive or unnecessary pesticide applications can sometimes aggravate thatch and pest problems by interfering with the activities of beneficial organisms, or by encouraging the development of acquired resistance or enhanced microbial degradation.

Awareness of these potential side effects may make it easier to develop turf management programs that get the job done without disrupting the natural processes important to healthy turf.

Turfgrass managers can minimize such problems by using pesticides at the proper time and rate, and only as needed to control specific problems.

Avoid repeated applications unless they are necessary. Alternate the pesticides you use rather

than using the same materials year after year and, when feasible, select those with fewer known adverse side effects, e.g., earthworm toxicity. In general, a better manager uses less pesticides.
— Daniel Potter

The author is a professor in the Department of Entomology, University of Kentucky, Lexington, Ky.

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WITH THE ENDLESS LIST OF INVESTMENTS available today, it's often difficult to make the right choices for a balanced investment portfolio. Many people question themselves after committing their dollars to an investment.

It's important to develop a balanced portfolio. A portfolio, a mutual fund portfolio or a stock portfolio for example, is an individual's composite of investments. When a portfolio is balanced, it combines the features of the selected investments to suit the particular needs and objectives of the individual.

To logically develop a balanced portfolio, investors should ask themselves a series of extensive questions to determine which investments fit their situations most comfortably. Within that questioning process, two key factors should remain prominent: personal goals and risk tolerance.

Goals and objectives must be determined — along with a projected timetable. This way, investments can be selected to meet each goal. For example, if a particular need or goal must be reached within one or two years, the return on the



investment may need to be greater.

Conversely, a greater return also means greater risk.

After defining the timetable of your goals and your risk tolerance, review the objectives of different investments. Mutual funds for example, are grouped ac-

ording to specific objectives so you'll know what types of funds suit your particular investment personality and personal goals.

Some funds stress long-term growth of principal, others offer steady income and others focus on tax-exempt income. The following descriptions may shed some light on a few of the types of funds now available:

- **Aggressive growth:** These funds seek capital growth, generally from common stock. Aggressive growth funds feature high risk as well as the potential for high rewards.

- **Growth and income:** These funds focus on securities of large, well-established companies that offer long-term capital appreciation and reasonable income from dividends and interest. Growth and income funds usually fall into the moderate risk level.

- **Income:** The objective is to seek a high return of dividends or interest income. Capital growth and preservation are secondary objectives. The risk level generally ranges from moderate to modest, although high risk income funds are sometimes available.

- **Tax-exempt income:** Tax-exempt income is provided by investments in municipal bonds. Usually, income is free from federal income tax and, in some cases, from state income taxes as well. The risk level will vary according to the quality of the bonds.

- **Choose carefully when selecting mutual funds,** whether you're new to the investment field or a veteran mutual fund investor. By matching your investment personality with the types of investments with which you're comfortable, you can design an investment portfolio that can help reap the profits you need to meet your personal goals and objectives. — *IDS Financial Services Inc.*

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WE'VE HEARD IT ALL BEFORE and most of us would agree — serious illness or an accident can cripple the ability to earn a regular income.

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If we think the risk is low, we better think again. According to the National Safety Council, someone is injured in an accident every four seconds — in an automobile accident, every 19 seconds. Every second, insurance companies pay \$18 in disability claims.

And those disability claims don't just stem from accidents.

Statistics also tell us that only 20 percent of all disabilities are caused by accidents — the rest result from acute or chronic illness, often incurred by people with high stress jobs.

In fact, people in professional and management positions, as a group, receive a larger share of the disability benefits paid by the Social Security administration than do those in any other occupation.

What does all this tell us? It says that when it comes to insurance protection, we should not gamble our lifestyles. We need to insure more than our homes and our cars. We need to protect the income that pays for these things — and for our way of life.

Here are some things to consider:

- If you should have a serious accident or illness, medical in-

sure would only take care of doctor and hospital bills — disability insurance would pay your essential living expenses.

- In most cases, disability insurance benefits are tax-free.

- When you consider disability, talk with a financial planner. Your planner can help you decide how much disability income you may need, based on your current financial situation and your financial objectives.

- The thought of a disability may be unpleasant. But the financial hardship and frustration that come with a disability can be even more difficult to bear.

- If the unthinkable happens, disability insurance benefits can do little to bring back physical strength. But they can ease the financial burden until you are again able to provide for your own financial future.

PEOPLE



Stuart



Dunn

RICHARD DUNN HAS BEEN PROMOTED to residential and commercial products marketing manager for Hunter Industries. He will coordinate the development of new and existing products for residential and commercial applications.

Most recently he was national account manager for the company's Institutional Series. He has been in the irrigation industry for 16 years.

Also at Hunter, **Joe Silva** has been appointed sales manager for residential and commercial products. He will travel with Hunter district managers supporting them

in their field contacts.

Joining Ransomes as vice president of engineering is **Thomas Stuart**. The position was created as a result of the company's rapid growth in turf and renovation product lines.

Previously, Stuart was vice president of engineering for an automotive division of Applied Power in Milwaukee, Wis.

Also at Ransomes, the new position of product development manager will be filled by **Eric Ramsey**.

Ramsey will develop new mowing products for turf applications. He will also oversee the introduction of new Turf Renovation and Turfrak system product lines.

Rain Bird Corporate Services Inc. promoted **Tamara Edwards** to manager of corporate accounting and **Brian Grace** to assistant controller of Rain Bird operations.

Edwards is now responsible for corporate accounting systems including the overall enhancement of mainframe ap-

plications supporting the finance and accounting areas.


Grace is now supervising all other managers involved in accounting support for the company's operating plants and companies.

Stan Cronquist and **Paul Jurgens** have been assigned to new positions at Exmark Manufacturing.

Cronquist joins the company as inventory control manager at the Beatrice, Neb., facility. His duties include determining production and material requirements as well as ensuring the timely delivery of materials to support the production of Exmark products.

Jurgens is now manager of the company's parts department. His new duties include managing the Exmark Parts Plus™ program and monitoring distributor parts inventory. He is also handling the development, implementation and administration of Exmark's parts programs and policies. ■

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Now's the time to remember Roundup® herbicide to keep your customers' lawns free of weeds. Remember that Roundup controls a broad spectrum of weeds, roots-and-all. Use Roundup for edging along driveways, fences, sidewalks — all around the lawn. For more information, call toll-free **1-800-323-1421**, and **REMEMBER THE ROUNDUP.**

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PRODUCTS

UNLIKE TWO-WHEEL DRIVE MOWERS that may slip, tip and jostle the operator, the Hustler 640 Hillside from **Excel Industries** features full-time six-wheel drive that provides exceptional traction, stability and comfort.

The grade gripping performance of the 640 makes it ideal for steep slopes, hilly roadsides, berms and rough terrains.

Its dual-hydrostatic drive system and power-assist wheel lift make zero turning

radius possible, and significantly reduces turf damage. Simple one-hand hydraulic steering provides the operator total control of speed, braking and turns without the use of clutch or break pedals.

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A WHEEL TRIMMER IS NOW AVAILABLE from **Snapper Power Equipment**.

The 4lcc Roll-Around-Trimmed is easy to start with its primer assist mechanism

and conveniently located gas tank.

Its two-wheeled chassis is built to carry its own weight, which means less strain on the operator's arms and back. Standard features include centrifugal clutch, straight shaft gear head, large fuel tank and 16-inch cutting swath. It's designed to use monofilament line.

Circle 128 on reader service card

BECKER-UNDERWOOD INC. IN-

troduces a dry-flowable formulation of its spray pattern indicator in a convenient, water soluble package.

Both the Turf Mark WSP pack and the WSP colorant dissolve quickly and completely in tank mixed solutions of pesticides and fertilizers.

The resulting blue color shows applicators where solutions have been applied, helping to prevent skips and overlaps, and pinpointing and

PRODUCT SPOTLIGHT

ROSEMAN MANUFACTURING Co. is marking its 75th anniversary with the reintroduction of its exclusive light-weight hollow-roller design product line.

The line distributes the normal weight of a gang mower over the widest possible surface area

keeping soil compaction to a minimum. The design has resulted in a compaction factor of six pounds — the lowest in the industry.

The hollow-roller also incorporates Roseman's patented rear wheel drive design, which prevents the cutting reel from

bouncing and permits easier mowing in hard to reach spots.

The unit consists of durable, heavy-duty side frames and precision-tempered reels that ensure reliable performance and low maintenance costs.

126 on reader service card

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minimizing drift. It does not affect chemical efficacy.

There is virtually no applicator contact with Turf Mark WSP. It comes in pre-measured packets ready to treat 100 gallons of spray mixture.

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Electric start is standard on the AV 5500B and AV 6500B. Easy cranking and



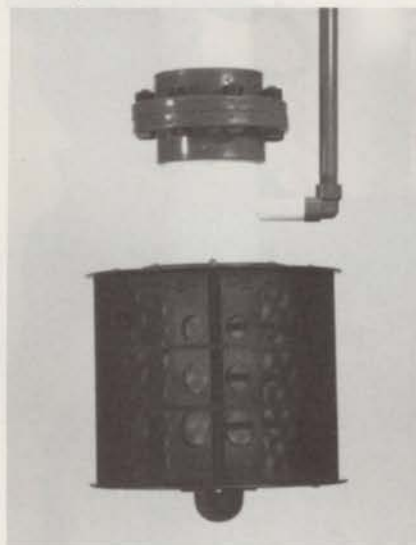
electronic ignition ensure dependable starting in any weather.

Improved fuel economy and reduced oil consumption contribute to economical operation. Combining a large fuel tank

with the OHV engine's fuel economy, the AV 1600 can operate for up to 16 hours on a single tank of fuel at rated load. For the AV 3800 and larger models, the Auto Idler lowers fuel consumption even more.

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AVAILABLE FROM **PERFECTION Sprinkler Co.** are the Sure-Flo self-cleaning strainers that eliminate the need



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A ROLLING CARGO DRAWER FROM **Joey Bed Inc.** for loading and unloading vans, pickups and suburbans is based on the principle of a file draw. The device



keeps cargo and tools organized and within reach while minimizing back strain and injury.

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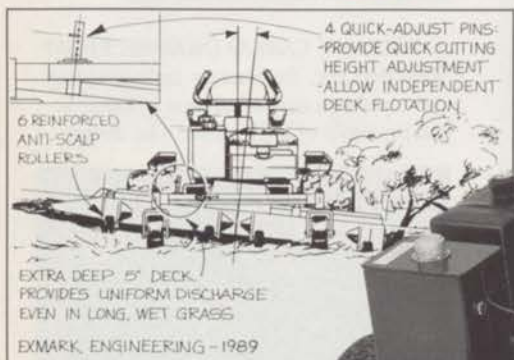
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The product gives a yard a well-manicured appearance while decreasing the need for edging. It's available in white, brown, green, black and gray.

The trimming is designed for use around homes, fences, shrub beds or any other place as an alternative to edging. It requires no maintenance and is durable enough to withstand being driven over by small tractors, aerators, seeders and other power equipment.

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Circle 136 on reader service card

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CALENDAR

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University of California at Riverside
Department of Entomology 31st Annual
Conference, University Theater. Contact:
Department of Entomology, University of
California, Riverside, Calif. 92521; 714/
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MARCH 27-30

Missouri Park and Recreation Association
Annual Meeting, Holiday Inn Executive
Center, Columbia, Mo. Contact: David
Ostlund, executive director, 1203 Mis-
souri Blvd., Jefferson City, Mo. 65109;
314/636-3828.

APRIL 4

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University of Florida Cooperative Exten-
sion Service, Agricultural Center Audi-
torium, Sanford, Fla. Contact: Uday Ya-
dav, 250 W. County Home Rd., Sanford,
Fla. 32773; 407/323-2500 Ext. 182.

APRIL 12-13

Turfgrass Management for Professionals,
University of California Extension Cen-
ter, Davis. Contact: Debbie Roberts, Ex-
tension Center, University of California,
Davis, Calif. 95616; 916/752-8899. Davis
and Dixon residents call 916/757-8777.

APRIL 26-29

11th Annual Menninger Sunbelt Tree
Conference, Holiday Inn at Sabal Park,
Tampa, Fla. Contact: MSTC, P.O. Box
6524, Clearwater, Fla. 34618; 813/
446-3356.

MAY 16

North Carolina Turf and Landscape Field
Day, North Carolina State University Turf
Field Center, Raleigh, N.C. Contact: Joe
DiPaolo, P.O. Box 7620, NCSU, Raleigh,
N.C. 27695-7620; 919/737-2657.

JUNE 7-9

Florida Nurserymen & Growers Associa-
tion Annual Meeting, Boca Raton Club,
Boca Raton, Fla. Contact: Earl Wells, ex-
ecutive vice president, Florida Nursery-
men & Growers Association, 5401
Kirkman Rd., Suite 650, Orlando, Fla.
32819; 407/345-8137.

JUNE 8-9

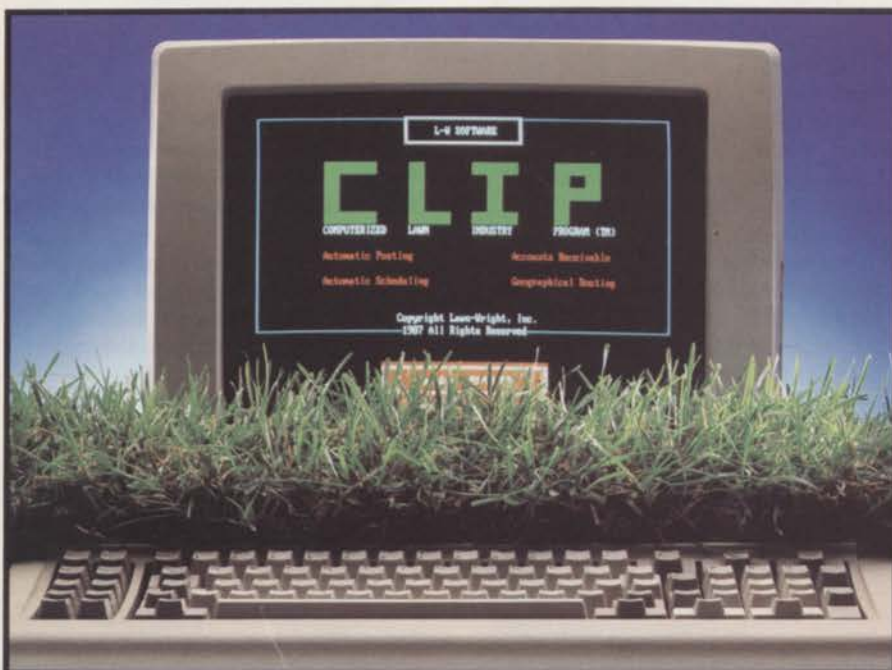
The Playground Design and Safety Sym-
posium, Chicago, Ill. Contact: National
Institute, P.O. Box 1936, Appleton, Wis.
54913; 414/733-2301.

JUNE 7-15

Association of Official Seed Analysts/
Society of Commercial Seed Technolo-
gists Annual Meeting, Holiday Inn, An-
napolis, Md. Contact: Maryland Depart-
ment of Agriculture Turf and Seed Sec-
tion, 50 Harry S. Truman Parkway, An-
napolis, Md. 21401; 301/841-5960.

JUNE 20

Fifth Annual Midwest Sports Turf In-
stitute, College of DuPage, Glen Ellyn,
Ill. Contact: The Sports Turf Manager's
Association, 400 N. Mountain Ave., Suite
301, Upland, Calif. 91786; 714/981-9199. ■



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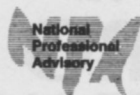
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Growing Twin City contractor needs Landscape Maintenance Sales/Supervisors. Hort degree, two years experience minimum. Fax resume/salary requirements, 612/454-8183 or mail to: Landscape Management, P.O. Box 21-071, St. Paul, Minn. 55121.

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Landscaping firm in Naperville, Ill., has openings for a landscape maintenance foreman, landscape foreman and salesman position. Must be highly motivated, not afraid of hard work and communicate well with all types of customers. Please reply to: Ryan's Lawn Care & Maintenance Inc., 30W447 Fairway Dr., Naperville, Ill. 60540.

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