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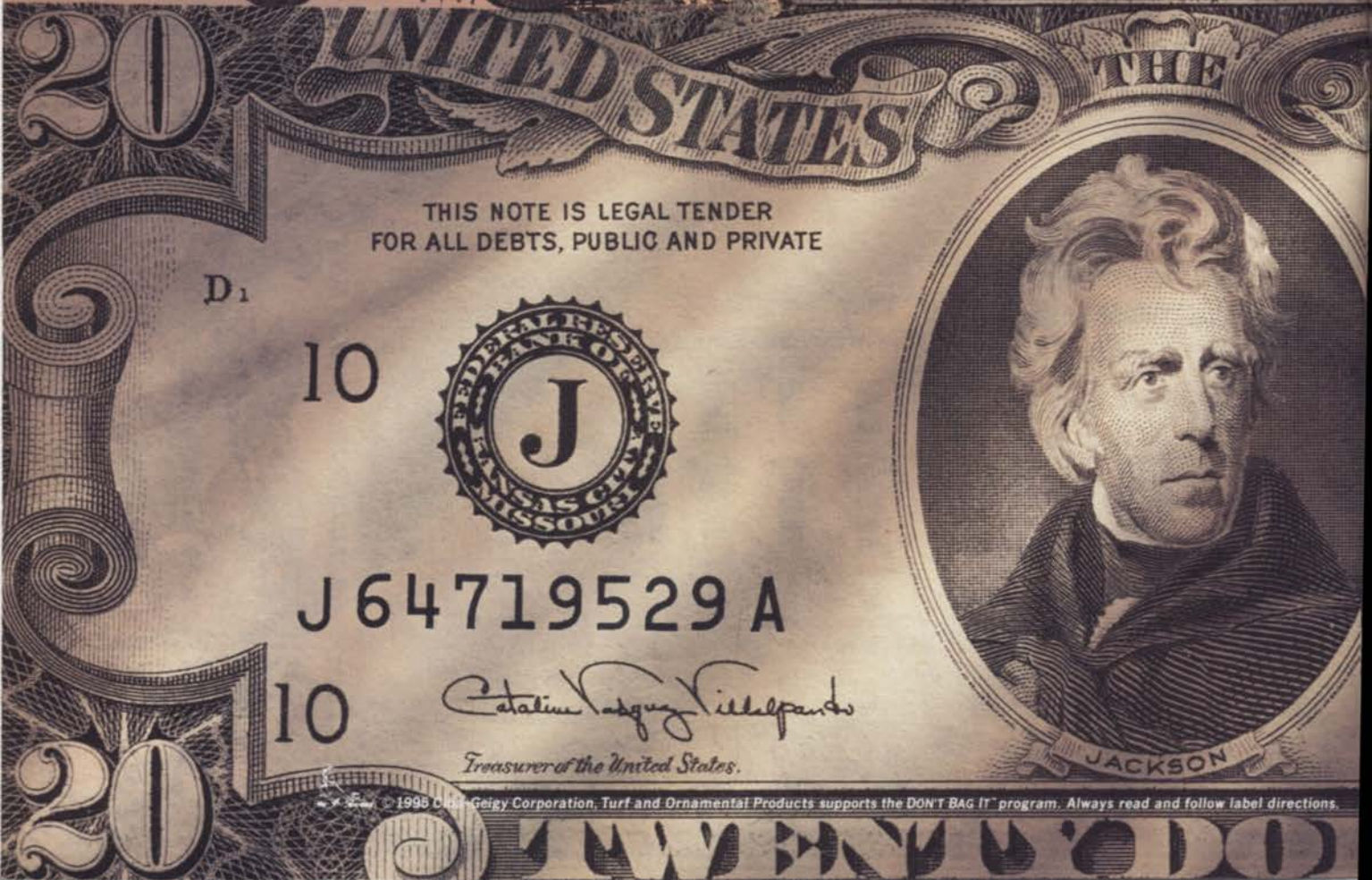
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In this issue:

Trends in Insecticides  
Managing Mowing Crews  
Planting Perennials  
Seed vs. Sod vs. Hydroseeding

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# Lawn & Landscape MAINTENANCE

VOLUME 16, NUMBER 3

MARCH 1995

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Paul Bacosa Studio,  
Santa Clara, Calif.

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# Editor's Focus

FOR MORE THAN 15 years, *Lawn & Landscape Maintenance* magazine has brought you the latest business strategies, industry news, new product information and technical research from across the country.

Since the early days of the lawn and landscape maintenance market, plenty has changed. But what has stayed the same is your need to make smart and practical decisions as you take your businesses into the future. As such, *LLM's* coverage of the professional lawn and landscape market has evolved like no other industry publication.

By identifying the trend toward service diversification in the mid-1980s, we were the first to bring you monthly coverage of the emerging full-service lawn and landscape contracting market. This expansion brought traditional maintenance firms into the construction realm and design/build firms into the maintenance arena. Likewise, speciality businesses emerged from single- to multiple-service offering companies.

And *LLM* continues to lead the market by identifying and reporting on major trends and issues affecting the marketplace. Just recently, we completed our annual audit to measure the effectiveness of our magazine — and we're pleased to report that *LLM* is consistently meeting the business needs of our readers and advertisers.

Impartial, third-party research conducted by Research USA, a Chicago-based firm, confirmed that *LLM* offers its readers greater overall value than any other magazine serving the lawn and landscape contractor service industry.

For instance, nearly 9 out of 10 recipients of *LLM* are regular readers who have read at least three of the last four issues. Just over 70 percent read all of the last four issues. Nearly two-thirds of those receiving *LLM* save their copies for reference after they have finished reading them, and most of them keep copies for one year or more.

When respondents were asked which industry publication they would choose if they could only receive one, 44 percent named *LLM*. The number two magazine choice was selected by 13.9 percent. *Lawn & Landscape Maintenance* is preferred by more than three times the readers of our closest competitor. And the reason? Because we listen carefully to the market.

*LLM* probes the contractor market continuously and has been a pioneer in developing services which build a closer bond with our readers. We're listening and we hope you will continue to share your business concerns and accomplishments with us. The survey told us that you want more technical information and we're going to provide it. You enjoy reading about your



peers — of all sizes — and we'll continue to share tips from leading lawn and landscape firms across the country in our cover profiles.

Servicing trees and ornamentals is one of the fastest growing service offerings among lawn and landscape contractors. We'll expand our coverage of this service segment to include not only insect and weed control, but installation and pruning techniques.

The basics of running your business, whether it be a two-year old company or a 15-year-old firm, are always on your minds. You're looking for a way to make your crews more productive or save money on a fleet of mowers. We're committed to publishing various viewpoints on the subject.

Take the business management training series we started this year. Individual, monthly features will take you through steps critical to the success of any professional business including strategies for bidding and estimating, job costing, profit planning and managing cash flow.

You'll also begin to notice advertisements on the pages of *LLM* promoting our 1995 product sweepstakes. Participating in the \$20,000 professional product giveaway is as easy as filling out a short questionnaire. You can't lose. If you're really lucky, you'll begin 1996 with a great supply of free product. It's another mechanism we're using to develop a more reader friendly magazine for you.

We're proud to be the leader in the professional lawn and landscape contracting industry. *LLM* values its readers and we hope to continue the interactive dialogue we've enjoyed. The more we know about you, the more *LLM* can help your business grow.

Send your comments to: *Lawn & Landscape Maintenance* magazine, 4012 Bridge Ave., Cleveland, OH 44113 or fax your questions, comments and suggestions to us at 216/961-0364. — *Cindy Code*

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## KNOW YOUR INVESTMENT TERMS

Wall Street abounds with some arcane or confusing terms. Here is a guide to many common terms you'll need when you navigate the financial world:

- ✓ **Averaging down.** The purchase of additional shares of already owned stock at lower prices to reduce the average cost per share of all shares held.
- ✓ **Discount.** The amount below the list price or face value. A bond that sells below 100, or par, is "selling at a discount."
- ✓ **Dollar-cost-averaging.** Investment approach that involves consistently buying uniform dollar amounts of a security, regardless of price. When prices are low, more shares are bought than when the prices are high.
- ✓ **Liquidity.** The ability of a stock to absorb a large amount of buying or selling without disturbing the price substantially.
- ✓ **Mutual Fund.** An investment that pools monies to purchase a professionally selected and managed portfolio. Shareholders can participate directly because the open-end investment company will sell or rebuy its own shares at book value.
- ✓ **Open-end investment company.** A firm that uses its capital to invest in other companies. Shareholders can participate directly because the firm will sell or rebuy its own shares at book value.
- ✓ **Option.** A contract allowing an investor to purchase or sell 100 shares of a stock at a predetermined price at any time up to a predetermined expiration date.
- ✓ **Par Value.** In bonds, the stated value of a bond (usually \$1,000 or \$100); in stocks, an arbitrary value primarily used for bookkeeping purposes.
- ✓ **P/E Ratio.** The price/earnings ratio is the relationship of a stock's price to its earnings per share. Divide the stock price by the earnings per share figure. A stock selling at \$45 with earnings of \$3 has a P/E ratio of 15.
- ✓ **Premium.** The amount above the list price or face value. A bond that sells above 100, or par, is "selling at a premium."
- ✓ **Return on Equity.** The rate of investment return a company earns on stockholders' equity, calculated by dividing net earnings by average stockholders' equity.
- ✓ **Senior Securities.** Bonds and/or preferred stocks within the capitalization of a corporation. Their holders are paid before common stockholders are paid.
- ✓ **Short sale.** A trading technique used when a stock is expected to decline in price. Traders sell borrowed stock, anticipating that the same number of shares will be purchased later at the lower price.
- ✓ **Tender Offer.** An offer by a company or a special group to purchase stock of another company, usually at a higher price than the prevailing market price.
- ✓ **Warrant.** Holder of a warrant has the right to purchase securities at a predetermined price within a predetermined time limit.
- ✓ **Yield to Maturity.** The yield of a bond, taking into account the bond's premium or discount. — *John Houlihan, Dean Witter Reynolds, Melville, N.Y.*

## DON'T NEGLECT RETIREMENT PLANNING

If prices stayed the same instead of rising, we could all be certain about our future security, but as retirement nears, we have to ask:

- Will inflation outpace my income?
- Will taxes consume my savings?

If you are nearing retirement and want to take charge of your financial future, consider the following steps:

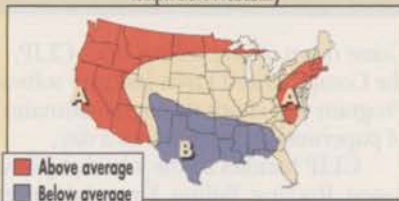
1. Maximize your current resources to create more discretionary income that can be invested for retirement. Because your home generally is your most valuable asset, you have several options:
  - Sell your home and buy a smaller one.
  - Sell your home and rent another one.
  - Rent out part of your home
  - Apply for a line of credit secured by the equity in your home, that can be drawn upon as necessary to consolidate debts or to let you deduct more interest payments.
2. Invest according to your goals. Be specific about your needs and ability to save. For example, "I will need \$20,000 in today's dollars each year for the next 20 years."
3. Protect your assets. Use a budget to track expenses. Keep accurate records of expenses to analyze and modify wasteful spending habits.
4. Take advantage of tax benefits. If you are 55 or older, you can receive the first \$125,000 of profit from the sale of your home tax-free. People 65 and older also get an increased standard deduction on their tax returns.
5. Review your insurance coverage for alternatives — your current coverage may be outdated. Some options include: new policies with lower premiums; term insurance; a lifetime annuity with monthly income payments; borrowing the policy's cash value for investments at higher interest rates; or using the accumulated cash in your policy to pay premiums on a new, smaller policy and investing the difference for retirement.
6. Consult a financial or tax adviser for other strategies. — *John Houlihan*

The National Weather Service's 60-day outlook calls for higher than average precipitation through the mid-Atlantic states into most of the South. The line extends from Pennsylvania to southwest Arizona. A small area centered over Illinois and reaching into surrounding states is expected to receive lower than average precipitation. New England, northern Plains states, the West and the Atlantic seaboard will receive average amounts.

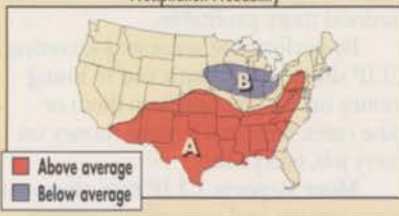
Higher than average temperatures are forecast for the mid-Atlantic states in a line stretching to eastern Maine, the northern Plains states and the West from the Rocky Mountains to the Pacific. Lower temperatures are expected throughout the deep South from New Mexico to Georgia, except for Florida and areas north of Alabama and Arkansas.

### 60-DAY OUTLOOK FOR MARCH AND APRIL

Temperature Probability



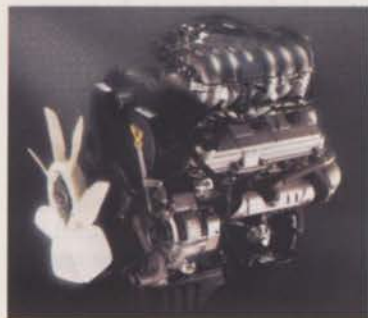
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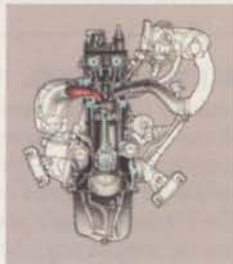
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**USE READER SERVICE #42**

# Environmental Forum

**BILL RE-INTRODUCED.** The minor use pesticide bill, which passed in the House but failed to garner enough votes in the Senate last fall, was re-introduced to Congress in February. The bill would "inject some flexibility into the reregistering scheme that the EPA now has in place, and give incentives to product manufacturers to keep their products on the market and develop new products," said Ben Bolusky, government affairs expert with the American Association of Nurserymen.

Present regulations require the reregistering of all products with the EPA by 1997, but manufacturers have found the tests so expensive that they are choosing to take products off the market rather than go through the process. "The sales market is so limited on these products it doesn't make sense to keep them on the market," Bolusky said.

Nurseries rely on minor use pesticides to control pests and meet quarantine requirements. The loss of these products would limit growers' options, and could result in less variety and more costly plant material, he explained.

**TREE GRANT.** The National Arborist Foundation received a grant to develop computer models and related promotional materials on the economic and environmental benefits of maintaining large trees.

Robert Felix, administrator of the National Arborist Foundation, explained that while arborists know the benefits of large trees, they need the tools to communicate these benefits to consumers.

"Today's consumers want quantitative benefits — they want to know just what their investment in tree maintenance is going to buy them in terms of added property values and an improved environment. The models we develop will provide them with the data they need to answer those questions," Felix said.

The economic and environmental benefits of trees have been quantified, but the information is scattered among many journals and disciplines. The study will consolidate all the data and make it available to arborists in a form they can readily apply to their customers' properties.

The models will be based on three major components:

- *Environmental and Aesthetic Benefits.* From location, size and condition of a tree, an arborist will be able to determine energy savings due to heating and cooling effects. The data also will allow arborists to determine the tree's impact on property



value, the air pollution filtration and absorption rate, storm water runoff reductions, carbon dioxide sequestering, storage and avoidance, oxygen productions, noise reduction and aesthetic and wildlife contribution to the quality of life.

- *Economic Conversion.* By processing the environmental and aesthetic benefits listed above, an economic, as well as societal, value can be determined. In some cases, the environmental benefits will be converted into everyday terms, such as relating the amount of oxygen produced by a certain tree to the amount of oxygen used by the average person.

- *Maintenance Costs.* Maintenance categories such as fertilization, mulching, pruning, leaf disposal, pest management, cabling and bracing, watering, cleanup and the impact of tree maintenance on the overall property will form the basis for this element of the model. It will guide the arborist when formulating and costing out recommendations. Changes in the benefits and costs as a tree matures will allow the tree owner to visualize the long-term impact of tree maintenance costs in relation to the benefits produced during the same period.

ACRT Inc., of Kent, Ohio will be developing the models. The \$85,000 grant was made by the National Urban and Community Forestry Advisory Council. The National Arborist Foundation is required to match that amount.

**BEATING GRAFFITI.** What is the answer to the blight of urban graffiti in America's big cities? Would you believe it could be the landscape industry?

According to a study performed by Ted Stamen, an urban horticulturist now retired

from the University of California Cooperative Extension of Riverside, Calif., landscape areas in the proximity of buildings tend to significantly reduce the incidence of graffiti on those buildings.

Bulky, view-blocking trees and access-limiting ground cover create areas and surfaces that are unappealing to the urban artist. Even weeds along what would be considered a prime target discouraged the amount of graffiti on buildings nearby.

*The Landscape Contractor*, a newsletter for the Illinois Landscape Contractors Association, reported similar results in the Chicago area. Cheryl Muskus, president of the ILCA, said that "about 85 percent of landscape areas were graffiti-free. The same proportion on non-landscaped areas had graffiti."

The one-time cost of planting trees, shrubs, vines and ground cover is cheaper than the expense of constantly painting over graffiti. Stamen made the following recommendations:

- Select plants appropriate to the setting. Drought and heat-tolerant plants work well along walls with lots of sun exposure.
- Understand that trees need more maintenance to become more established.
- Avoid vines that could be destructive to walls and sidewalks.
- Use a thick mulch layer such as 3 to 4 inches of wood chips on top of the soil to reduce the water needs and soil temperature and to enhance plant growth. Landscape mulch also helps to control weeds and can conceal drip irrigation lines, which are often subject to vandalism.

**CONSERVATION KIT.** As the competition for increasingly scarce water resources continues to grow, the importance of proactive industry involvement in reducing economic hardship is essential.

To this end, the American Association of Nurserymen has developed the "Water Wise Gardening Kit."

The kit helps nursery and landscape professionals educate decision makers about the environmental and economical benefits of green landscape to the community and the industry's support of voluntary water conservation based on consumer education.

The new kit reassures consumers that landscapes are a wise use of water, and it demonstrates Water Wise gardening.

The Water Wise Gardening Kit is available from AAN for \$25 for members, and \$40 for non-members. For more information, call AAN at 202/789-2900. ■

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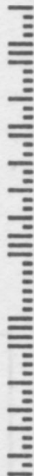
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## NEWS DIGEST

### **Biostimulant Maker Doubles Capacity**

Anticipating continuing demand for biostimulants, Roots Inc. of Independence, Mo., doubled the size of its liquid formulation and filling plant. The state-of-the-art facility can produce more than 1 million gallons of biostimulants and chelated micronutrients.

### **Highway Equipment Buys Groundskeeper Line**

The Anthony Groundskeeper line of leaf vacuum equipment, manufactured by Liechty-Hertzler Corp. of Coldwater, Mich., was acquired by Highway Equipment Co. of Cedar Rapids, Iowa. George Liechty, president of Liechty-Hertzler, will remain as consultant to Highway, which will market Groundskeeper's hydraulic dump bodies and leaf vacuum units.

### **Ruppert Takes Root in Greater Atlanta**

Ruppert Landscape Co., Ashton, Md., has purchased its previously leased facility in Lilburn, Ga. The 8,000-square-foot facility houses the Atlanta landscape installation and maintenance branch, which services clients in Georgia, South Carolina and Alabama.

In other news, Ruppert was awarded a landscape installation contract at the Georgia State University Village project, a major 1996 Olympics housing site.

### **Rhone-Poulenc Taps Applied Biochemists**

Rhone-Poulenc Ag Co. of Research Triangle, N.C., and Applied Biochemists of Milwaukee, Wis., have entered an agreement for the sales and marketing of Aqua-Kleen granular aquatic herbicide.

Rhone-Poulenc retains registration ownership, re-registration responsibilities and production functions of the butoxy-ethanol ester 2,4-D formulation. Applied Biochemists assumes all of the 1994 inventory and 1995 production functions.

### **DowElanco Drops Mosquito Adulticide**

Citing the expense of re-registration for its chlorpyrifos-based mosquito adulticide, DowElanco, Indianapolis, Ind., is discontinuing the process. Clarke Mosquito Control Products in Roselle, Ill., will formulate the products containing Dursban™ insecticides.

## **Landscapes are Critical for 'Ecological' Architecture**

ECO-EFFICIENCY will be the guiding principle of design and architecture in the future, and landscape design will be critical to the process, predicted William McDonough, William McDonough Architects of Charlottesville, Va. He is a noted architect, self-described "ecological activist," and new dean of the School of Architecture at the University of Virginia who has brought landscape architecture into the mainstream of Virginia's architecture program.

In his address on "Design, Ecology and Ethics" at the Central Environmental Nursery Trade Show held in Columbus, Ohio in January, McDonough made the point that the current system of manufacturing and production in the United States is as much as 93 percent inefficient. He challenged the audience to consider the "huge market" of economic return that would be available to the economy if the system were to reduce such massive waste through recovery and efficient systems.

Hard dollar savings are equally important to the ethical and aesthetic elements of architecture based on "sustainable systems," he stressed.

"The first Industrial Revolution measured progress by how much stuff moves through the system," he said. "The next Industrial Revolution will measure closed cycles" and how much waste is reclaimed. McDonough explained that the reduce-reuse-recycle process must first start with "redesign," and that the "new architecture" must consider the landscape as a critical element in gaining efficiency.

McDonough noted that traditional architects consider three issues in the design of a building: aesthetics, if the systems will work and cost (in that order). Sustainable system design, however, must take a new approach by looking at cost, performance, aesthetics and the "ecological intelligence" of the design (in that order).

When this approach is used, architects fully integrate the landscape elements into a building's design with the purpose of using it to reduce energy and maintenance costs, as well as allow reuse and recycling of the building's materials.

He explained how his architects use large trees, existing topography and innovative designs to integrate a landscape with a building for dramatically reduced maintenance costs. "Air conditioning typically is part of the building's mechanical budget. If we can reduce the air conditioning costs by placing large trees at strategic places around the building, we'll put that part of the mechanical budget into the landscape budget." He added that most buildings pay for as much as two times the energy costs they need — costs they can recover if the landscape is considered at the beginning of a project.

Another example he used to explain the process was the treatment of water runoff. Traditional designs collect rain water and send it through existing sewer systems, which necessitates more energy use to treat the water and also funnels rain water away from the landscape. The alternative, McDonough said, is to rethink designs of parking areas, streets and gutters and other hardscape elements so that they allow rainwater to return into the ground and avoid sewer systems.

One large-scale project currently using these design principles is the renovation of large areas in the city of Chattanooga, Tenn. There, streets are being redesigned with parking areas in median islands. The islands serve a double purpose by collecting rain water and allowing it to soak into the ground below.

"Landscape designers must be in on the design team from the start of a project, not at the end," McDonough stressed. "The design process has to change and the landscape industry has to get involved in it."

He suggested that landscape designers develop working relationships with progressive architecture firms to educate them on the benefits that landscape elements can bring to building maintenance cost savings and also on the importance of involving designers in the early, not late, stages of a project.



Landscapes highlighted the 1995 CENTS Show.

## Agreement Benefits Scotts, Emerald Green

The Scotts Company of Marysville, Ohio and E.G. Systems Inc. of Indianapolis, Ind., have entered into an agreement that allows E.G. Systems' Emerald Green Lawn Care company to apply Scotts® products exclusively and to use the Scotts name and logo in its marketing programs. The pact also enabled Scotts to purchase a 25 percent equity interest in E.G. Systems.

Theodore Host, Scotts president and chief operating officer commented: "It helps fulfill our long-term goal of making a 'Scotts lawn' universally available to customers." Emerald Green has four company-owned branches and six franchises in New Jersey, Tennessee, Indiana, Ohio, Pennsylvania and Kentucky.

## Preemption Goes Full Circle in Massachusetts

The controversial issue of preemption of pesticide regulations has come back to roost in the state that started it all — Massachusetts. The state's preemption act, which was signed into law at the end of 1994 by Gov. William Weld, will take effect at the end of this month.

The legislation is the result of three years of intensive effort by the Massachusetts Association of Lawn Care Professionals, the Associated Landscape Contractors of Massachusetts, the New England Pest Control Association and the Massachusetts Arborists Association.

## HRI Research Grants Target New Controls

The Horticultural Research Institute awarded \$200,000 in research grants for 1995, aiming a large portion of the monies at insect and disease control research. Grant recipients at universities and industry associations will use the money to supplement ongoing studies.

Insect control research was the big winner in the grants, with 21 percent of the total. Studies into water and fertilizer management ranked second with 18 percent, followed closely by genetic engineering at 15 percent of the total.

Other categories of research receiving funding include: disease control (14 percent); container production (8 percent); marketing (8 percent); stress tolerance (7 percent); propagation (6 percent); and scholarships (3 percent).

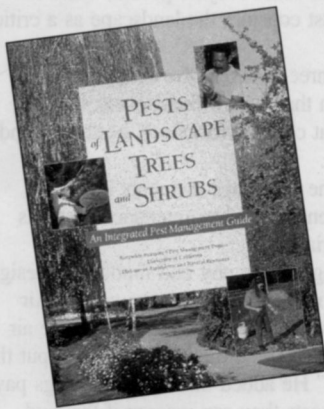
## One Step Tree & Lawn Makes Inc. Finals

One Step Tree & Lawn of North Chili, N.Y. was selected as a finalist in the Positive Performer Awards sponsored by *Inc.* magazine and MCI. One Step is one of 40 finalists chosen from an "extremely impressive pool of more than 600 applicants," said Caty Supper, awards director.

The company's customer service program will be recognized at the magazine's 1995 Conference on Customer Strategies, to be held March 28 at Walt Disney World. One Step, which employs 17 full-time people year round, also is in the running to be one of four national award winners, which will be announced at the conference.

## Ames' \$7-Million Plant Expansion on Schedule

A two-year multiplant expansion program for Ames Lawn & Garden Tools, Parkersburg, W.Va., is scheduled for completion by the middle of this year. Production capacity will increase by 30 percent to meet demand in the United States and abroad. The \$7-million plan includes two manufacturing plants in Parkersburg, a



## New from the University of California! PESTS of LANDSCAPE TREES and SHRUBS: *An Integrated Pest Management Guide*

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plastics molding plant in Elyria, Ohio, and nine sawmill operations in six states.

## RISE Group to Research Chemical Sensitivity

Responsible Industry for a Sound Environment's Government Issues group will study a proposal to develop a not-for-profit group to research the "multiple chemical sensitivity" issue.

Dr. Ron Gots of Risk Communication International proposed the group, which would be called the "Environmental Sensitivities Research Institute." He defended the pesticide industry during a segment of "Eye to Eye with Connie Chung" that explored pesticide use.

## 'Sod Specs' Aid All Grass Projects

Guideline Specifications to Turfgrass Sodding is more than just a set of sample specs for sod projects, despite the title given by its publishers, Turfgrass Producers International (formerly the American Sod Producers Association).

The five sections in this 20-page guide

cover everything from an opening section on specs for adding topsoil to a final set of guidelines on grass maintenance, for both sodding and seeding projects. Three other sections offer guidelines for topsoil materials, fertilizers and pH-correction materials and turfgrass sod. Each section can be used independently of the other sections or combined into a comprehensive project proposal.

Individual complimentary copies of the publication can be obtained from TPI by written requests that are accompanied by a self-addressed envelope (measuring at least 8 1/2 inches by 11 inches), with postage for

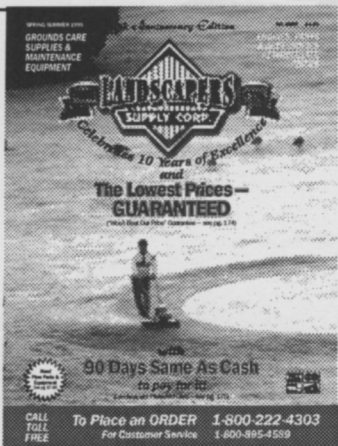
three ounces (\$.78 in the U.S.). Requests should be sent to Turfgrass Producers International, 1855-A Hicks Road, Rolling Meadows, IL 60008.

## Seed Pioneer, Advocate R.H. Bailey Dies

Oregon seed pioneer R.H. "Dick" Bailey, died in late November in Kaiser, Ore. An early advocate of improved grass seed varieties, he co-founded Turf-Seed Inc., Hubbard, Ore. He moved on to manage Jacklin Seed, then founded R. H. Bailey Seed in 1986 where he developed seed varieties. ■

### Corrections

- The Small Business Administration's National Answer Desk 800-number was listed incorrectly in the January issue of LLM (page 75). The correct number is 800/827-5722. The Service Corps of Retired Executives, which provides business counseling and training, has 700 offices located throughout the country, with 13,000 volunteers available. SCORE recommends that people looking for guidance call their local office, which is listed in the telephone book blue pages under "Federal Government, Small Business Administration."
- The photo on page 56 of the January issue was provided by Turf Management Systems Inc., Mississauga, Ontario. Weed Man™ is a registered trademark of Turf Management Systems.
- The interior photo on page 5 of the same issue was provided by Foliage Design Systems.



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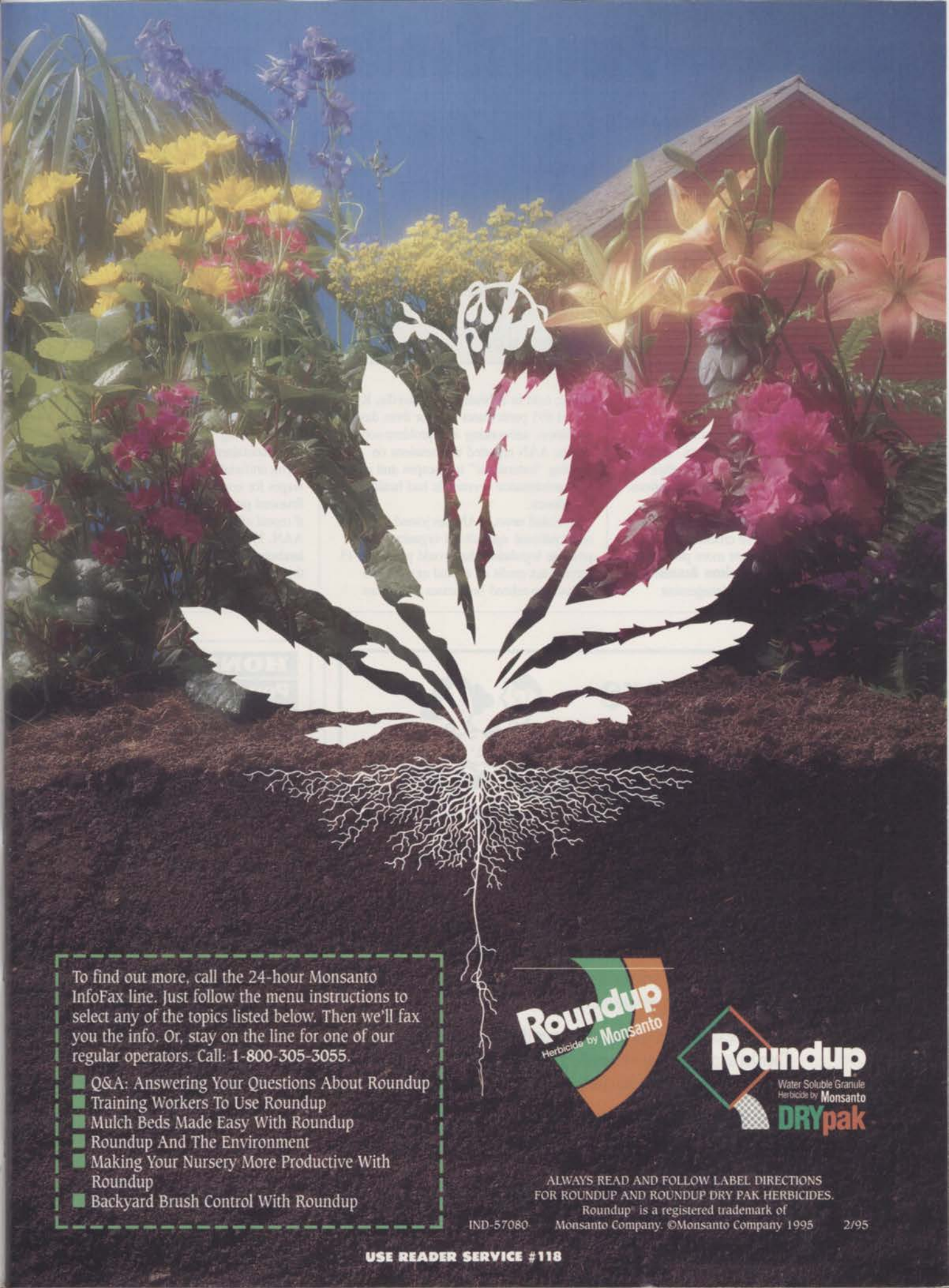
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# Association News

COMMERCIAL property and casualty insurance for the lawn and landscape industry is now available from the **Professional Lawn Care Association of America**. The program, a joint venture with the M.F.P. Insurance Agency Inc., Columbus, Ohio, covers the application of pesticides and fertilizers.

In other news, PLCAA's Day on the Hill participants received briefings on three issues of importance to present to their respective representatives in Congress: regulatory reform, preemption and the environmental benefits of turf. Specifically, PLCAA supports Title VI of the Regulatory Flexibility Amendments (H.R.9), which requires federal regulatory agencies to review the potential effects of new regulations on small businesses and to look for ways to minimize these effects. It also supports a new House law to strengthen FIFRA's preemption over local regulations.

Expanded sessions on landscape design and retail fundamentals were credited with drawing nearly 46 percent more participants than last year to the **American Association of Nurserymen's** 1995 Management

## For more information...



### PLCAA

1000 Johnson Ferry Road, NE  
Suite C-135  
Marietta, GA 30068  
800/458-3466

### PGMS

120 Cockeysville Road  
Suite 104  
Hunt Valley, MD 21031  
410/584-9754

### AAN

1250 I Street, N.W.  
Suite 500  
Washington, DC 20005  
202/789-2900

### ALCA

12200 Sunrise Valley Drive  
Suite 150  
Reston, VA 22091  
800/395-ALCA

### CC

114 South Pitt St.  
Alexandria, VA 22314  
703/739-2401

Clinic, held in February in Louisville, Ky. A record 895 participants met for three days of education, networking and problem-solving events. AAN reported that sessions on creating "naturalistic" landscapes and using low-maintenance perennials had healthy attendance.

In related news, AAN has joined with 19 other national agricultural organizations to promote legislation that would provide a 15 percent tax credit on capital expenses to agriculture-related businesses who must

invest in equipment or structures to comply with environmental regulations, such as those covering wetlands, conservation and water containment projects.

The artificially high cost of prevailing wages for construction workers in federally financed projects may be a thing of the past if repeal efforts are successful, reported AAN. This type of work could include landscape projects. AAN supports legislation for repeal of the Davis-Bacon Act of 1930, which provides those inflated wages.

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USE READER SERVICE #39

USE READER SERVICE #36

New management resources are available from the **Associated Landscape Contractors of America**, in the form of its *1994 Operating Cost Study*. It collects financial results on income, operating costs and balance sheets of landscape contractors around the country. The cooperative project of ALCA and the National Landscape Association took months of preparation and analysis by the Profit Planning Group of Boulder, Co. Data on exterior landscape construction, interior plantscape and landscape management are presented.

The association also announced the availability of a health benefit plan to provide landscape employees and their families with discounts on eyewear, dental care, prescription drugs and hearing aids.

ALCA's Certified Landscape Professional and Certified Landscape Technician exam dates have been set for the remainder of 1995. They are:

April 28	San Luis Obispo, Calif.
April 29	Pinehurst, N.C.
July 22	Mississippi State University, Miss.
Aug. 19	Dallas, Texas
Sept. 8	Raymond, Miss.
Sept. 8	Joliet, Ill.
Sept. 23	Pinehurst, N.C.

Oct. 2 New Orleans, La.  
 Oct. 21 Cincinnati, Ohio  
 Nov. 12 Fort Worth, Texas

In an effort to strengthen its membership and encourage participation from suppliers and other organizations, the **Professional Grounds Management Society** established a new "Company/Sustaining" membership category. Members in this category will receive up to four individual memberships in PGMS, listing in the membership directory, a free 1/2-page ad in the *Forum* newsletter, first choice of selected sponsorships and a PGMS membership list formatted for mailings.

California takes Arbor Day seriously, reported the **California Association of Nurserymen**. It is celebrated in the state on March 7, which is the birthday of Luther Burbank, the renowned naturalist and propagator of many new plants.

CAN supported Arbor Day by donating trees to public and ceremonial plantings. To stress the importance of trees and forests, CAN members also supported the development of a horticulture curriculum to educate children about seeds, flowers, trees and other plants. The 32-page curriculum, called

"Planting Seeds, Growing Minds," was distributed to elementary school teachers throughout the state.

Proof that the **Composting Council** had a busy 1994 is available in writing, in the form of its *Year-End Review*. The review covers the Council's advocacy programs in active legislation and regulatory areas, development of several support publications to the industry, programs like its "National Backyard Composting Program," research and education efforts and a variety of outreach activities such as its newsletters and speakers bureau.

A new attendance record was broken at the Ohio Turfgrass Conference and Show, held in December in Columbus, Ohio. Sponsored by the **Ohio Turfgrass Foundation**, the event drew more than 5,100 people. OTF reported that more than \$202,000 in research dollars were donated to turfgrass research in Ohio.

**IN BRIEF**...Robert Tilson, landscape architect at Chapel Valley Landscape Co., Woodbine, Md., was elected president of the Potomac Chapter of the American Society of Landscape Architects. ■



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# Design Notebook

**DESIGN CHALLENGE:** Backyard — The homeowners like to entertain and wanted a multipurpose pool and entertainment area. The challenge was to link the existing multilevel decks to a new pool area and to the front of the house while maintaining views of the woods, using the hillside and screening the neighbors. They also wanted space for a vegetable garden.

**Front yard** — Create a formal, dramatic entrance that integrates the driveway turnaround and the landscape elements at the front of the home.

**BACKYARD WALKWAY:** The backyard directly behind the house is a flat plane for about 40 feet, then drops off to a 50-foot cliff into an area of natural woods.

The land rises up on the right side approximately 12 feet and bends around at this elevation to the neighbor's yard and the garage in the front. The back of the house has a basement walkout.

We created a curving walkway that links the upper service area down a series of steps and landings to the terminus of the journey, which is the pool.

This "sexy" walkway is sunken to create a "valley" effect, with stops along the way for people to sit on benches and enjoy the many perennials, rhododendrons and flowing ground covers that spill over the rocks.

People on the walkway will hear the splashes of the waterfall — a 10-foot drop

## DESIGN NOTES

**THE PROJECT:** The Rao Residence (Dr. & Jean)  
**LANDSCAPE COMPANY:** The Pattie Group Inc.

**DESIGNERS:** Steve Pattie, President  
Kathy Oversmith  
Linda Pattie

**LIGHTING DESIGN:** Steve Pattie  
**CONSTRUCTION FOREMAN:** Frank Bonanno  
(also "on-site designer")

**WATERFALL FOREMAN:** Gary Leggett

MAN-HOURS TO CONSTRUCT:	Foreman	Technicians
Back yard construction	363	740
Back yard lighting	55	81
Front yard construction	187	241
Front yard lighting	18	27
Side yard construction	19	37

of water broken into three tiers of falls that finally plunge into a small pond at the bottom. The pond and rock work jut out into

the pool deck (a checkerboard pattern of pink concrete scored into 4-foot by 4-foot diamond-shaped patterns), providing an



**Top:** The Pattie Group prepares the site for pool installation. Credit: The Pattie Group

artistic transition between the natural features and the formal landscape elements.

The backdrop of the waterfall consists of white pines that shield the view of the neighbor's house and the vegetable garden (tucked away on the back side).

The pool's shape is rectilinear (20 feet by 40 feet) so that an automatic pool cover can be used for safety. The formality of the pool area design is obvious by looking out of the sliding glass doors from the basement recreation room or from the wood decks.

**Bottom:** Finished landscape with lighting elements, plants and hardscape. Credit: G. Newyear & Co.

**INTO THE WOODS.** The walkway down the steps from the multilevel decks introduces viewers to the pool area with a grand, semi-circular concrete landing and steps.

Directly across the pool from this entranceway is a semi-circular wood deck (with wrought-iron railing) that expands out

(continued on page 25)



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## Landscape Design

(continued from page 20)

over the steep hillside — bringing viewers “into the woods” at the property’s rear.

Sunning, eating and entertainment areas abound, with enough room for 10 to 12 tables throughout the design.

**ESSENTIAL LIGHTING.** Fifteen post lights surround all of the backyard eating areas, 15 mushroom lights carry people down the pathways, seven accent lights cast out upon the waterfalls and eight uplights illuminate the ornamental and shade trees. The entire area is wired for convenient and safe outdoor electrical use.

Drainage was a factor, also. The entire area has drain tile to alleviate wet areas. This project transformed the backyard from a stark dirt pile into a lush waterfall garden.

**FRONT ISLAND FORMALITY.** The front turnaround island was constructed as a later phase, after the completion of the backyard.

---

**People on the walkway will hear the splashes of the waterfall — a 10-foot drop of water broken into three tiers of falls.**

---

The formal limestone and concrete fountain, the top of which is 3 feet above a perfect circular pool basin 10 feet in diameter, has a limestone coping that matches the fountain pedestal in color and texture. The water fountain effect is dramatic, yet elegant and very formal looking. The pool basin is made of reinforced concrete and colored black to make it appear deeper than it actually is.

We wanted the space to be used, rather than just a place to drive by, so we added a color-textured concrete walkway that radiates around the focal point and extends out to the driveway, inviting people in to sit and view the space.

This walkway has a slate pattern and gray tones that match the front walkway to the house for a uniform look. It is backed with hollies and yews to provide an enclosed setting.

Small places were left open inside the garden walls for perennials and annuals. A ring of pachysandra encircles the pool basin and decorative limestone urns are filled with

annuals that sit on the pool coping.

The front side of this island serves as a transition, tying into the rest of the front yard with natural rock outcroppings; masses of daylilies, juniper and pachysandra that spill over the rocks; three Red maples; and specimen viburnum informally placed as understory vegetation.

The island’s lighting design is very dramatic. The fountain is accented with uplights (located in the pool basin), while the walkway has several low-voltage

mushroom lights spaced along its length.

The intent was to highlight the garden space softly, not to blast visitors with a lot of glare. The final result meets the owners’ requirements and our company’s design intent for an elegant, formal water garden.

— Jim Lesti, Landscape Architect

*Editor’s note: We welcome before and after photographs and descriptions of landscape solutions. Contact Lawn & Landscape Maintenance for more information.*



## Grounds Crew.

The Steiner turf tractor does the work of a dozen different turf maintenance machines. Its quick-change attachment system lets it mow, till, blow, chip, dig, aerate, compact, scoop, grind, sweep, trim, edge and manicure.

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**STEINER**

## L & L LANDSCAPE SERVICES INC.

**LOCATIONS:** Santa Clara (headquarters) and Fremont, Calif.

**FOUNDED:** Started as L & L Maintenance in 1977, a division of Lowery & Little Inc., a landscape contracting company owned by Ray Collishaw. Became L & L Landscape Services in 1986. Purchased by Steven Glover and Robert Zolezzi in 1990.

**OWNERS:** Steven Glover and Rob Zolezzi, 50-50 split.

**PRIMARY SERVICES:** Commercial landscape design, installation and maintenance services, including renovation, hardscape maintenance, irrigation auditing, pest control and specialized consulting.

**NUMBER OF EMPLOYEES:** 90 year-round full-time employees.

**1994 SALES:** \$5 million; roughly 50 percent is maintenance, 33 percent is landscape construction services and 17 percent is landscape construction upgrades to existing maintenance customers.

### EXECUTIVE SUMMARY

**1995 PROJECTIONS:** \$6 million in sales.

**THE CONCEPT:** "To eliminate clients' concerns for their landscape needs by providing quality, affordable landscape services."

**GROWTH PATTERN:** L & L Landscape Services has grown at a steady average rate of 15 to 20 percent since 1978, from 20 clients to 350 current maintenance contracts.

**FUTURE CHALLENGES:** Improve employee communications and upgrade the industry's level of competition and professionalism.

### PRINCIPAL OWNERS

**STEVEN GLOVER:** President and chief executive officer. Age 45. Married, six children. Received a bachelor of science degree in horticulture from Brigham Young University, Provo, Utah. Born to a family with a 100-year-old nursery and landscape business, he worked as a grounds superintendent for an apartment management company and production manager for a specialty flower grower before joining L & L Maintenance in 1978 as general manager. At the time, the company employed 10 people and grossed \$286,000.

**ROBERT ZOLEZZI:** Vice president and chief operating officer. Age 43. Married, two children. Received a bachelor of arts degree from San Jose State University, San Jose, Calif. He, too, came from a nursery background. After graduation, he owned a greenhouse foliage company that expanded into interiorscape work. He sold that business in the late 1970s and accumulated other experience in exterior landscape services before joining L & L Maintenance in 1981 as operations manager. He expanded the company's services to include general landscape construction work.



Steve Glover and Rob Zolezzi share responsibilities and rewards with their employees at L & L Landscape Services Inc., Santa Clara, Calif.



# The Partnership Principle

*Sharing the responsibilities and rewards is a way of life at L & L Landscape Services. This formula benefits everyone involved—the owners, employees, customers and vendors.*

*By Susan Gibson*

MANAGEMENT literature is full of references to the "new partnerships" for success. These books prescribe an equal relationship between owners, customers, employees and vendors for long-term success. This idea may seem foreign to the lawn or landscape contractor who has struggled alone to build up a business and who is used to taking most of the responsibilities along with the rewards.

But management trends are based on ideas that work, and in the case of L & L Landscape Services Inc., in Santa Clara, Calif., the principle of partnership has been a cornerstone for years.

It's a four-way partnership involving a 50-50 share of ownership between Steve Glover and Rob Zolezzi, and a management philosophy that practices a full partnership with employees, customers and vendors.

The formula has worked well for L & L Landscape. The company has grown from only 10 employees and 20 clients in 1978 to 90 full-time employees and approximately 350 commercial maintenance clients in 1994.

It boasts many loyal customers, a "minuscule" rate of turnover among employees and several long-term relationships with vendors who go out of their way to please L & L's management. In return, they get the company's exclusive business.

**EXECUTIVE TEAM.** The operating partnership at L & L Landscape succeeds because it is based on the shared and separate talents of each partner. Glover, who described himself as "more quiet" than the "outgoing" Zolezzi, concerns himself with the administrative functions of the firm. These include overseeing insurance and legal requirements, as well as finances, sales and personnel issues.

Glover is a Certified Landscape Professional, holds a California Qualified Applicator's License and plays an active role in developing the technical quality of the services L & L provides.

Zolezzi, who has a California Qualified Applicators Certificate, oversees the operating ends of the financial, legal, sales and customer relations areas. He makes sure that each job meets the customer's quality requirements and is actively involved in the initial and subsequent client contacts.

Beginning in the early 1980s, Glover and Zolezzi began buying shares of the company from a group of silent partners. They completed the buyout in 1990 and instituted management based on a five-person executive team consisting of themselves and three managers who oversee the sales and marketing, financial and production/operations departments. This structure gave the three managers autonomy over their departments, freed Glover and Zolezzi from the day-to-day details of operating and allowed them to concentrate on the company's business strategy.

Both men described their roles as "visionary" in the business, in that they plan the firm's direction, oversee profit-sharing investments and incorporate the company's goals into everyday operations.

"We both have the same vision for the company," explained Glover. "We're both strong-willed and determined to succeed." Zolezzi agreed: "We think of ways to make our company more effective and efficient."

The executive team meets weekly and shares decision-making authority equally in the group. "We make all of the decisions democratically," Zolezzi noted. "The executive team runs this company and that structure eliminates a lot of the daily work for us."

Each manager also has individual meetings within each department. "I don't have to worry about which mower to buy. I have a perspective that is further back from those details."

"Each manager in our executive team has his own programs, goals and operations," added Glover. "We don't micro-manage them — they operate independently."

The team concept doesn't remove either man from the employees, though. "I would describe our company as based on a family organization," said Glover. "Our employees know there isn't anything they have to be afraid of, because we don't have any secrets. We want them to feel

comfortable and feel free to work without that kind of pressure."

L & L Landscape divides its operations into five separate areas: East and West Bay maintenance divisions, the landscape construction division, the shop division and administration.

**CLIENTS COME FIRST.** "Giving the customer what he or she wants" is an easy motto to espouse, but putting it into action takes more effort than many contractors realize. L & L Landscape defines this through its mission statement, which states "L & L Landscape Services was founded and operates each day to eliminate clients' con-

cerns for their landscape needs by providing quality, affordable landscape services."

The company's success is based on the words, "eliminate clients' concerns," for both Glover and Zolezzi believe that those concerns are the key to the clients' definitions of quality.

"I'm a technical kind of individual, and I'm concerned about the quality of our jobs from a technical aspect," explained Glover. "But we now understand that quality is in the eye of the customer. We gear our work to what they envision and try to provide them with that."

"If you graded our work, we may not get an A," Zolezzi noted. "We may do work that gets a B, or a B minus or a B plus. We're not the cheapest, either. But what we do is find out exactly what the customer wants and provide it to him."

He continued: "Most of our clients don't care if the lawn is perfect, but they want it green. They're not as interested in the exact quality of the horticultural service as much as they are in the service. For example, we've lost jobs where we did the job perfectly, but lost the work because the customer didn't like the way we were billing it."

Whenever L & L Landscape bids on a new job, the customer service representative asks the client what he or she didn't like about the previous company. "The day we sell a job, we send the client a questionnaire asking for specifics on the services they want," Zolezzi said. "We'll ask if they want extra work without notification, for instance, or what type of billing they prefer."

The sales person, operations manager and supervisor meet with the client in a lengthy interview to talk about each specific in the contract, he explained. "We'll walk the site, ask when he wants to meet with us, what his boss expects, when his budget is due, if he wants budget reports, when he wants us to follow-up. Often, what we talk about has little to do with the site, and more with the personal aspect."

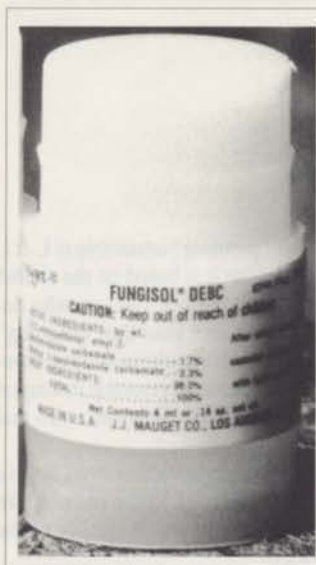
Each client is different. "We've been teaching Total Quality Management and we've been following up to measure our work," Zolezzi noted. "Some people want a walk-through every week and some don't."

L & L equipped each of its managers with cellular telephones for fast communication. "It was an expensive decision," he explained, "but we want to be able to keep in constant contact. Sometimes, the property managers are not at a property" to make decisions.

"We had to decide whether to improve the horticultural quality or to promote communication and customer satisfaction," said Zolezzi. "We don't downgrade quality, but many times we bid a job, the client will say 'I'm so unhappy,' and the reason doesn't have to do with the quality of the job."

This partnership extends beyond service, explained Glover. "We bend over backward to understand their financial challenges, too. We'll ask if we can adjust the service or adjust the fee in order to help them solve their problems."

(continued on page 32)



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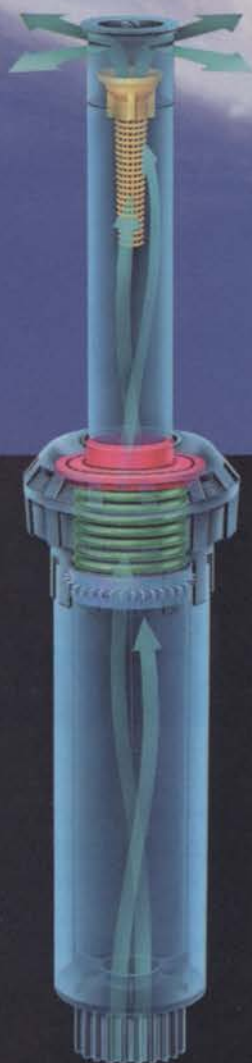
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## Cover Story

(continued from page 28)

**INCENTIVES FOR QUALITY.** "One of our biggest challenges in the past was recruiting and training personnel," stated Glover. Today, the company has a good labor pool as a resource and several employee programs that have brought its turnover rate down to almost zero. Emphasis has shifted from training to good communication with employees and mutual sharing of responsibilities and rewards.

L & L Landscape's quest for quality evolved into an unusual employee incentive program where employees and management both define job expectations.

"We devise a new plan every year based on saving the company money," Zolezzi explained. "Employees at each job level define specific incentives they can achieve that will save money beyond our budgets. It may be for increasing profits, client retention, safety, getting reports in on time, not breaking equipment—all kinds of things.

"For instance, if our shop bud-

L & L converted this dry creekbed into a garden to accommodate drought restrictions.

get is set at \$150,000, the employees may receive 10 percent of any savings from that budget. If the manager saves \$40,000, he will get \$4,000," he continued. "And it works at every level. Even administrative employees have incentives that are put into a pot and divided. Our managers average about \$7,000 per year in their incentives."

L & L Landscape measures progress toward incentive goals through monthly reviews.

"We started this program about four years ago. It makes the work fun. We may spend as much as \$50,000 to \$75,000 on incentives, but we look at it from this standpoint: We ask them to do what they can do to make the company more money and we'll give



them some of that," said Zolezzi.

The company has offered a full profit-sharing plan for 17 years. "Each year the company sets aside a certain amount of profit up to 15 percent of every employee's yearly salary," Glover explained. "We in-

vest that and when a person leaves or retires, they get the money. They'll never lose it because it's always there, waiting."

Profit-sharing funds can accumulate rapidly. "We had a lot of success in our investments in past



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years, sometimes making a 20 percent return," noted Zolezzi. "Now, we're getting about 6 percent, but even at that, the money really multiplies. We had one manager leave after about 10 or 11 years who had about \$240,000 in the fund."

Each employee gets a yearly statement showing their account and investment results. "It's a big thing to meet personally with all the employees, because we show them their statements and explain everything individually," he added.

L & L Landscape offers a free tuition program for any employee who wants to further their education or become licensed. Departments can earn "safety days" off for accumulated time without lost-time injuries.

In addition, L & L pays high wages for its market area and hosts a variety of employee gatherings like parties and sit-down dinners.

"It's important to have a feeling of unity with your employees before you offer their services to the customers," noted Zolezzi. "Whenever we bid a job, we make sure the clients receive information about

our employees in a prospectus that explains how each employee receives a drug screening test, a physical, 16 hours of orientation and full training before they service clients. We want our customers to know how we treat our employees."

**INDUSTRY PARTNERSHIPS.** This enlightened attitude wasn't enough to impress union organizers associated with the "Campaign for Justice." The group, which last year staged noisy demonstrations and used below-the-belt tactics with Bay area landscape contractors, presented an enormous public relations headache for L & L Landscape and several other firms (see *Lawn & Landscape Maintenance*, October 1994, page 42).

The organizers, who involved the National Labor Relations Board and other government agencies in their campaign, freely admitted they were more interested in gaining new members than raising wage levels. They pressured landscape contractors' clients by claiming that the contractors treated Hispanic laborers inequitably and urged those cli-

ents to put pressure on the firms to meet the union's demands.

This unconventional strategy only incensed local companies, many of whom go to great pains to provide good employee benefits. Several joined together in an association sponsored by the California Landscape Contractors Association to study employer requirements and counteract the union's strategies.

Zolezzi serves as chairman of the contractors' group and noted that the whole controversy has been an education.

"We've learned so much in the last year about employee relations, which is something we want to continue to improve upon." He noted that the group is writing guidelines that would define accepted industry practices.

This process may also raise the level of professionalism in L & L Landscape's market, an issue that is important to both Glover and Zolezzi.

"One of our future challenges we're working on is to improve the integrity of the industry in our area," said Glover. "Raising the level of

competition is always a challenge. We have a core of excellent contractors in our area but also several who are not playing by the rules. They're not getting insurance or paying overtime. We'd like to level the playing field by trying to apply the appropriate pressure.

"The guidelines developed by the CLCA group will outline what a contractor should provide in terms of insurance, wages and benefits."

Zolezzi agreed, "I'm tired of being called a 'gardener.' The industry needs professionalism and the public needs to understand that people in our industry have college degrees in horticulture, that they're always training and learning, that they're in professional jobs."

His solution requires effort from the industry. "We have to put work back into our industry. We're trying to enlighten the firms in the Silicon Valley area that they have a responsibility to make sure their landscape contractors are treating employees right."

Glover currently serves as the Exterior Landscape Division board chairman for the Associated Land-

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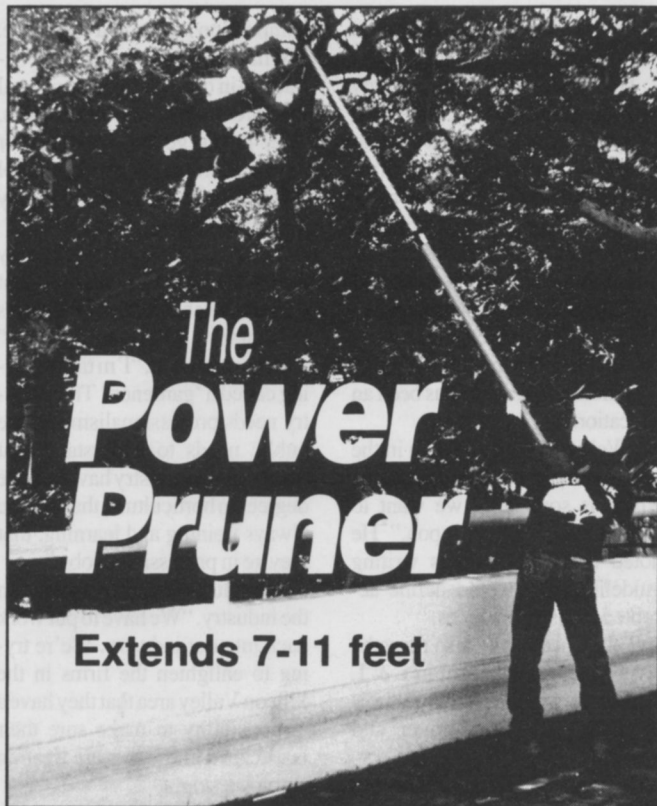
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**L & L Landscape operates five divisions out of two Bay area locations.**

scape Contractors of America, as well as a director for the Green Industry Expo.

This commitment, which runs through a four- or five-year cycle, will involve 12 different business trips in 1995. Since he lives in Sandy, Utah, and commutes to Santa Clara to work three days a week at L & L Landscape, it's an additional burden to an already hectic schedule.

"Rob and the others help out so I don't have to worry about things," he commented. He believes his experience with industry associations is worth the extra effort. "I have found ALCA to be an absolutely fantastic resource for my company. Every time I attend something, I'll come back with 25 ideas — more than I can implement. Anyone not involved in ALCA gives me the competitive advantage."

**VENDOR ALLIANCES.** A close working relationship with clients is important with or without unconventional union tactics. Equally important are good working partnerships with vendors.

"We like to form alliances with our vendors," said Zolezzi. "We'll be faithful to only one vendor of a type of product as long as we get what we need from them." It's not merely a matter of price.

"We'll bid our fertilizer and insecticide programs every two or three years with maybe 10 different vendors, for instance," he explained. "We ask for a quote based on the price for one year's total purchase from a vendor. Once we select them, we'll buy from them exclusively. Then we tell them what we expect in return: monthly meetings with our managers, seminars, an understanding of our mission statement and what we need from them to accomplish our goals."

Quality service counts. "We've had one pesticide vendor for 10 years. Maybe we can get it cheaper,

but we know we'll get the quality we want. Vendors are like our customers. We want them to understand that we're a team and why we are a team."

**THE RAINS CAME.** Future prospects for L & L Landscape look as bright as a sunny day, which is ironic, since California's recent rains play a major role in 1995's business outlook.

"The rains have been the greatest thing to happen to us, because we're finally out of seven years of hard drought," Zolezzi noted. "We couldn't even do a lot of landscape construction. There were so many restrictions on construction and maintenance that we couldn't plant annuals, and much of the landscape construction work came to a halt."

L & L Landscape averages about eight rain days each year, but the weather has drastically changed that. "We've already had more rain days this year than any time in the last 10 years," he said.

The high water levels have opened the doors to many business opportunities for Bay area contractors. "We're now at 100 percent water capacity, which means there are no restrictions on landscapes for the first time in eight years. We hope this will result in extra work on our maintenance accounts."

Zolezzi continued: "The rain was a godsend. The recession was nothing compared to the drought. People were told they could use only 30 percent of the water they used 10 years ago. We spent so much administrative time working with 350 customers and their water bills, plus trying to keep the landscapes alive and having special irrigation meetings to educate public agencies. Now, we can plant flowers without breaking the law!"

*The author is Managing Editor of Lawn & Landscape Maintenance magazine.*

# Mowing Crew Management is a Matter of Style

*Three mowing contractors prove that different management styles can be successful when they're matched to a company's goals and resources.*

*by Steve and Suz Trusty*

MOWING grass is a people business. People ride or push mowers, manipulate string trimmers and handle blowers. They pick up debris, interact with you and with your clients.

Managing these people — your mowing crews — is a fundamental element of your business.

There's no magic formula for managing mowing crews, yet the success, perhaps even the survival, of a mowing company depends on doing it effectively. The performance of mowing crews projects an image of your company to your clients and contracts are dependent on the results your crews produce.

Each company has its own unique geographic and environmental conditions, client groups, pool of available employees and specific challenges.

Still, several management techniques are universal. When mowing contractors get together, managing their crews is a sure topic of discussion.

Three companies, based in different regions of the country, share the basics of their mowing crew management systems.

**FAMILY-RUN FIRM.** Mike Martin started Green Thumb Lawn Care Inc., Council Bluffs, Iowa, in 1984. Council Bluffs has a population of approximately 56,000 and is located just across the Missouri River from Omaha, Neb. Martin's father,

Clarence, joined the operation after his retirement.

Iowa winters make mowing a seasonal business. Cutting generally begins in mid- to late March and continues through October, sometimes into November. Summer turf growth varies according to always changing weather patterns. Hot, dry summers can put the cool-season grasses into a semidormant condition, while cool, rainy summers can keep turf growing at near springtime rates.

Mowing rotations vary from 5- to 9-day intervals, to match turf growth. Client contracts are set up to cover season-long service, rather than by hourly mowing rates.

The company's split between commercial and residential accounts is approximately even, but commercial contracts make up 80 percent of the work load. The largest properties are in the 4- to 5-acre

range. Large sections of open turf are minimal.

The Martins run two three-person crews; one headed by Mike, the other by Clarence. Crew members generally are students from area colleges. The Martins try to have at least one crew member who is a local person and able to start work early in the spring and remain later into the fall. With the college-level labor pool, crunch time hits when class schedules and mowing schedules overlap.

Finding and keeping employees is a problem. Although seasonal positions fit for college students, the job requires regular attendance,



**While one man mows, another does detail work to finish the job.**

commitment and physical labor. A three-year employee would be considered long-term.

Mike has no cut-and-dried labor policy. The initial orientation and training session is informal. With a family member running each crew, on-the-job training and supervision are regular and consistent.

**EQUIPMENT SETUP.** Each crew has a pickup truck and trailer. Equipment for each crew includes: one 36-inch walk-behind mower and two 21-inch walk-behind mowers, equipped with baggers; two string trimmers; and one blower. One 48-inch, 24-hp riding mower alternates between crews.



**Riding mowers boost productivity on large-acreage properties.**

The Martins handle regular and preventive maintenance on the equipment, starting approximately one hour before crew arrival each morning and staying later each evening. Crews generally work from 8:30 a.m. to 5:30 p.m.

Schedules are set on a daily basis. Each crew may handle different sites, or they may combine to tackle the larger commercial accounts.

One crew may complete its portion of a joint project and head for the next site as the second crew finishes. The goal is to strive for top productivity from crew members.

**CRUNCH TIME.** Doug Zepp started Douglas Lawn & Landscape in 1981. It's located in Westminster, Md., which has a population of approximately 8,800 and it is located near Baltimore.

Douglas provides full-service landscape installation, pruning and trimming, mulching and some irrigation work, as well as mowing. That accounts for 80 percent of the total business; 80 percent of mowing is for commercial accounts.

Many of the commercial ac-

counts are in the 25- to 30-acre range, with several 50 to 60 acres in size, and most have extensive sections of open turf. Winters also shut down mowing from December to March. Other work takes up the slack for full-time employees.

The accounts are contracted annually, based on season-long service, rather than on hourly mowing rates. Most clients are long term; some have been with the company since it started. Referrals are the primary source of new business.

Employee levels fluctuate between 13 and 18 people. Nine of these are full-time; six of the nine are kept on staff year long. Most of the part-time crew members are college students whose work schedules are adjusted around classes.

"Crunch" times occur in March and the first part of September, as the students' class schedules and mowing schedules conflict.

Douglas runs four or five mowing crews of two or three people, depending on the demand.

In the four-crew system, two crews are equipped with two 60-inch midmount riding mowers; a



Choice of each crew's equipment plays a big role in its productivity.

21-inch self-propelled walk-behind mower; three to four hand-held string trimmers; and two blowers.

One of the remaining crews uses a 60-inch midmount riding mower; the other crew uses a 72-inch midmount, 24-hp diesel riding mower. Small equipment remains the same for all crews.

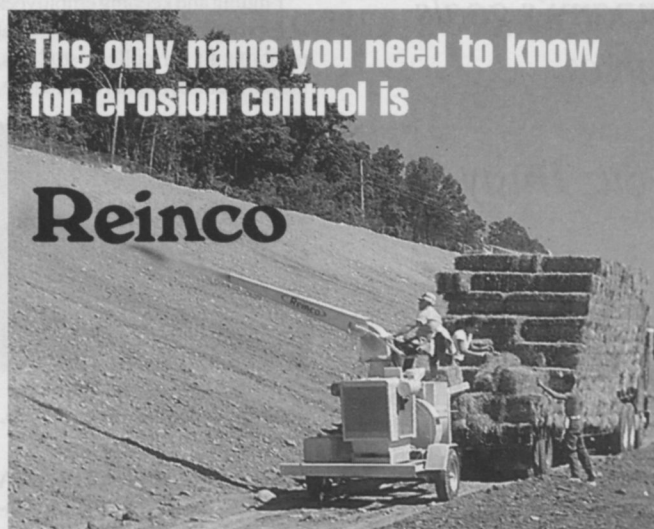
**HANDS-ON STYLE.** Zepp has a hands-on management style, and supervises one of the crews himself. He and his crew are always on

the largest job sites. Two nephews work for him; each supervises a crew. This close connection gives the company an edge in commitment to the job. In addition, each truck is equipped with a phone for constant communication.

Douglas makes crew assignments at the start of the mowing season that remain "pretty much" static throughout. Part-timers are scheduled on the same crew for each of their working days. Adjustments in the schedule are made to

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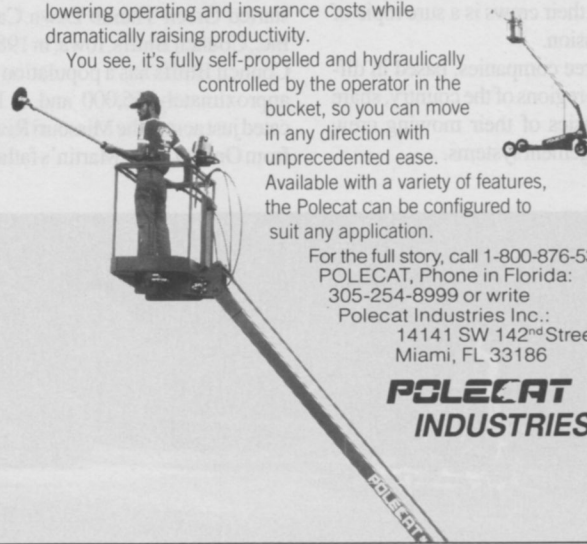
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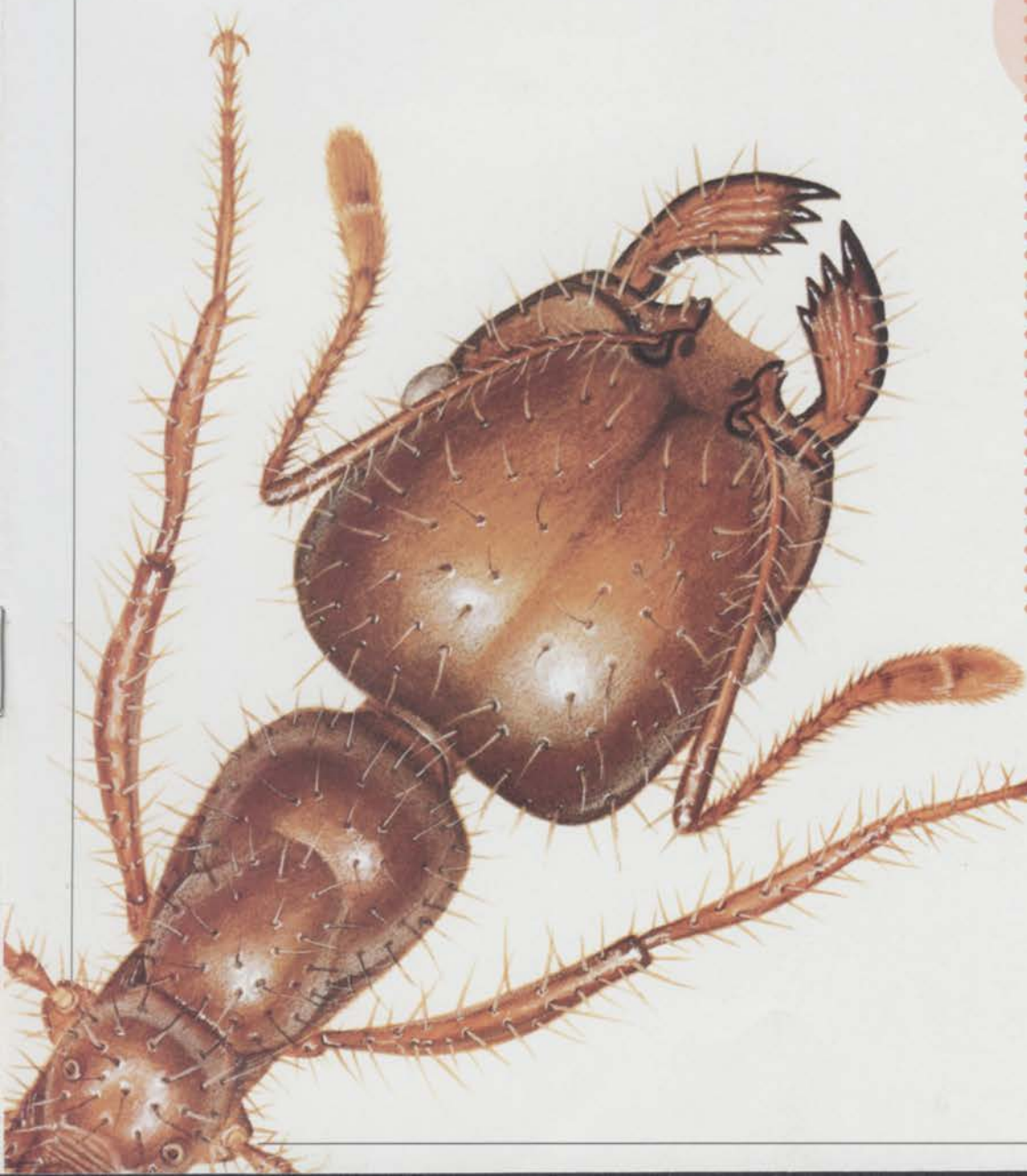
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# Controlling Fire Ants In The '90s

*Professional applicators have been searching for a long-term fire ant control strategy for customers that is both effective and low in cost. The insect growth regulator makes this level of control and service a reality.*



# Taking On Fire Ants

**I**mported fire ants are among the most challenging pests that experts and applicators have faced in this century. It is also one of the few insects that command the considerable attention of both the lawn and landscape maintenance and pest control industries.

Fire ants have the ability to infest recreational turf, or build colonies close to homes and invade structures in search of food. In either case, the fire ant poses significant aesthetic and health problems that residential and commercial land owners refuse to tolerate.

Since its entry into North America and subsequent infestation of much of the Southeast, control of this tenacious insect has been the subject of intense research and extensive trial and error.

From their introduction in the 1930s until their discovery and resulting quarantine regulations in 1958, the red fire ant spread through infested nursery stock into eight states. Eradication techniques, which involved the broadcast spreading of insecticides over infested areas, failed to control the fire ants. And because the insecticides killed other non-target species of ants, this method may have actually exacerbated the problem – with no natural enemies, the fire ants spread faster.

Most experts today have conceded that eradicating the red fire ant is not possible – control is the only alternative. Insecticides have afforded temporary control, but necessitate frequent, expensive retreatments.

Award® fire ant bait from Ciba Turf & Ornamental Products extends the window of opportunity in an application program. Award can be broadcast twice a year and control the proliferation of fire ants to a higher degree.

This supplement describes what Award is, how it works and describes how some professional applicators save time and money while increasing customer satisfaction using Award. Please take a few moments to review the enclosed information.

*Always read and follow directions.*

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CGA-780-00014A

Cover Illustrator:  
Biruta Hansen



ciba

## The Imported Red Fire Ant Vital Statistics



**Range:** Florida north to South Carolina, west to eastern Texas

**Habitat:** Colonize underground, establish mounds

**Colony Size:** 100,000 to 500,000

**Queen Egg Production:** Up to 200 per day

**Development:** Eggs become adults in 9 to 15 days

**Life Spans (in nature):**

**Workers:** five to eight weeks

**Queens:** three to five years

**Hazards:** Painful sting, on rare occasions fatal; damage landscape plants and trees, electrical equipment



# Solving The Fire Ant Puzzle

For decades, scientists and professionals in the lawn maintenance and pest control industries in the southeastern United States have been fighting an uphill battle against the imported red fire ant. This accidental tourist from South America that dropped anchor in Mobile, Ala., in the 1930s has grown to infest 11 states from Florida north to South Carolina, and west to eastern Texas. And the potential exists for further infestation into southern New Mexico and Arizona, southern and western California and coastal Oregon and Washington.

Because the fire ant does not occur naturally in the United States, it has no enemies here. It

has been up to society to find the best control method.

Until recently, controlling the infestation was the work of insecticides alone. While visibly effective, insecticides only treated the symptoms of the infestation by killing the foraging workers that busily swarm around the mound. The real problem – the queen – was out of sight and out of reach. The mobile, resourceful colonies always appeared to be one step ahead of even the most vigilant applicator.

Researchers came to understand that the critical element in eliminating the fire ant colony was in not creating a sense of danger within the mound. When some outside force, such as the application of insecticides, invades the mound, the colony can quickly move the queen and eggs to a new site.

This new thinking and extensive research led to a significant breakthrough in fire ant control – the insect growth regulator (IGR) fenoxycarb. This chemical works directly on the queen, altering her ability to produce normally developing eggs without causing alarm to the mound. Within days after the queen ingests the IGR, her eggs are no longer viable, workers begin to die off and the entire colony begins to falter. Within weeks, the colony is eliminated.

Award Fire Ant Bait from Ciba Turf & Ornamental Products makes killing the queen – and therefore eradicating an entire fire ant colony – a reality. Award is the least costly and most effective long-term fire ant control product available.



Fire ants may colonize near high voltage areas and cause damage.

*Fire ants will never be completely eliminated, so applicators will need to adopt an effective, reliable method of control.*



Fire ants may enter structures while foraging for food.

# Trouble Makers

The fire ant creates many problems for professional applicators. Beyond just being a nuisance, fire ants are unsightly, cause property damage, threaten pets, injure and, in extreme cases, cause death to humans. The list of problems is long:

- *Sting.* By far the most problematic and notorious characteristic of the fire ant is its sting. Fire ants will sting repeatedly and attack anything that disturbs their mound or food sources. The name fire ant comes from the burning sensation the sting's venom produces in people. In cases where people are sensitive to the venom, anaphylactic shock can result in death. The threat of their sting in an infested area makes picnics, games and other activities

uncomfortable, if not impossible. Depending on the proximity of the colony to a house, certain weather conditions can lead to fire ants invading the home and threatening inhabitants. Small children and pets are especially vulnerable to the fire ant.

- *Build Mounds.* The mature fire ant mound, in which the colony exists, can rise to a height of 18 inches and extend to a width of 24 inches. To the land owner, they are ugly; to the pest control and lawn maintenance contractor, they can potentially damage maintenance or mowing equipment.

- *Damage Electrical*

*Equipment.* For unknown reasons, fire ants congregate around areas of concentrated electrical power, such as air conditioners and transformers. Their propensity to chew on wire insulation causes electrical shorts and outages.

- *Damage Property.* In urban areas, the fire ant can nest under patio slabs, walks and roads which cause damage and cracking when they leave.

- *Damage Trees and Landscape Plantings.* Fire ants feed on germinating seeds, as well as the buds of young fruit. They also girdle young trees.

*Fire ants cause property damage, threaten pets, injure and, in extreme cases, cause death in humans.*



## The Great Society

The strength of the fire ant lies in the social network of the colony. Each member has a specific role to play that is key to the survival of all the members. The member around which all the activity is centered,



*Workers tirelessly tend to eggs that will produce thousands of new fire ants.*

however, is the queen. She is the only truly indispensable piece of the fire ant puzzle. Without her, the colony collapses.

The queen is serviced by a hierarchy of workers that perform the tasks required to keep the colony healthy and alive. Their responsibilities include caring for the queen, watching over the eggs and larvae, clearing waste and carcasses from the colony area, guarding the colony from invaders and foraging for food.

The fire ant colony has a keen sense of impending danger or threat, and will move quickly to a new site when the mound is disturbed. In some cases, the mound will break off into several new colonies as the workers choose new queens and begin new mounds. This "budding" phenomenon can worsen an infestation if a colony is simply disrupted rather than destroyed.

## Winning The War With Award®

As with any battle, the key to winning is to understand the weakness of the opponent and attack it. Award fire ant bait attacks the colony at its essential link – the queen.

Award combines a bait granule with the IGR fenoxycarb, the product's active ingredient. When in the vicinity of a mound, workers pick up Award like food and return it back to the mound.

The bait is passed through several workers before being made available to the queen, who will ingest it within 48 hours of its entering the food chain. Within days, she produces eggs that either will not hatch, or that produce sterile females. Workers are not reproduced, and the number of fire ants in the colony begin to diminish. The stress of the extra work load on the existing workers speeds the mortality rate, and the community begins to collapse. When the queen dies, some workers continue to forage, and will actually attack any newly mated queens that attempt to establish themselves in the old territory.



Award fire ant bait is available in the 25-pound package and convenient 3-pound container with "shaker top."



A typical acre infested with fire ants may have 40 to 150 mounds.

## Birth Of A Mound

The fire ant colony begins with a single, winged queen that leaves an existing mound and mates in flight with a male. Flights tend to take place in spring and early summer, and within a few days after a rainstorm, due to the fire ant queen's need for moisture in the early weeks of colonization. The odds are tremendous against success – air and ground predators and hazards claim an estimated 90 percent to 99 percent of the queens that take flight.

If her landing is successful, the queen rubs off her wings, digs a burrow and lays a small

quantity of eggs. The initial workers that hatch tend to the queen and the subsequent eggs she lays until enough ants exist to begin gathering food and building the mound. Within six months, the mound contains several thousand workers – the mature mound, which takes about a year, may contain from 80,000 to more than 500,000 individual fire ants.

## The More The Merrier

As a creature fiercely defensive of its territory, it was originally thought that colonies could only exist with one queen. In the late 1970s, however, multiple queen colonies were discovered. Unlike single-queen communities, where invading workers from other mounds serving other queens are destroyed, the workers from multiple queen mounds move freely from mound to mound. A typical acre infested with single queen colonies may have 40 to 150 mounds, but an acre infested with multiple-queen communities may contain from 200 to 800 mounds.

## Golfing – Without The Mound Hazard

Old Waverly Golf Course superintendent Bill Colorado implemented a fire ant control program using Award in 1989.

It was clear that contact insecticides were not the answer. Colorado had one man working two days per week just spot treating mounds, and still couldn't keep up with the population. "The problem wasn't being managed – we were putting out fires, but we couldn't control it," he said.

Colorado decided to try Award in March of 1989. Using a Herd seeder attached to a four-wheel vehicle, workers treated the entire golf course at a rate of 1.5 pounds per acre. The application took his workers about a day and a half.

Colorado made a second application of Award in September at the same rate of dispersion as part of the preventive program for the following year. "It's important that you stay on the program. If you let it go in the fall, you are likely to see bigger populations in the spring and fall of the next year," he said.

Colorado said the reduction in the fire ant population was substantial, and no one complained of any stings that summer. Additionally, no turf or other plant material damage occurred anywhere on the course.

"We've spread it over a bentgrass green and there has been no damage. We have hit any area – flower beds, annuals, shrubs – and there's no problem," he noted.

# Why Award® Works

**A**ward is effective because of its ability to enter the food chain without being detected.

Contact insecticides can kill many workers, but if the queen survives so does the colony. Other baits fail because they contain insecticides that kill

workers directly. When workers die for no apparent reason, the colony becomes alarmed and will move itself to another location.

With insecticide-based products, there is no real guarantee the queen will ingest it before it triggers the flight response. Award is not seen as a toxin by the fire ants, and is therefore ingested without hesitation, and without alarm. And, Award is only active on the fire ant — other beneficial insects are not affected by its active ingredient.

*Contact insecticides can kill many workers, but if the queen survives, so does the colony.*

## Using Award®

Award should be applied twice each year. The first should take place when the fire ants begin to actively forage in the spring — this is generally when soil temperatures reach about 60 degrees. The second application should be done in the fall, when workers are still out searching for food. Applications in the early evening are most effective, when workers are most actively foraging.

In large applications, Award may be broadcast using spreaders, or through aerial application. The recommended rate is 1.5 pounds per acre. For single mounds, one to three level teaspoons of Award should be sprinkled uniformly in a three- to four-foot radius around the mound.



*Award may be broadcast using a spreader.*

## Turning Skeptics Into Salespeople

Chuck McIntire, technical director of All Green Corp., a lawn maintenance and pest control firm headquartered in Marietta, Ga., said the hardest thing about initiating his fire ant control program using Award was convincing his technicians that it would work.

"At first, most of the technicians were skeptical that the product was going to work. The quantity of product you use is so low, they really didn't feel it could do the job. Once they saw the results, though, they got excited," he said.

McIntire discovered Award in 1989 while searching for a long-term solution to his customers' fire ant problem. Approximately 75 percent of All Green's business is in residential lawn maintenance with an average yard size of 6,500 square feet, and about half of their 41 nationwide branch offices reside in "fire ant country."

All Green began offering two separate fire ant control service programs to its customers using Award. The first service includes a single application of Award in the spring, followed seven to 10 days later by the application of an insecticide to speed the clearing of the worker fire ants, which costs customers \$40 to \$50. The second, more expensive option includes a one-year guarantee

against further infestation, which costs \$100 to \$120. Because only a pound of Award per acre is required, technicians use small, hand-held spreaders on the job.

The program has been a great success on all levels. First and foremost, the customers have been very pleased with the long-term control that Award gives them over fire ant infestation. Second, Award's effectiveness has significantly limited the number of return applications technicians have to make.

Demand for the service company wide has doubled every year since the program started, he noted, and in areas of greater infestation like Dallas, the Award program has added 2 percent to 5 percent to the bottom line.

McIntire added that it is an easy service for technicians to sell on site while performing other duties.

"Most of our sales are truck sales by the technician. They'll be doing a lawn application, see the fire ants and say, 'by the way, we can take care of these for you,'" he said.

Award's low cost to All Green makes the service profitable, and its effectiveness means customers are happy with the results. "We really see it as a win-win situation for everybody," he said.

# Award<sup>®</sup> Simply Works Better

As a professional with training in both lawn maintenance and pest control, Michael Reech may have the upper hand in understanding and controlling the fire ant.

"On the pest control side, you deal with insects a lot more than lawn maintenance or landscape. As someone in the pest control industry I have a better understanding of the biology of ants, roaches, termites, etc. vs. someone in landscape," Reech explained.

As the staff horticulturist with Couhig Environmental Services, Baton Rouge, La., a residential/commercial pest control and lawn maintenance firm, Reech's job description includes fire ant control. Understanding the way IGRs work on fire ants got Reech to try Award about a year and a half ago, but it was Award's ability to control fire ant populations that has kept him using it.

To Reech, it is extremely important that the products he uses on the job work – when something he does or tries succeeds, he sticks with it. Couhig services nearly 2,000 commercial and residential accounts, including more than 800 lawn maintenance and about 1,000 pest control accounts. There isn't time or money for reserving accounts due to product failure.

Reech has gotten best results by treating each individual mound, rather than broadcasting. His workers apply Award at the rate of one pound per acre in an area eight to 10 feet around the perimeter of a mound. They do two applications – initially in early to mid-March, and then sometime between the end of October and Thanksgiving. When maintenance crews return to perform general maintenance, they keep a careful watch for new mounds and treat them as they find them.

Award takes longer to produce visual results than pesticides, but

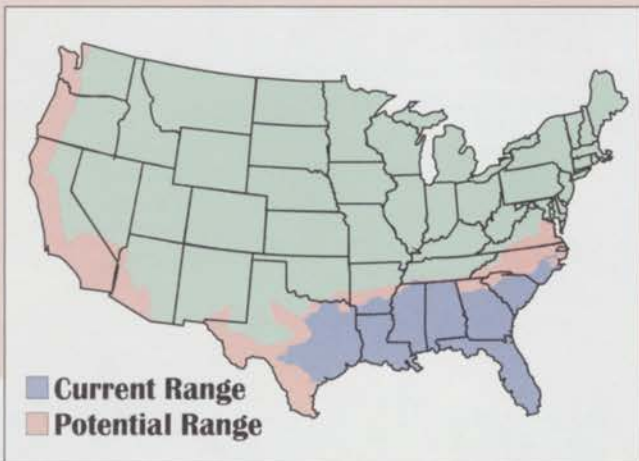
Reech hasn't had any problems convincing clients that it's the best fire ant control product available.

"It's all in how you sell it. Lots of people don't understand – they think the ants should be gone instantly. Because I have a pest control background and I understand the technology, I can explain it to the property owner," Reech said.

Applications take longer due to the very low dispersion rate required, but it only needs to be applied once. "The labor we use to treat with Award is higher – it's more time consuming to go out there with a bucket and treat each mound. But it takes care of 95 percent of the ants out there. I have to go back and search for mounds when we follow up," he explained.

His ability to control fire ants has resulted in greater customer satisfaction, and has helped him pick up new clients from competitors who couldn't keep fire ants in check.

"It's expensive to lose an account, and frankly, we have a lot of accounts in this town that are the cherry accounts – they are the cream of the crop. I'm just not going to lose them because of some ants."



Control may be evident within five weeks, but Award's effectiveness is most noticeable five to nine months after application. For quick knockdown of worker ants, Award may be applied in conjunction with an approved contact insecticide. The contact should be applied seven to 10 days after Award to ensure that the IGR has infiltrated the mound.

## Boosting The Bottom Line With Award<sup>®</sup>

Doug Brown was just beginning to realize the potential of Award for fire ant control in 1994. This year, he plans on making the service a centerpiece for his company, Permalawn, based in the suburban Dallas community of Maybank, Texas.

Brown wants to be the "go to" guy for residential fire ant control in his area. He had the product, but had not promoted the service to existing and potential clients.

"My lawn maintenance customers were calling me and saying, 'I have this fire ant problem – do you know anyone who can take care of this for me?' to which I would say, 'you're talking to him,'" explained Brown.

He doesn't plan on dropping the ball this year – he's getting fully behind his Award fire ant treatment program. He's promoting the program through newsletters, billboards and directory advertisements. He is also dedicating a truck solely

for the application of Award.

Along with the regular fire ant control service, Permalawn will be offering free applications of Award for residents who sign a mowing contract. Brown hopes that the added service will impact the bottom line by 28 percent.

Permalawn uses Award in two applications – one in early May and the second in late September, according to Bobby Floyd, certified applicator. Award is broadcast at a rate of 1.25 to 1.5 pounds per acre. Customers generally pay \$5.50 per 1,000 square feet, but certain larger lots get a price break.

Floyd said that it is very important for the customer to understand how the product works. "The only people who complain are those who don't understand or listen to us when we discuss it with them initially," he explained.

He also stressed that people have to stay on the program consistently for Award to work properly.

"We are very happy with the results of using Award. We've heard from several of our fire ant customers that are amazed that they have had no problems," he said.



Foraging ants pick up Award like any food substance.

# Nurseries Keep Fire Ants Controlled With Award®

S & S Nursery is a 755-acre wholesale grower deep in the heart of fire ant country in Athens, Ala. As the field supervisor and chemical/fertilizer buyer for this fourth-generation establishment, Tom Strain Jr. is responsible for keeping the fire ants from taking over.

While the safety and comfort of the work force is a big concern, S & S must also comply with U. S. Department of Agriculture and Animal and Plant Health Inspection Service fire ant quarantine requirements. For the past two years, Strain has relied on Award to handle the job.

Before Award, fire ants were controlled by locating and spotting the mounds, then drenching them with an insecticide. "I had to send out guys to mark the mounds, then go back and drench them. It took 40 man-hours per week for at least two months," explained Strain.

The prospect of a product like Award was extremely appealing given the labor-intensive alternative, so

Strain decided to give it a try.

Covering the large amount of acreage required an aerial application, so he hired a private service to do the drops. He also had to make some prior arrangements before the very first aerial drop was made. "We have an airport nearby, and we had to make sure that the pilot doing the application could speak to the tower," he said.

The first application was done in April, at a rate of 1.5 pounds of Award per acre. Six months after the first drop, Strain said, fire ant populations dropped 90 percent. Just as important, the broadcast treatment had no adverse effect on his plant material, which includes roses, container stock, many varieties of trees and arborvitae.

A second application was done in September at the same dispersion level. Strain said that as a preventive measure for the following spring, it is important to do the second application.

"On a program, Award is more of a preventive than just a curative solution. I don't think it will ever be possible to get rid of them completely, but Award is the best product I've seen to control them," Strain said.



When mounds are disturbed, workers will attack and sting anything nearby that moves.

## Award® Tops Off Turf Management Program

Armor Pest Control, a full-service pest control and lawn maintenance company in Spring Hill, Fla., can do it all for its residential clients. From termites to turf, fumigation to fire ants, Armor has the answer. About two years ago, though, Armor was looking for a more reliable and cost effective answer to customers' fire ant problems.

Billy Knight, former lawn manager and currently certified operator in the fumigation department, said that consistent fire ant control is important as part of what he called their "integrated turf management" program.

"We treat each customer problem individually. For some, fire ants are 90 percent of the problem, for some it is 10 percent. Every property has different needs," explained Knight.

Their previous method, the insecticide drench, simply failed to control the ants, Knight said. Customers were unhappy and frequent, expensive retreats forced Armor to look for a new solution. To get better consistency of control, Armor started using Award.

Rather than broadcasting, Armor applicators

will use Award in the shaker container to dispense enough Award to cover the perimeter of each individual mound. "It's pretty impressive to watch. You can actually see the ants taking the bait inside the mound," said Knight.

He noted that treating mounds individually goes hand-in-hand with the firm's overall goal to better manage properties. "With the program in general, we try to be more environmentally friendly — we show our customers that we don't necessarily have to blanket the whole lawn with every insecticide. In some cases, we can spot-treat problems and still get good control results."

Part of the turf management program may also include a perimeter treatment with an insecticide to prevent crossover from mounds in neighboring yards.

In terms of cost, Knight said that Award is more expensive on the front end, but in the long run is a money saver. "As with many things that work, the product is more costly than the insecticide alternative. But with Award, we are able to get it right the first time. It has been cost effective for us to use."

## Award® Works Best

**A**ward makes it possible for lawn maintenance and pest control professionals to provide comprehensive fire ant control for new and existing customers. When used on the recommended schedule, Award provides outstanding long-term control.

For more information about Award fire ant bait, contact your Ciba Turf & Ornamental Products' representative.

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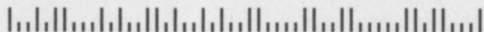
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Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**1. My primary business at this location is:**

- Golf Course Maintenance       Lawn Care Service       Mowing Management  
 Landscape Maintenance       Other \_\_\_\_\_

**2. Do you make the decision as to which chemicals your company uses?**

- Yes       No

**3. Check the types of chemicals you use:**

- Turf Fungicides       Turf Herbicides       Turf Insecticides  
 Turf Growth Regulators       Ornamental Fungicides       Ornamental Herbicides  
 Ornamental Insecticides       Ornamental Growth Regulators

**4. Your yearly chemical purchases total:**

- Less than \$10,000 per year       Between \$10,000 - \$20,000       More than \$20,000

**5. When do you normally purchase your products?**

- Spring       Summer       Fall       Winter       As Needed       Other \_\_\_\_\_

**6. Do you plan to purchase any Ciba products next year?**  Yes       No      **If yes, please check which ones:**

- Primo       Exhibit       Subdue       Pennant       Banner       Sprint  
 Triumph       TurfPak       Award       Princep

**7. Would you like a Ciba Turf and Ornamental Marketing Rep. or Distributor to contact you?**  Yes       No

If yes, when is the best time to reach you? \_\_\_\_\_ am/pm, phone ( \_\_\_\_\_ ) \_\_\_\_\_

**8. Do you belong to any professional associations?**  Yes       No      **If yes, which ones?** \_\_\_\_\_

\_\_\_\_\_



accommodate vacations and sick days.

Orientation and initial training sessions are short and informal. One-on-one and on-the-job training occur everyday.

Crews generally work from 8 a.m. to 4:30 p.m. weekdays. Work starts and ends one hour earlier in the heat of summer. Douglas schedules accounts on a weekly rotation, with the same crews working on the same sites on the same day each week. Zepp explained, "Clients can almost set their clocks by us. If weather conditions force delays, we try to get back on schedule the next week."

Zepp reviews the schedule and equipment needs each night, preparing an updated list for each supervisor. One crew member, generally the supervisor, starts an hour early each morning to load the trucks and trailers. When crew members report in, everything is ready to go.

Three or four crews may combine on the large commercial jobs. This, too, is preset and everyone knows their assignment. New employees start out on the string trimmers and blowers, then work their way up to the walk-behind mowers and riders.

Crews are assigned their own equipment and are responsible for upkeep. Tractors are cleaned and greased, and mower blades are sharpened each day. Cleanup, general and preventive maintenance tasks take place at the end of the day. Then, if equipment problems occur, they can be handled at night.

**PRODUCTIVITY COUNTS.** Zepp keeps a constant watch on productivity. Crew members' actual work hours are recorded at the end of each day, along with what each did on each job site. He compiles these records for comparison to job estimates and as a basis for contract adjustments the following season.

In an effort to trim non-productive time, Zepp started running a "trim truck" about five

**Finding and keeping employees is a problem. Although seasonal positions fit for college students, the job requires regular attendance, commitment and physical labor.**

years ago. Three days a week, coinciding with multiple-crew work assignments, six to eight crew members and appropriate pieces of trimming equipment load into a cab truck to move from job to job.

The trim truck crew may start before the mowing crews and move on to the next job, or remain at the job site longer, depending on the

# "THE TOUGH ONES"



## TA-19 Turf Aerator

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## Mowing Crews Give Great Feedback

"EMPLOYEES are any company's most valuable asset," said Scott Wagner of Landmark Landscape Management in Ashland, Va. "We appreciate the work our crews do on our behalf, and we understand the frustrations they can experience. Last December, we established an employee advisory committee as a conduit for feedback from our crews.

"We laid the groundwork for this committee last summer, setting out some basic guidelines on what we hoped it would accomplish and posting a sign-up sheet for volunteers. From those that responded, we've formed an eight-member group of foremen and grounds crew members.

"The committee meets on their own time, usually in the evening," Wagner explained. "The company picks up the tab for dinner.

"I attended the first meeting, and will attend any others to which I'm invited, but this is their group. They address issues like what we, as a company, can do better; what changes they feel would make their jobs easier or more efficient; and policies they would like to see changed or adjusted.

"We've agreed to listen to everything they present — to keep some ideas, to discard some and to manipulate and massage others. They've taped all the meetings held to date, and brought the tape into the shop so that everyone can hear it if they want. The group also typed notes of each meeting to present to me," Wagner added.

It may be too soon to tell if Landmark's group will make an impact, but it has been busy. "So far, each committee member has taken the task very seriously," Wagner added. "Will this make a significant impact on our company's operations? It's still too early to tell for sure, but initial results are promising. Ask me for an update next year at this time."

amount of trimming work needed at the site.

Although the trim truck crew and mowing crews often are on the job site at the same time, the added flexibility has eliminated much of the end-of-job down time.

Full-time employees receive health benefits and paid vacation time. Part-time employees receive no benefits. There's a set starting wage for experienced and inexperienced employees. Wage increases are based on performance and reliability ratings.

**MULTIPLE-CREW STRATEGY.** This is the eighth year for Scott Wagner's Ashland, Va., company, Landmark Landscape Management. It provides complete maintenance services.

Ashland has a population of about 4,600 and is located just north of Richmond. Winters are mild, with snow an occasional nuisance rather than a season-long menace. Mowing begins in early March and continues through most of December.

Since the business started, Wagner has not yet had to lay off any full-time employees. Cleanup, pruning and mulching keep them busy during the winter.

The company concentrates on commercial accounts, including apartment and multifamily complexes. Contracts are based on yearly services performed, rather than hourly rates. Most contracts are negotiated annually; some accounts have committed to multi-year contracts.

The area is growing rapidly, and the business has grown each year. It has retained a solid base of long-term clients, and new accounts often come from referrals by existing clients.

Wagner runs 15 full-time mowing crews. Each February, he assesses the work load of the client contracts, compares them to the equipment inventory and allocates equipment.

Each crew has one foreman and three or four crew members. These crews also have supervisors who oversee four or five crews. Each supervisor is on his crews' job sites at least once a day, sometimes twice. Every supervisor and crew truck has a two-way radio linked to a radio base in headquarters, so communication is readily accessible.

Landmark assigns crews for large or small properties. Larger commercial accounts may be broken into smaller parcels for crew allocations. Each crew is assigned a large-cab pickup truck and a 16-foot, tandem-axle, utility trailer.

Equipment assigned to large-property crews includes: one 60-inch, 20- to 25-hp riding mower; two midsize walk-behind mowers (either two 48-inch or one 36-inch and one 48-inch); one 21-inch push mower; two to three string trimmers; and one or two backpack blowers. An assortment of other materials, such as two-cycle fuel mix and string for the trimmers, are kept on each truck.

Small property crews have the same equipment allotment, without the riding mower.

**SMOOTH OPERATIONS.** Every crew has a separate storage area for equipment. Each foreman is responsible for keeping supplies stocked and inventoried, and for equipment maintenance. This person can handle certain tasks and assign others to crew members, but is ultimately responsible.

The crews fuel the trucks in the evening on their way back to headquarters, when cleanup and maintenance are performed. Any major problems with equipment can then be turned over to the in-house mechanic for repair.

To increase productivity, foremen report to work one-half hour before other crew members

*(continued on page 40)*

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**USE READER SERVICE #24**

## Crew Management

(continued from page 38)

each morning to load the trucks and trailers. When crews report in at 7:30 a.m., everything is ready for the day.

Landmark assigns crews at the beginning of the season and they are kept as consistent as possible, although some turnover does occur.

Wagner's crews also are assigned to job sites as the season starts. Some fine-tuning may take place during the season, but most assignments are set for the year.

Weekday work is scheduled on a rotation, with Saturday as a makeup day, if needed. Each crew knows where they will be working each day of the week — and each client knows when "his" crew will be on site. If weather conditions force delays, crews try to be back on schedule by the next week.

**DETAIL ORIENTED.** Foremen check in with the client's on-site contact at the beginning of the job. Before leaving the site, the foreman completes a company form that details what has been done on the site and has the contact person sign it. A copy is given to the contact.

Wagner credits this method's consistency and good client communication for helping the company retain a high-level, personal relationship with the clients. Crews learn the clients' "hot spots" and areas of special concern, and are more in tune with their needs.

The company's copy of the work report also includes what equipment was used on the job site, what vehicles were used and the labor hours for each task. A copy goes to the company office, where data is compiled.

Landmark is developing a computer database to compile this information site-by-site and crew-by-crew.

Wagner doesn't anticipate "any surprises"



Each crew must match available equipment to the job at hand for maximum benefit.

in the results. He has a good handle on productivity and cost control now.

"We're always aiming for top productivity and we've established systems that cut unproductive time. But, we know there's a gap between reality and planning. We're going to the computer database for a faster and more efficient method of tracking details," he said.

Wagner holds meetings with the supervi-

sory staff each Monday morning to review performance, personnel, equipment, vehicles, job-site reports and any other pertinent issues.

Supervisors then meet with the foremen on Tuesday mornings, reviewing any issue that needs to be addressed. The foremen cover these topics with their crews in the trucks, enroute to the job sites of the day.

Landmark has a personnel policy manual, which new employees review and "sign-off on" during the first day of orientation. It covers Landmark's history and mission statement, along with issues of training and safety. One-on-one training is a daily occurrence.

**Each crew knows where they will be working each day of the week — and each client knows when 'his' crew will be on site.**

There's a preset wage level for experienced and inexperienced new employees. Crew members are paid time-and-a-half their base-wage level for overtime. Foremen's wages are set at a base amount, with overtime compensation added. Supervisors get a straight salary.

The company gives wage increases based on an employee's performance, reliability, promptness and longevity. Full-time employees have an annual review.

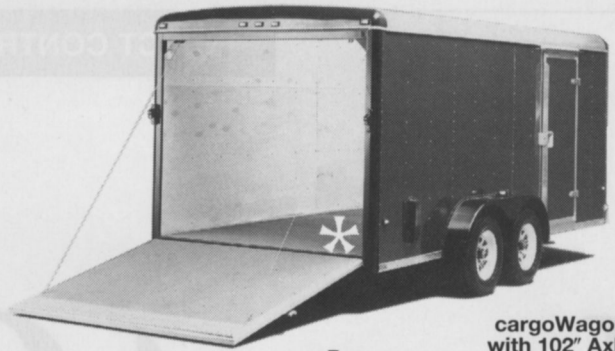
**STAFFING CHALLENGE.** Finding and keeping good employees is a constant challenge in Richmond, due to strong economic growth and a surge of new building. The building trades tap the same unskilled labor pool as mowing contractors, making it a problem for both groups to maintain adequate staffing levels.

Landmark helped ease the labor crunch a bit by initiating an employee shuttle service last year. Because company headquarters are located beyond city bus routes, the company purchased a 15-person passenger van, which is used to pick up employees each morning at an area shopping center served by city buses. Employees return to the shopping center each evening, where they can catch a bus home.

Obviously, mowing contractors can't function without mowing crews. Managing those crews to fit company resources and goals is an constant balancing act. Sharing information just might make that job a little easier. ■

*The authors are partners in Trusty & Associates, Council Bluffs, Iowa, and are consultants to the horticulture trade.*

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# Insect Controls Become Environmentally Sensitive

*IPM techniques and new biological controls are the wave of the future. Their unique modes of action will change customers' expectations of landscape services.*

by David Shetlar

ENVIRONMENTAL activists, as well as those still believing that "manufactured chemicals" are poisoning all of the humans and animals on the earth, continue to try and present their "agendas" to the general public.

But for most Americans, concerns about these perceived ills come second to the effort needed to make a comfortable living. Many people, in fact, mention that "everything seems to be bad" for them. They are beginning to tune out the daily warnings of impending doom.

On the other hand, there is a well-educated segment of our citizenry who express that they have "concern" about environmental and safety issues. This segment also is the one that can most afford turf and ornamental management services. If given the option to select what they perceive as a least toxic and least environmentally disruptive service, they will.

It is also obvious that the U. S. Environmental Protection Agency, after being subjected to considerable political pressure and evaluation of household chemical exposure, has made it clear that it is interested in registering new prod-

ucts that are less toxic to humans and cause less disruption of the environment, especially in the area of water quality.

A good example of how this is being translated into EPA action is the rapid registration of imidacloprid (Merit®) insecticide.

This new pesticide has greatly reduced toxicity (LD50 over 2,000) to humans, birds and fish and was registered in record time.

Most states also continue to address environmental and safety issues with the result being more requirements for certification, record keeping and providing right-to-know information. Periodic inspections based on these regulations will continue to increase.

The final agenda recently embraced by the President's office and by the U. S. Department of Agriculture has been the recognition that integrated pest management is a valid method of reducing pesticide applications and increasing the use of cultural and biological pest management techniques.

How will all these issues eventually change the way that we manage turf and ornamental pests? The two major changes will be the need



Sod webworm larva killed by insect parasitic nematodes.



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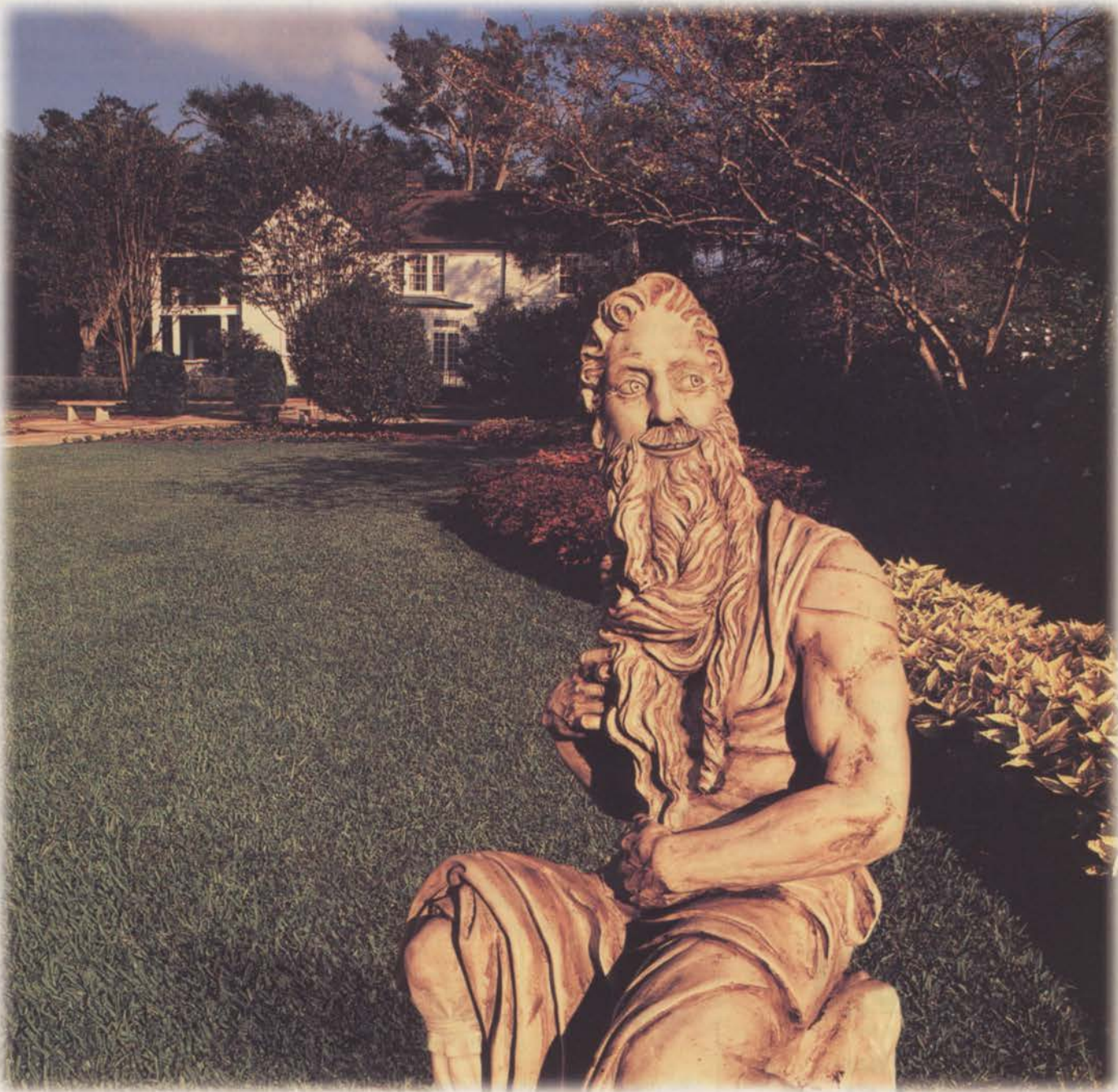
to keep accurate records and dramatic increases in educational needs. We will have to educate our customers as well as ourselves.

**EDUCATING CUSTOMERS.** Probably the simplest philosophy to be adopted in IPM is: target spray only those trees, shrubs or turf areas that

actually need it. Unfortunately, this means that we must have employees who are trained well enough to make decisions on site and we must educate customers to expect target applications. Of these two education issues, the customer is often the most difficult to handle.

(continued on page 44)

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## Insect Controls

(continued from page 42)

Historically, landscape services have been fueled by the "pay for spray" mentality. If we couldn't find something to do on the landscape, we didn't get paid. In short, the green service industry is the last to get paid for our expertise. Plumbers, electricians, physicians and others get paid for their advice and for their services.

With IPM, the customer must be educated to pay for our expertise, not the size of our spray rig. Companies practicing targeted application, especially with newly acquired customers, often complain that the homeowner runs out the door hollering that the technician missed spraying all the trees and shrubs.

A major national company recently tried to convert one city's entire customer base to targeted IPM and failed the first year. The second year, it used an active marketing and educational program of canceling all customers on the "regular" program followed by signing them up with new IPM contracts.

The new contracts went into great detail about targeted pest management. In the second year, its customer base grew and has continued to grow at a steady rate.

Those companies trying to use alternative pest management products (biological and

biological) also have had to educate their customers. Many of these products do not deliver the same level of control as traditional pesticides, while others need special homeowner attention (i.e. proper watering, mowing, mulching). Again, this can be turned into a useful marketing tool.

For example, a company notifies the customer that he is being scheduled for a special application of a biological control (like insect parasitic nematodes) and someone must be home to help the application.

If he can not be home, the company asks: When would someone be present? If the customer asks why, the firm replies: Because we need someone to turn on the sprinkler for two hours after the application is made. In this case, the customer becomes part of the application.

**SERVICE DEMANDS.** Customers continue to demand more services from the companies taking care of their landscapes. Fewer and fewer companies provide only spray or spread programs.

In the tree and shrub area, most have to prune, mulch and replant to stay competitive. In turf management, more companies now mow, aerate and reseed or resod to keep ahead of the competition.

(continued on page 46)

## Control Products for Common Ornamental Pests Standards and Alternatives

Pest	Standard Products	Alternatives
Aphids	acephate, bendiocarb, carbaryl, chlorpyrifos, diazinon, malathion	azadirachtin, bifenthrin, cyfluthrin, imidacloprid, lambda-cyhalothrin, oils, soaps
Cankerworms	acephate, bendiocarb, carbaryl, chlorpyrifos	azadirachtin,* bifenthrin, Bt 'kurstaki',* cyfluthrin, lambda-cyhalothrin, oils,* soaps
Elm Leaf Beetle Larvae	acephate, bendiocarb, carbaryl, chlorpyrifos, diazinon, malathion	bifenthrin, Bts 'tenebrionis' and 'san diego',* cyfluthrin, imidacloprid, lambda-cyhalothrin, oils,* soaps*
Lace Bugs	acephate, carbaryl, chlorpyrifos, malathion	bifenthrin, cyfluthrin, imidacloprid, lambda-cyhalothrin, oils, soaps
Mealybugs	acephate, carbaryl, chlorpyrifos, diazinon, malathion	azadirachtin, bifenthrin, imidacloprid, lambda-cyhalothrin, oils, soaps
Scale Crawlers	acephate, carbaryl, chlorpyrifos, diazinon, malathion	bifenthrin, cyfluthrin, imidacloprid, lambda-cyhalothrin, oils, soaps
Spider Mites	abamectin, dicofol, dienchlor, oxythioquinox	bifenthrin, lambda-cyhalothrin, oils, soaps
Whiteflies	acephate, bendiocarb, chlorpyrifos, diazinon, disulfoton, malathion	azadirachtin, bifenthrin, cyfluthrin, imidacloprid, lambda-cyhalothrin, oils, soaps

\* For best efficacy, apply when larvae or nymphs are very young.



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## Insect Controls

(continued from page 44)

Likewise, customers are demanding better, more personalized services. Especially in upscale neighborhoods, customers want to know a name and face and they want to feel assured that this person has the education and training to do the job correctly and safely.

In short, customer demands for more and better service are also driving our green industry into a more integrated mode of management in the landscape.

**CHEMISTRY AND CULTURE.** Dramatic advances have been made to develop and implement alternatives to the old spray-spray-spray mode of operation. The IPM philosophy requires us to keep in mind three pest management tactics—chemical control, cultural control and biological control.

In the chemical control area, the standard organochlorine, organophosphate and carbamate pesticides are giving way to the reduced-rate pyrethroids (tenths and hundredths of a pound of active ingredient per acre compared to pounds per acre). There are new lower toxicity compounds that have been developed (e.g., chloronicotinyls like Merit and azadirachtin like Turplex® and BioNeem®), as well as microbial toxins like the new Bts.

Unfortunately, few insect growth regulators have yet to make it to the ornamental and turf markets, although several are being used to manage field crop and greenhouse pests.

Undercultural control, "plant health care" is becoming the current buzz word. Simply stated, healthy plants can withstand pest attack better than unhealthy plants.

With this in mind, the International Society of Arboriculture has developed programs and educational materials emphasizing tree health as the principal method of pest management.

Likewise, turf managers are discovering that reseeded and renovated with improved, resistant turfgrass cultivars can go a long way toward eliminating most of the insecticide and fungicide applications.

**BIOLOGICAL ALTERNATIVES.** Finding consistently performing, economically viable and easy-to-use biological controls remains the most difficult control tactic to develop. In general, insect pathogenic bacteria (except for the Bts mentioned above) and fungi remain difficult to produce, and field use usually results in little to marginal control.

On the other hand, some of the insect parasitic nematodes (entomopathogenic nematodes) are gaining in use, especially since production costs have come down and formulations have improved ease of use.

Strains of these nematodes are registered currently and have proven efficacy against mole crickets, turf caterpillars (cutworms and sod webworms) and outdoor fleas. Look for products such as Biosafe®, Exhibit®, Vector®,

(continued on page 48)

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## Insect Controls

(continued from page 46)

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**IMPROVED PYRETHROIDS.** Pyrethroids, the synthetic mimics of the botanical insecticide pyrethrin, have had considerable improvements over the last few years. The first pyrethroids, like their botanical cousin, had very short residual activity (hours to a few days), a narrow spectrum of activity and often were found to be irritating to human skin, eyes and lungs.

The newer pyrethroids appear to have longer lasting residuals, a broader spectrum of activity and greatly reduced irritation effects.

Look for bifenthrin (Talstar<sup>®</sup>), cyfluthrin (Tempo<sup>®</sup>, Decathlon<sup>®</sup>) and lambda-cyhalothrin (Scimitar<sup>®</sup>). Talstar and Scimitar even have activity against spider mites.

Pyrethroids should be considered in regions where activists are commenting about the pounds and pounds of pesticides being used on landscapes (an incorrect statement).

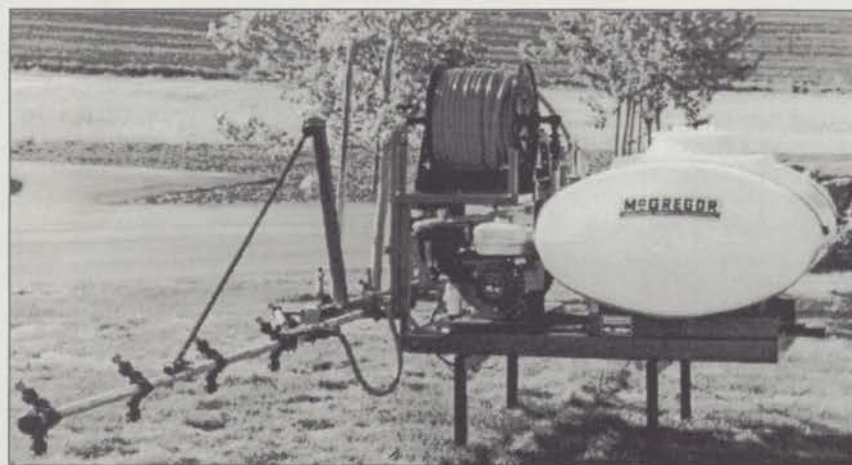
(continued on page 50)

## Control Products for Common Turfgrass Pests Standards and Alternatives

Pest	Standard Products	Alternatives
Bluegrass Billbug Adults	chlorpyrifos, diazinon, ethoprop, fonofos, isazofos, isofenphos	cyfluthrin, lambda-cyhalothrin, nematodes
Larvae	bendiocarb, carbaryl, diazinon, ethoprop, fonofos, isazofos, isofenphos	imidacloprid, nematodes, endophyte-enhanced grasses*
Chinch Bugs	bendiocarb, carbaryl, chlorpyrifos, diazinon, ethoprop, fonofos, isazofos	cyfluthrin, fluvalinate, lambda-cyhalothrin, endophyte enhanced grasses*
Mole Crickets	acephate, bendiocarb, carbaryl, chlorpyrifos, diazinon, ethoprop, fonofos, isazofos, isofenphos	cyfluthrin, lambda-cyhalothrin, nematodes
Sod Webworms	acephate, bendiocarb, carbaryl, chlorpyrifos, diazinon, ethoprop, fonofos, isazofos, isofenphos, trichlorfon	azadirachtin, cyfluthrin, fluvalinate, lambda-cyhalothrin, nematodes, endophyte-enhanced grasses*
White Grubs	bendiocarb, carbaryl, diazinon, ethoprop, fonofos, isazofos, isofenphos, trichlorfon	imidacloprid

\* When pest damage requires reseeding or renovation, use endophyte-enhanced perennial ryegrasses, tall fescues or fine fescues.

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USE READER SERVICE #84

## Insect Controls

(continued from page 48)

These new pyrethroids are used at 0.05 pounds to 0.2 pounds of active ingredient per acre. Remember these low rates when purchasing pyrethroids because the cost of product per gallon appears to be very high until you figure in the use per acre.

**NEW CLASS OF PRODUCTS.** The discovery of imidacloprid (Merit and Marathon®) has led to the identification of a new class of insecticides — the chloronicotynyls.

When first tested, this compound seemed to affect young insects only and appeared fairly slow to act. Therefore, scientists believed it to be a new type of insect growth regulator.

However, further studies have discovered that this compound actually blocks the nicotinic acetylcholine receptor sites of the insect nervous system.

This unique mode of action acts mainly on insect nervous systems and results in greatly reduced activity on mammals, birds and fish, which use a different neural transmitter.

Imidacloprid's other unique property is its systemic action. It can be applied as a granular

on the ground or as a spray to plant foliage, where it is then absorbed and translocated throughout the plant's system.

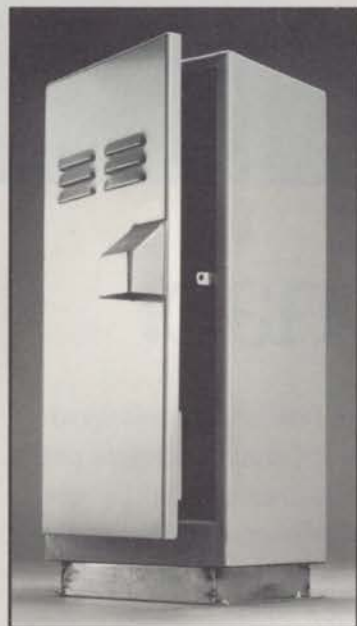
This property makes imidacloprid ideal for ornamental plants in the management of difficult sucking insects (adelgids, aphids, lace bugs, mealybugs, scales, thrips, whiteflies and leafhoppers), leafminers and pine tip moths.

Imidacloprid also has good activity against foliage-feeding elm leaf beetles, sawflies and Japanese beetle adults. Preliminary tests for borer control have had mixed results, probably because the application timing has not been researched adequately.

In certain areas, imidacloprids have long-

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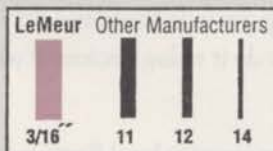


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issues eventually change  
the way we  
manage turf and  
ornamental pests? The  
two major changes will  
be the need to keep  
accurate records and  
dramatic increases in  
educational needs. We  
will have to educate our  
customers as well as  
ourselves.**

lasting control capabilities, especially against turf-infesting white grubs. The application rate of 0.3 pound-a.i./acre has provided excellent control of Japanese beetle, black turfgrass ataenius, masked chafers, European chafer, Oriental beetle, Asiatic garden beetle and May/June beetle (*Phyllophaga*) grubs in turf.

However, to get the average of 90+ percent control, imidacloprid must be applied when the white grub adults are laying their eggs or when the first instar grubs are present.

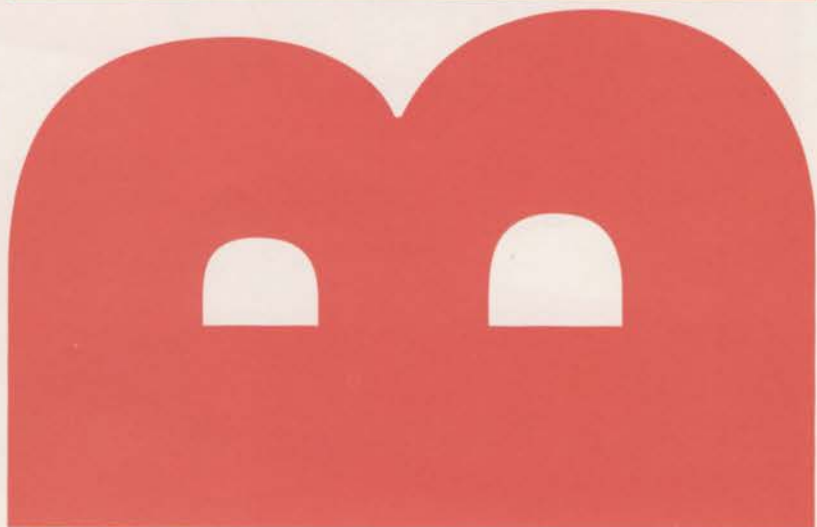
Several studies have indicated that applications made in late May and early June have controlled the subsequent August through October white grub populations.

**BACTERIA.** Although usually considered a biological control, the bacterium *Bacillus thuringiensis* (Bt) produces crystalline proteins that destroy the gut linings of certain insects. Therefore, technically, Bt products really should be considered a microbial pesticide since we use the toxin produced by the bacterium to manage insects. At present, organic gardeners still consider Bt to be a natural, organic product.

(continued on page 110)

USE READER SERVICE #112

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1. How many technicians do you employ?  
Full time \_\_\_\_\_ Seasonal \_\_\_\_\_

2. Based on total company revenues, what percentage of your total business comes from:

- \_\_\_\_\_ % Lawn Care.
- \_\_\_\_\_ % Maintenance Services
- \_\_\_\_\_ % Irrigation Services
- \_\_\_\_\_ % Installation
- \_\_\_\_\_ % Pest Control

3. What were your 1994 revenues? \$ \_\_\_\_\_

4. What were your 1994 expenditures by the following categories?

Herbicides ..... \$ \_\_\_\_\_

Insecticides ..... \$ \_\_\_\_\_

Fungicides ..... \$ \_\_\_\_\_

PGRs ..... \$ \_\_\_\_\_

Biologicals ..... \$ \_\_\_\_\_

Fertilizer/herbicide ..... \$ \_\_\_\_\_

Fertilizer/insecticide ..... \$ \_\_\_\_\_

5. Please indicate the number of units operated in each category:

\_\_\_\_\_ Trimmers \_\_\_\_\_ Blowers

\_\_\_\_\_ Edgers \_\_\_\_\_ Pruners

\_\_\_\_\_ Chain Saws \_\_\_\_\_ Brush Cutters

\_\_\_\_\_ Hedge Trimmers

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2. The contest is open to licensed pest control operators, their employees and suppliers. Only persons who, as of the date of the drawing for the prize, are 18 years of age or older, with a valid driver's license, and are legal residents of the U.S. are eligible to enter. Entry cards must be fully completed.

3. This sweepstakes is not open to employees or the families of all sponsoring firms, PCT magazine or other GIE Publishing Co. publications, and affiliated companies.

4. Enter by completing and mailing the official entry form available in the monthly issues of PCT magazine, or receive a valid entry form by sending a postage paid envelope to Sweepstakes '95, c/o GIE Publishing, 4012 Bridge Avenue, Cleveland, Ohio, 44113. Not responsible or liable for lost, late, stolen, mutilated, illegible, incomplete, postage due or misdirected entries. **No mechanical reproductions permitted.**

5. **PRIZE** - \$20,000 retail value of professional pest control products. The winner will be determined by a random drawing of all entries received by November 30, 1995. The winner will be announced and notified by U.S. mail and/or telephone. Prize notification returned as undeliverable as addressed will result in an alternate winner being drawn and notified until a qualified entrant is awarded the grand prize. Only one grand prize will be awarded.

6. No cash equivalent or prize substitution offered. Prize is not transferable.

7. All federal, state and/or local taxes, if any, are the sole responsibility of the winner. Winner will be required to sign an affidavit of eligibility and liability/publicity release (allowing the sweepstakes sponsor to use the winner's name and likeness for publicity purposes) as a condition of being awarded the prize. Failure to do so will result in an alternative winner being selected.

8. Void wherever prohibited or restricted by law.

9. Odds of winning will be determined by the number of entries received. All entries will become the property of PCT magazine and GIE Publishing Co.

10. By participating, you agree to these rules and decisions of the judges which shall be final in all matters relating to this sweepstakes.

11. To obtain name of the winner of this sweepstakes, send a self-addressed, stamped envelope to PCT's "Service Vehicle Sweepstakes," 4012 Bridge Ave., Cleveland, Ohio 44113, Attn: Fran Franzak.

# Seeding vs. Sodding vs. Hydroseeding: Make The Right Choice

*Cost and time for establishment are the major factors to consider.*

*By Barbara G. Howell*

SEEDING, sodding and hydroseeding all have the same result: healthy, beautiful grass. Each method, however, has advantages and disadvantages that the property owner and contractor must consider together. And the most important question to ask is, "What is the objective of the property owner?"

The objective always is to cover the lawn with grass. But to choose between seeding, sodding and hydroseeding, the lawn or landscape contractor must fit the method to the needs of the property owner.

The consensus remains that, if an owner needs an immediate, usable stand of grass at even the most inclement time of the year and can afford the expense, sod is the preferred option. Depending on the situation, sod may present more opportunity for profit than a contractor may think.

Under other circumstances, when the property owner is more concerned about the cost of turf establishment, hydroseeding or



Speed and cost savings are two features of hydraulic seeding. Credit: Finn Corp.



Turf spreads to fill 'checkerboard' sod patterns. Credit: TPI

seeding become better alternatives.

Always, there are exceptions to these general rules. Insufficient watering of a sodded yard by a customer can result in the expensive loss of an entire project.

New methods of seeding may provide a stand of grass in half the time it used to take for a seeded or hydroseeded project. Technology now being used in the sod industry can help to reduce costs to make sodding a more effective turf establishment method.

**CONSIDER PROFITS.** Certainly, profit is an important consideration. But the factors which determine profit margins vary widely depending upon location, type of equipment and competitive pricing. Some contractors estimate that if you don't have your own hydroseeding equipment, the profit potential for hydroseeding, sodding and seeding are about the same.

A worksheet from Turfgrass Pro-  
(continued on page 56)

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ducers International (formerly the American Sod Producers Association) estimates a comparative profit between seed and sod installation to be \$1.30 a yard for sodding vs. \$1.07 a yard for seeding.

Hydroseeding may be more cost competitive and more profitable, especially if the contractor has his own equipment. The method (one-step or multistep) of hydroseeding may also affect profitability.

Regardless of the establishment method, soil preparation is almost identical and represents the major portion of the contractor's time and his profits.

For all lawn installations, the soil should be tilled deeply and amended, if necessary. The area should be graded and leveled as well as lightly packed and moistened thoroughly.

The reasons for choosing one method of establishment over another depend most on the needs and expectations of the property owner. To a lesser extent, factors like time

**HARD FIGURES** are a useful point of reference for contractors and landowners choosing a method of establishing turf. This worksheet, courtesy of Finn Corp., Fairfield, Ohio, gives contractors quick calculations on profit potential and cost estimates for hydroseeding. Wally Butman, director of marketing, pointed out that other intangibles play a part in the final decision and can't be plugged into any formula. "Hydraulic mulching offers a choice of blends, mixes and rates. The grass forms deep root systems, needs less watering and is more drought tolerant."

**Estimated Cost Per Acre:**

Mulch:	1,500 pounds/acre @ \$.17 pound	\$ 255.00	\$ _____
Fertilizer:	400 pounds/acre @ \$.10 pound	\$ 40.00	\$ _____
Seed:	350 pounds/acre @ \$1.10 pound	\$ 385.00	\$ _____
Labor:	\$ 9 per hour @ 2 hours/acre — 2 men	\$ 36.00	\$ _____
Fuel:	5 gallon/acre @ \$1.30 per gallon	\$ 6.50	\$ _____
Misc./Overhead:		\$ 40.00	\$ _____
<b>Total Cost Per Acre:</b>		<b>\$ 762.50</b>	<b>\$ _____</b>
(cost per square foot)		\$ .0175	\$ _____

**Examples of Income Per Acre:**

Billed at \$.06 per square foot	\$ 1851.10	\$ _____
Billed at \$.05 per square foot	\$ 1415.50	\$ _____
Billed at \$.04 per square foot	\$ 979.90	\$ _____

of the year and availability of water at the site play a role.

**TIME FRAME.** Probably the single

most important factor to consider is the immediacy of the desired results. Obviously, if a builder, commercial developer or home-

owner wants immediate results, the quick solution is sod.

"Property owners are now edu-  
(continued on page 58)

# Rugged? Precisely!

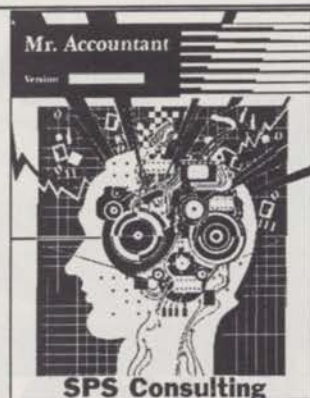
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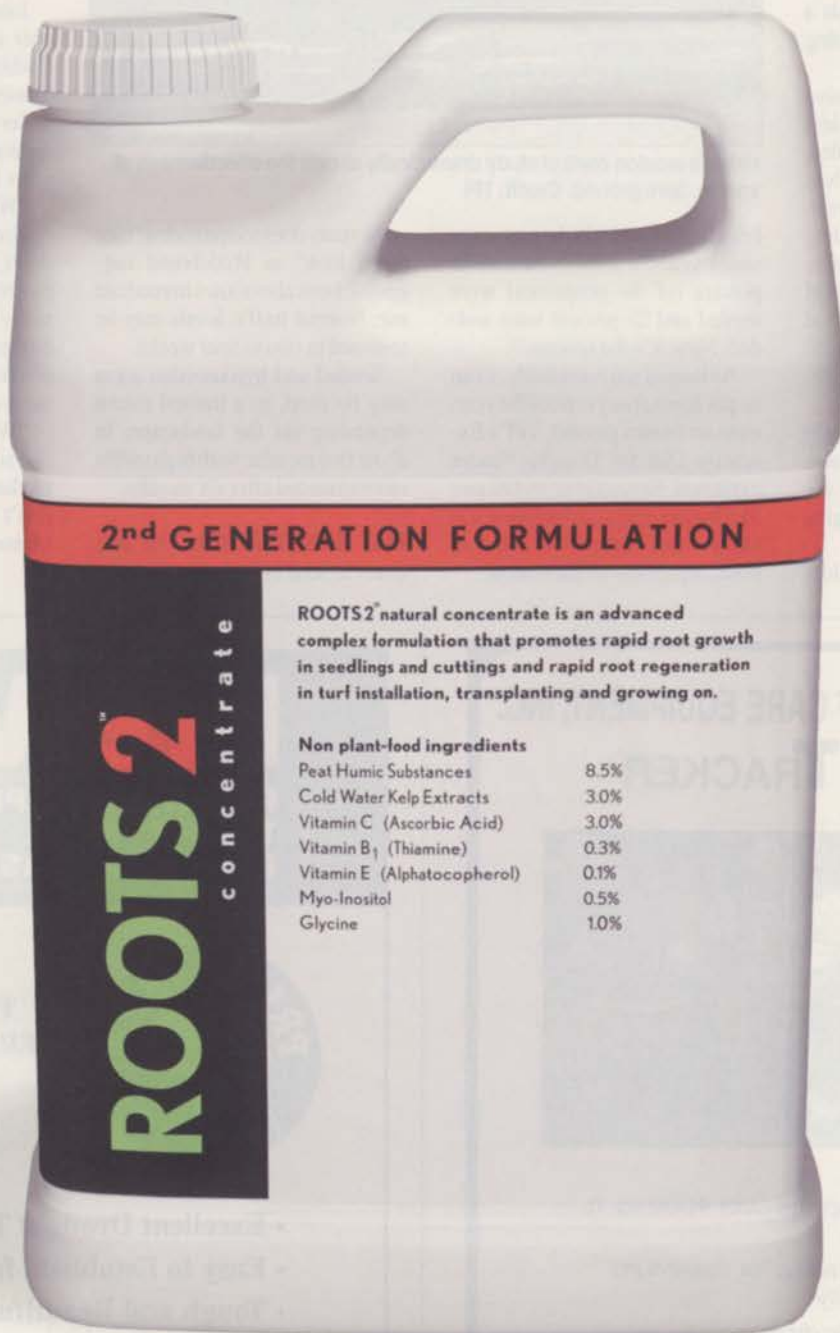
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## The Right Choice

(continued from page 56)

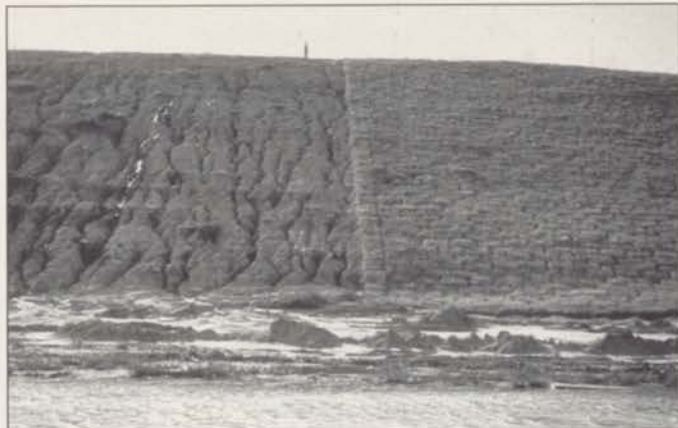
cated to the point that they want the product to look like a product right away," said Mike Hildebrand, president of James River Nurseries near Richmond, Va. "They want a grass covering that has a finished effect. If the customer is looking for a finished product or if he needs a nice look immediately, he is going to be looking for sod."

Traditionally, more expensive home lawns were sodded and less expensive home lawns were seeded. That pattern is changing some, too. Hildebrand noted that many residential customers are now sodding the front yard and seeding the back.

Louis Brooking Jr., president of TPI and owner of Brookmeade Sod Farm located in Doswell, Va., said homeowners, themselves, are demanding sod applications.

"One woman told me she might as well have paid the price to put in sod by the time she paid for the cleanings required from dragging in the mud after seeding."

"Times have changed," Hilde-



Hillside erosion control study dramatically shows the effectiveness of sod vs. bare ground. Credit: TPI

brand concluded. "In the past six or seven years, it used to be that 75 percent (of the properties) were seeded and 25 percent were sodded. Now, it's the reverse."

As long as sod is available, it can be put down at any time of the year, even on frozen ground, TPI's Executive Director Douglas Fender explained. New sodding techniques like longer strips and washed sod allow more economical applications, regardless of the season.

Not only does sod provide a "nice green look" as Hildebrand suggested, but it also allows immediate use. Normal traffic levels may be resumed in two to four weeks.

Seeded and hydroseeded areas may be used, to a limited extent depending on the landscape, in about two months, with high traffic recommended after six months.

**FAST GERMINATION.** The best times to seed or hydroseed are the

fall and spring planting seasons.

Most contractors agree that installation by any method during the hot, dry summer months is the least desirable option.

While sodding is still the most immediate answer for a dense turf cover, new techniques in seeding and hydroseeding are permitting a faster stand of grass.

John Meinert Jr., operations manager at John Meinert Landscape Hydroseeding in Pittsburgh, said he uses a pregerminated seed which, under irrigation, can provide a mowable stand of hydroseeded grass in about two weeks.

"With FasGras from Johnson Hydroseeding in Baltimore, we don't need to put down the rye in the bluegrass blend that we normally use because we can get the bluegrass up from pregerminated seed in the same time it takes to get the ryegrass up.

"We still sod for small commercial sites that have to be ready immediately or when the people just don't want to drag any mud in," Meinert explained, "but using this

(continued on page 62)

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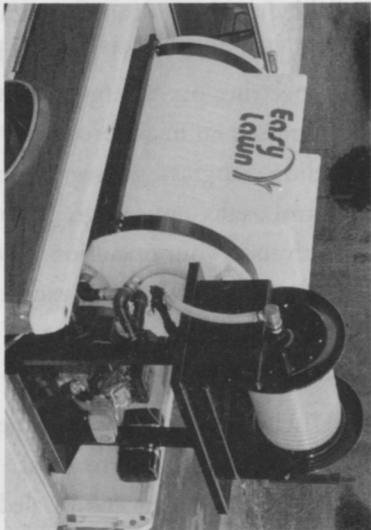
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### The Right Choice

(continued from page 58)

pregermination process with a sprinkler system really cuts down on the amount of time it takes to get a healthy stand of grass."

**ADDING WATER.** The application of water is critical for the establishment of any type of grass stand. If a sodded area is not watered properly, the result may be the loss of the whole sodded yard. Likewise, seeded yards require regular applications of water for the seed to germinate and grow.

One of the advantages of hydroseeding is that the mulch preserves some of the moisture and provides a microclimate for germinating and growing grass.

A disadvantage of traditional hydroseeding,

according to Rich Reinecker, vice president at Reinco, is the large amount of water required to apply the mulch in the one-step method.

In traditional hydroseeding, seed, fertilizer and mulch are put down in one step by using a large 1,000-gallon machine.

The paper or wood fiber mulch, Reinecker said, requires large amounts of water and slows the hydroseeding process because the tank must be refilled often with water.

Not only can the amount of water required to do the job limit the places where hydroseeding is used, but it also slows down the process. Reinecker noted that a newer, multi-step method applies the seed and fertilizer with smaller quantities of water.

A power mulcher is then used to blow down long-fibered mulches like hay and straw with a

(continued on page 64)

## Four-Step Process Repairs Salt Damaged Grass with Sod

DE-ICING COMPOUNDS used to keep winter roads more passable usually contain high amounts of salts that can damage or even destroy turfgrass. Splashed, sprayed and pushed onto median strips and other roadway areas, these salts quickly accumulate and can have long-lasting negative effects on turf and surrounding plants.

While the grass one- to three-feet away from the road may look fine, everything closer to the road may be damaged. Repairing these areas can be accomplished efficiently with a four-step process that incorporates mature turfgrass sod to match the healthy grass that wasn't damaged, according to Doug Fender, executive director of Turfgrass Producers International.

*Step 1.* Flush out salts by irrigating the damaged area heavily and causing the salts to move below the root zone of the grass. Depending on soil types, this can be accomplished easily on sandy soils or it may take several major irrigation cycles on soils with high percentages of clay. Without flushing the salts from the soil, any repair efforts will most likely be doomed to failure.

*Step 2.* Strip off old grass with a walk behind (or larger) sod cutter, taking care to remove all the damaged grass for a combined width that can be easily replaced with new sod. For example, if the damaged area is about two feet wide, and the new sod is 18 inches wide, remove 36 inches of damaged grass so that the width of two pieces of new sod will fill the damaged area without any trimming and it will blend into the healthy grass more evenly.

*Step 3.* Till the strip where the damaged grass was removed to a depth of three to six inches with a tiller to ensure a good surface for the new sod. Take care during tilling not to expand the original repair width made in Step 2.

*Step 4.* Install new sod onto the tilled area where the damaged grass was removed, filling the area. Lightly roll the new sod to assure good sod/soil contact and water the sod until the soil below the sod strip is moist to a depth of three to four inches.

Before starting this repair operation, call local turfgrass sod producers to make sure they will have sod ready when you want it for the job and also that they have a variety that matches the grass already growing on the undamaged areas. You may also want to inquire about the availability of salt-tolerant sod varieties of turf that are becoming popular.

Local sod producers will be able to tell you the width of their harvested sod so you can remove the exact amount of damaged grass and not have to get involved with labor-intensive trimming. In addition to traditional sod dimensions (which may be 16 inches wide by 24- or 45-inch long slabs in some areas, or rolls that range from 16-, 18- or 24-inch widths in other areas), many sod producers also harvest sod in oversized rolls measuring up to 48 inches across. The large rolls do require some specialized installation equipment because of their weight and bulk; however, there are fewer seams and large areas can be sodded very quickly.

According to Fender, the repair method can be initiated as soon as the ground has thawed and the salts are flushed through the soil. It will create a finished, mature and unpatched look almost immediately.

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for more information.

### The Right Choice

(continued from page 62)

tackifier applied over top (perhaps by the hydroseeder or by using a tackifier applicator).

The multi-step process has several advantages, Reinecker concluded. First, it requires less water to hydraulically seed.

Second, the time required per acre is less. He estimated that a traditional hydroseeder can do about two and two-thirds acres per eight-hour day. With the multistep method, Reinecker estimated about eight acres can be covered in the same time.

The multi-step method, he also said, can cut down on capital investment, because a company might be able to use a smaller, less expensive piece of equipment — holding less water — to put down the seed, fertilizer and water and follow the application with a mulch put out by a power mulcher.

The total equipment costs, Reinecker suggested, would still be less than the bigger piece of equipment.

**CONSIDER THE SITE.** Hydroseeding was in its heyday, Reinecker noted, when interstate highways were being cut through the country. The government wanted to establish vegetation stands on the sides of mountains that were inaccessible for both seeding and maintenance.

Hydroseeding still is popular in that type of application, particularly on large areas of an acre or more on slopes. The market for hydroseeding, however, has been stable in the past years, with fewer such projects needing to be undertaken as the highway system becomes more complete.

Now, reclamation areas, waterways and rights-of-way are being hydroseeded as well as new residential, commercial and industrial sites. There are few limitations. The location must be accessible to big equipment, however.

Meinert said 75 percent of the hydroseeding work his company does is for contractors and builders of homes and commercial properties. About 20 percent is for homeowners. He added that hydroseeding can be used successfully under the most unlikely conditions.

One project, he remembered, was a reclamation site filled with rock. It didn't rain for two or three months following the hydroseeding and the grass still grew.

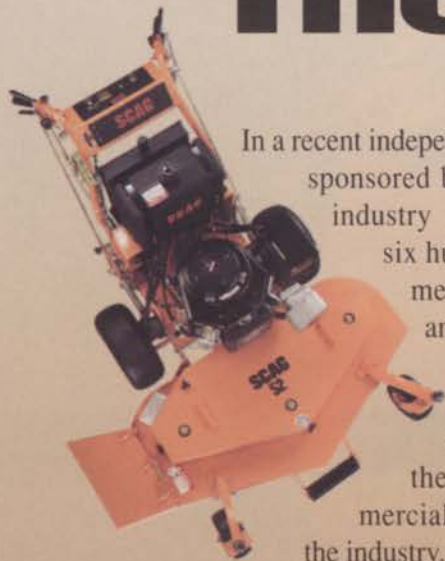
The advantages of hydroseeding, Meinert explained, are big labor savings over hand seeding or sodding, even coverage and retention of the seed on sites, in spite of erosion and birds feeding on seed.

He said that his company has proven to the satisfaction of government agencies that erosion control with the hydroseeding method he uses is equal to that of staked sod.

**FACTOR IN COSTS.** Hydroseeding also has an economic advantage. According to Meinert, sodding is about three times as expensive as regular seeding, which is about 30 percent

(continued on page 68)

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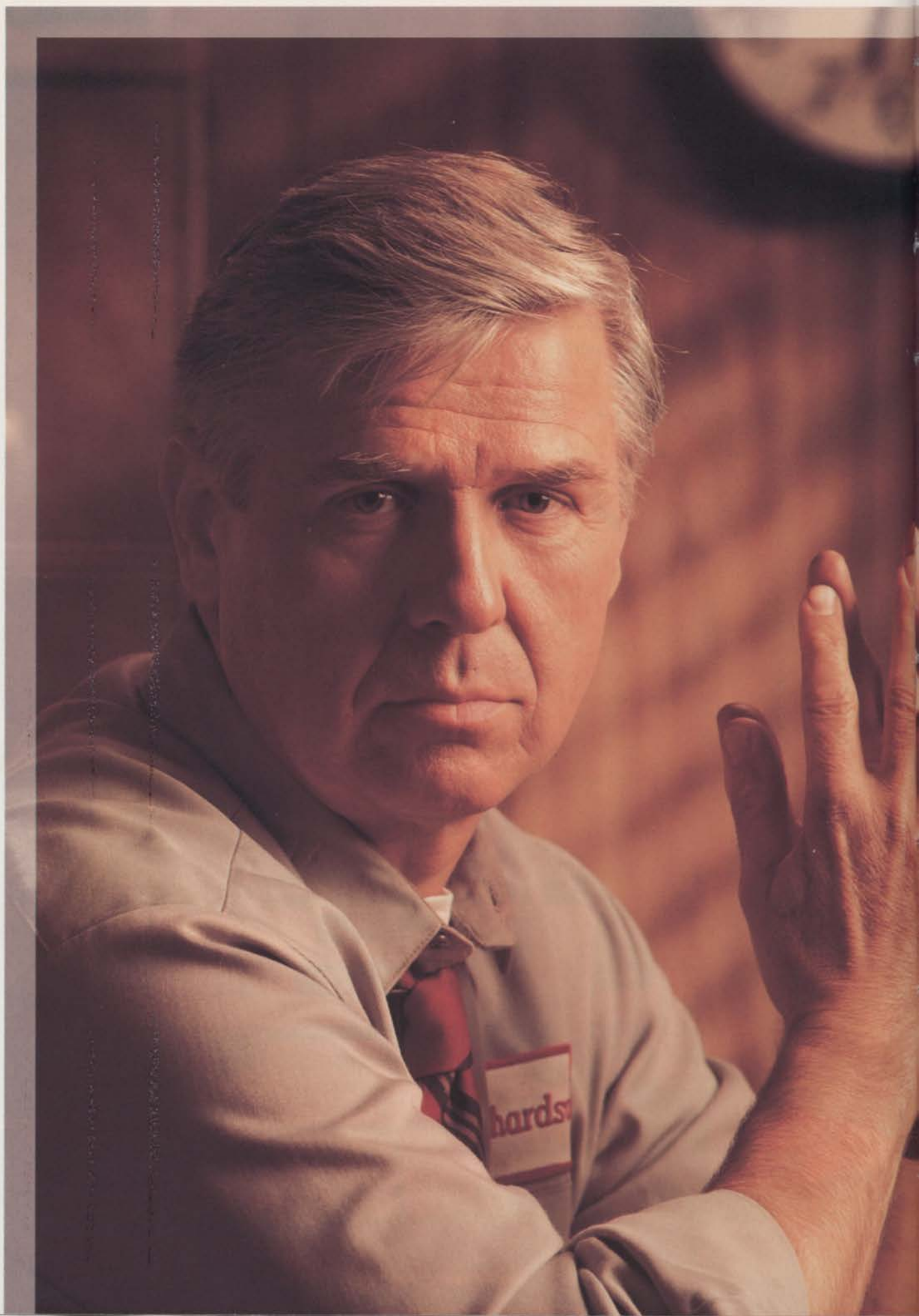
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## The Right Choice

(continued from page 64)

more expensive than hydroseeding.

There seems to be nearly universal agreement that hydroseeding is the least expensive way to establish grass, depending on the availability of equipment and the quality and cost of seed and mulch.

The major cost savings come in labor, since seed, fertilizer, water and mulch are applied in one or two quick steps. The question about cost arises, however, when some contractors suggest that to get a stand equal to a sodded turf, a second seeding may be required.

Hildebrand, for example, said the seed-to-sod cost ratio goes down from 1 to 3 to 1 to 2 if a second seeding is required.

James River continues to do regular seeding with a tractor, spreader or slit-seeder unless the land is on a steep incline. The advent of new varieties of fescues in the last five to 10 years have made the biggest difference in seeding sales.

These new fescue varieties are more tolerant of the areas's hard-

## The reasons for choosing one method of establishment over another, depend most on the needs and expectations of the property owner. To a lesser extent, factors like time of the year and availability of water play a role.

pan soil conditions, are less susceptible to disease and are more drought and heat tolerant.

**SEEDING OPTIONS.** According to Crystal Rose-Fricker of Turf-Seed Inc. in Hubbard, Oregon, seeding is still very popular because it is less costly for property owners than sod installation. She pointed out that perennial ryegrass offers a quality stand of grass in a short time period.

Turf-Seed also is experimenting with the pregerminating type of seed. Rose-Fricker said that some

species seem to benefit initially from the pregermination technique, but that the regular, non-pregerminated seed seems to be able to catch up quickly in tillering ability.

While seeding continues to provide good and economical coverage in most circumstances, particularly when applied by labor-savings methods like hydroseeding, contractors warn of one other variable to consider.

Customer callbacks — due to uniformity of coverage and weed infestations — seem to be higher

with traditional seeding methods.

Sod's growing popularity shows in recent data on sales, which have risen 20.4 percent in the five years from 1987 to the time of the last Department of Commerce Agricultural Census in 1992, according to Fender. He pointed out that this happened even in a time of flat housing markets.

"I can't say a seeding job and a sodding job are equal. You have to know what the objective of the property owner is," Fender advised.

Question your customers. Ask what their needs are and help them make the best decision. Tell them the advantages and disadvantages for all methods. They must consider the question of cost and time factors first. Then, they must consider how the property will be used.

You can prepare the soil and make a profit with any kind of good coverage, regardless of the installation method. ■

*The author is an industry consultant with Key Solutions, a division of Iris Sales & Solutions Inc., Rocky River, Ohio.*

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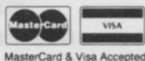
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# Put Perennials In Their Place

*Native plantings, hardier varieties and a decade of rising popularity have taken perennials to new heights as landscape problem solvers.*

*By Paul Schrimpff*

FOR YEARS, the perennial flowers were the neglected sisters in the American landscape. Annuals had all the advantages. Their ready availability, reliability, long-lasting color and low maintenance made them the favored choice of landscape designers and contractors. Recently, however, there has been a significant increase in the availability and use of perennials in landscape areas.

"There's definitely been more of a trend toward using perennials where annuals were used before," stated Denny Schrock, extension associate with the University of Missouri Extension, Columbia.

Growers are continuing to increase the percentage of perennials they stock with as demand increases from both commercial and retail customers. They also are working on cultivars of perennials that are more hardy, require lower maintenance, present better foliage, come in more colors and stay in bloom longer.

"There is so much variety available in perennials today. New cultivars are coming on the market every year — different heights, varieties, textures — and demand is very high," said Jeff Rosendale, owner of Rosendale Nursery, a wholesale and retail grower in Watsonville, Calif.

The re-emergence of hardy native plants, along with growing interest in many areas of the country for creating natural prairie and wildflower settings, have opened up still more avenues for perennials. And many contractors and

designers have taken advantage of the new opportunities and design options that perennials provide.

As the popularity of perennials has grown, the amount of formal education available has grown as well. Steven Still, executive secretary of the Perennial Plant Association and professor of horticulture at The Ohio State University in Columbus, said his herbaceous plant textbook is now used in more than 100 university classrooms. Much of this interest has been in the last five years.

"The educational opportunities

out there depend on where you are. There still isn't the number of courses that are available in the study of woody plants, but now there are a number of industry professionals who have gone through the university system studying herbaceous plants. No one took courses on perennials in the old days," Still pointed out.

**STRONG DEMAND.** The American consumer's attention to perennials is arguably as high as it has ever been. The last 10 years have been a period of particularly positive interest, although no one is sure exactly why.

Still said there has been no waning in the country's interest in perennials since he joined the PPA in 1983. A 1992 survey of PPA member retail growers nationally revealed that 88 percent had an increase in their total perennial sales.



Grasses add contrast to this Sea World site.



In addition, garden centers in every region except the South attributed over one-third of their total retail sales to perennials.

"There are numerous theories for the increased interest in perennials, but no clear-cut answers, Still said. "Some people think the gardening public is more sophisticated—the country is only a couple hundred years old, not nearly as old as countries like England, where perennial gardening is so established.

"Some think the low maintenance aspect is the key. Others think it's because there are new cultivars coming on the market that are more attractive, and some think the 'baby boomers' are getting tired of their electronic gadgets and see gardening as the new recreational activity. Nobody has a really good answer."

Rosendale did not have his exact year-to-year growth figures for perennial stock, but the ratio of perennials to other types of plants he sells has gone up significantly.

"Ten years ago, perennials accounted for about 10 percent of my nursery stock. Now, it's somewhere in the range of 50 to 70 percent," he noted.

In California, where mild win-

ters are more common, Rosendale has set aside an area to test the performance of new perennials.

"We need to be careful in this mild climate — some perennials go dormant over our winters, and some stay active, but they aren't attractive in the winter months. Landscapes need to have a good mix of flowers to avoid the risk of a mild winter," he explained.

Sam Jones, president of Picadilly Farms Nursery, Athens, Ga., cannot meet the demand for his wholesale perennial stock. "The perennial market continues to be hot over most of the country. I expect to increase sales about 30 percent this year," he predicted.

Perennials aren't for everyone, though. Some landscape professionals, especially those in the commercial arena, believe that perennials have a market in their areas but aren't making them a major part of their regular business.

Annual flowers get the nod over perennials in many large projects, due to the generally higher maintenance and greater front-end expense associated with perennials.

Guy Artigues, president of Pleasant Places Inc., Mount Pleasant, S. C., said he sees the market potential for someone to do perenn-

ial plantings, but is not intentionally recommending perennials to his own clients.

"If a client tells me they want to cut back on their yearly annuals expense, we may recommend that they look at perennials. It's not a significant thing, though. In terms of our bottom line, it's close to zero," said Artigues. "However, I think if someone came into this area and did just perennials, they would do well."

In some regions of the country, customers haven't been as warm to perennial use. In the Atlanta area, Bill Bailey of Crabapple Landscaping, Alpharetta, Ga., said that annuals simply are more favored by his clients.

"We're not seeing a lot of perennial use on the commercial side. Large companies have the money to put down to replace their annuals each year, and that's what they are doing. I think people in the Atlanta area are more flower-conscious," Bailey explained.

**PERENNIAL SUCCESS.** For some contractors who do commercial work, adding perennials to the landscape mix can make a big difference. "In my view, perennials tend to be underused," said Peter

'Natural' plantings deliver bright color. Photo credit: R. Glass Landscape

DeBrusk, landscape and construction design manager with Coronis Landscaping, Nashua, N. H.

"We find that they are an inexpensive addition to the total look of the landscape. In a commercial setting where landscape can get sterile, adding in some perennials gives the site a burst of color in midsummer when the spring flowering plants have gone away."

Dave Hanson, vice president of Environmental Care Inc., a landscape contractor based in San Jose, Calif., said that more and more commercial clients on the West Coast see the cost savings that perennials can provide.

"Many of our clients are under the price gun, and they are looking to reduce the size of their annual areas without losing the color. If a perennial can fit the scheme where an annual was used before, it's a plus," said Hanson.

From a purely practical standpoint, perennials used in their most favorable soil, moisture and light conditions ultimately can save the commercial customer money by curbing yearly replacement costs.

Paul Barton, president of

Landshapes Inc., Bloomington, Minn., has found many varieties that are good performers and also solve tricky landscape problems.

For shady areas in warm, moist soil, Barton will choose from a wide array of hostas. "Their sizes range from 6 inches to 3 feet high, and they vary in color from yellow to dark green," he said.

Barton also uses several varieties of daylilies on a regular basis for their reliability and hardiness. "There are many height and color options, and different flowering times through July and August."

DeBrusk noted that commercial customers need a push to try perennials. "Usually, it's something we suggest. Commercial customers tend to hesitate at first — they figure it will add to their maintenance bill. We explain that if we choose the material carefully and make good individual plant choices, we won't have to worry about it," he said.

Long-lasting color, low maintenance and hardiness are priorities in the selection process.

DeBrusk has been pleased with



Prairie flowers regenerate better when they are 'burned off.'

new cultivars of daylilies, which bloom from mid-June to mid-September. He also likes many varieties of iris, sedum and dianthus. "We look at plants from the point of survivability. They're all sort of kill-proof plants, yet they provide color and nice flowers."

Marcia Mosbarger, landscape architect with Allen Keesen Land-

scape Inc., Denver, Co., said that the length of bloom and hardiness are essential, but her personal preference is a solid-color flower. "Single-color flowers are the easiest to mix and match."

Some of Mosbarger's favorites include dwarf shasta daisies, coreopsis "moonbeam," burgundy gailardia, purple salvia and iceland

poppy. "The performance varies among these plants, but all are drought-tolerant and tend to pull through unfavorable weather better than others."

**THE PERENNIAL OPTION.** Landscapers who regularly use perennials on residential accounts look for ways the plants can add color and solve landscape problems that other plants cannot.

"In the big picture, perennials are an integral part of the total plant material, just as important as turf, trees, shrubs and others. They are each different elements that are part of the whole. In order to have year-round color, you have to have the complete look. Perennials are just another tool, another color in the pallet," explained DeBrusk.

"Residents usually want to add color, and they are open to suggestions. When we can include perennials in the design we can suggest even more than the client is asking for," he added.

Edward Bayer, president of Land Escapes, Wexford, Pa., said

(continued on page 76)

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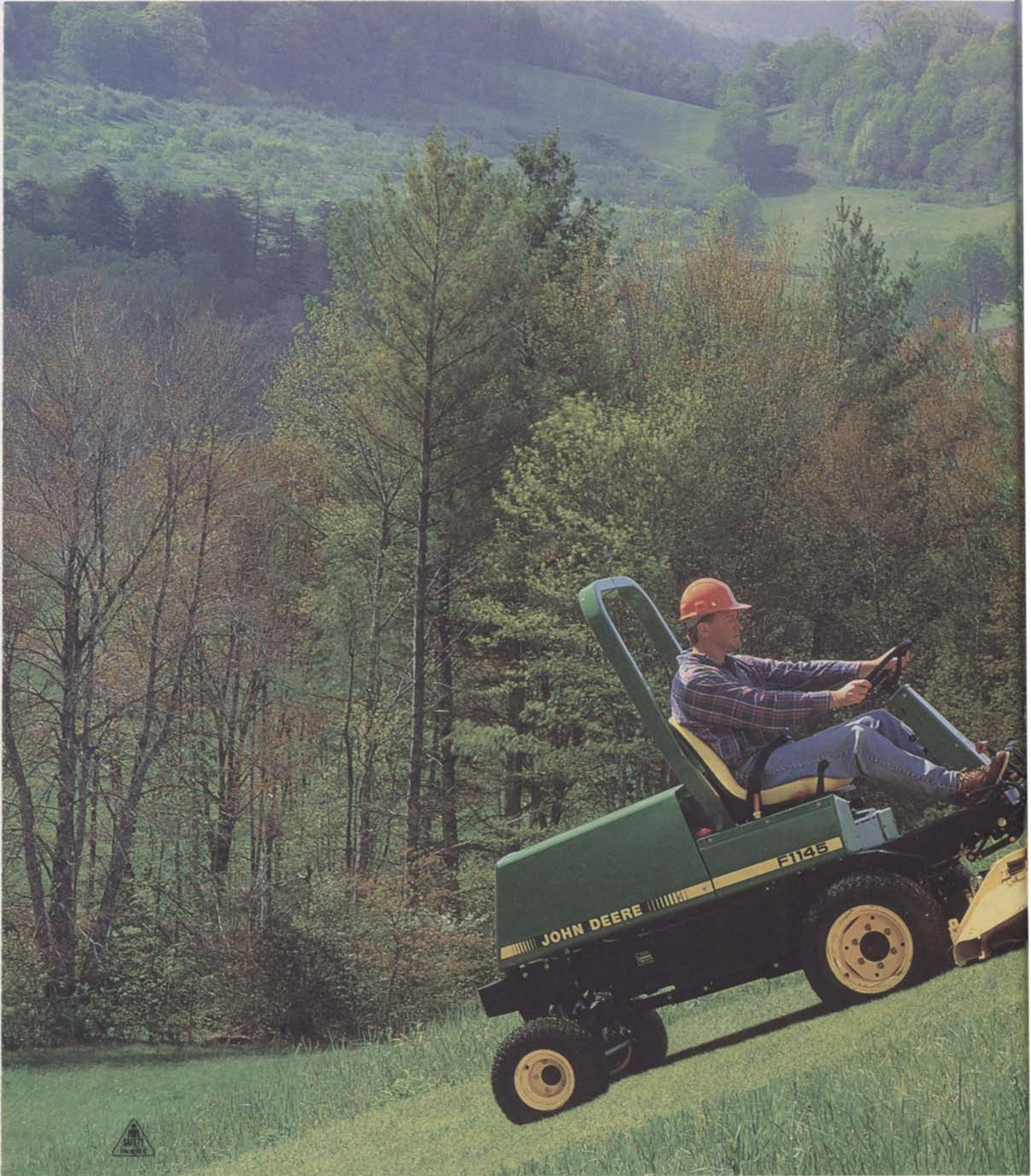
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## Perennials

(continued from page 72)

viewing perennials as part of a whole landscape plan adds a unique dimension to the layout.

They can play a crucial role in a "finished" look. "If you look at a fine garden the way you would look at a beautiful home, the perennials are the crown molding of the landscape," he said.

Low-maintenance, long blooming perennials are still the best choice, and Bayer's list includes several varieties of coreopsis, rudbeckia and liatris.

**RESTLESS NATIVES.** Native varieties of perennials are being rediscovered and used in landscape all over the country. Many of these species have been revered in Europe and Asia for many years, according to Schrock, but have been taken for granted by American consumers and landscape professionals until recently.

"It's just a matter of not appreciating what's in your own backyard, until you see what is happen-

ing with natives in other areas," he said.

Ironically, many new varieties of American native perennials have been developed overseas, particularly in Germany. One example of this is the echinacea, or purple coneflower, which is now available in pale lavender and a white swan color. The "bravado" variety has larger flower petals and a more erect look. Variations on the native heliopsis, a tall, yellow, daisy-like flower, include a dwarf version with more flowering capacity. In The Netherlands and Israel, new varieties of liatris have been developed as well.

The availability of these natives, both in their original form and in varieties, has been improving overall, but is still limited. "There are more and more nurseries that are growing and developing the na-

**From a purely practical standpoint, perennials used in their most favorable soil, moisture and light conditions ultimately can save the commercial customer money by curbing yearly replacement costs.**

tive perennials, but the availability is still not as great as other varieties," Shrock explained.

Barton agreed. "The (Minnesota) region's availability of perennials restricts us in what we can use. We can read about some of these varieties and want to use them, but we're limited to what the nurseries have on hand."

**BACK TO THE PRAIRIE.** In some areas of the country, landscape contractors are turning turfgrass into native prairie plantings. Terry

Cichocki, marketing representative at R. Glass Landscape in Roselle, Ill., said interest in the prairie planting concept in the Chicagoland area has been good.

"The number-one reason companies are looking into native prairie plantings is the cost savings. They don't want to be

spending dollars on high-maintenance turf that can be susceptible to pests and disease. Clients are conscious of the environment and want to move in a positive environmental direction," she noted.

The prairie planting is complex to set up, but after three years, only needs annual attention. First, the land is cleared of any turf or other plant material, and a matrix of fast-growing flax, coneflower and shasta daisy is planted along with native perennials that will eventually make up the bulk of the plant

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material in the finished prairie landscape.

"The matrix allows prairie plants to take over and hold the soil, assuring the client that the flowers are taking hold," she said.

In the second year, the prairie undergoes a process of "burning," a highly controlled process that literally burns the tops of the plants to the ground level. Within 10 days, the flowers begin to grow again. The burning is an important element for the success of the prairie.

For hundreds of years, Native Americans burned the prairie lands so they could keep watch for rival tribe invasions at longer distances. According to Cichocki, the plants have "learned" to rebound from the burning activity, and respond better than if left to their own devices. By the third year, one burning treatment is required each year.

Prairie flowers featured in these plantings include dianthus, yarrows, black-eyed susans, purple and pale-purple coneflowers.

Cichocki said the savings to customers have been real. The average savings by the fifth year is 87% over a turfgrass lawn.

"There's no mowing, no fertilizer, no weeds, no diseases and no irrigation required," she pointed out.

**GRASS WITH CLASS.** Experts agree that the use of ornamental grasses has hit its peak, but Rob McCartney, horticulturist with Sea World of Ohio in Aurora, has grown weary of grass used by itself.

"I think we've done a great job of getting ornamental grasses into the landscape, but I'm just not excited when I see big areas of grass. I think some accent, some color is needed," he explained.

Ornamental grass is grown throughout the park, but to give the grass a splash of color, he adds tall perennials to the mix.

"We try to use some of the underutilized, native perennials that generally aren't known, but that do a great job of complimenting the grasses," McCartney.

For marshy areas, the Joe-Pye weed fits the bill. Its big, purplish flower blooms from July to August, and its 4- to 5-foot height arches over grass areas.

Other tall natives include ironweed, with a dark purple flower, and filipendula, "queen of the meadow," another marsh-dweller with a pinkish flower that can grow to four feet tall.

A fun plant McCartney uses in children's areas is the giant allium. The plant grows on a single stalk to a height of four feet, and the flower blooms to a 5-inch diameter. "It resembles a huge lollypop," laughed McCartney.

Another notable plant is the perennial hibiscus, which can reach a height of 8 feet and display blooms that are 7- to 8-inches in diameter. Color options include rose red, white, purple and pink, and the bloom lasts from late July to early August.

*The author is Special Projects Editor for Lawn & Landscape Maintenance magazine.*

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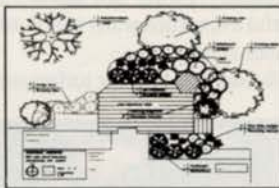
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USE READER SERVICE #53

# Drip Irrigation: Right on Target

*New technology for drip irrigation is evolving and it targets shrubs, beds and even turf.*

by Bob Gitlin

DRIP IRRIGATION is not only a response to water conservation mandates, but also to the need for better targeted plant waterings.

This method, a horticultural practice that is popular in the treatment of row crops, is growing in landscaping, where it's used for trees, ornamentals, flowerbeds, container plants and even turfgrass.

Drip irrigation in commercial landscaping came about because of drought restrictions in states like California, Texas and Florida. But eventually, people saw that it was useful even when water was in adequate supply.

Subsurface drip for turfgrasses

is a growing area of interest.

"We're into drip as well as low-volume spray," said Don Olson, president of Olson Irrigation Systems, Santee, Calif. He said that drip already is used in some turf situations. "Some folks use it for turf irrigation in corners and other hard to reach areas," he explained. "Median strips are an example. You don't want to overspray and yet you still want green grass."

"A lot of the landscapes that use drip have irregularly shaped lawns and sidewalks," Olson said. "Some architect gets happy with the sawtooth kind of walks." Such problems helped prompt interest in

subsurface for turf, which, he noted, may be effective. "People are looking for a better way."

Median strips pose the problem of perceived toxic runoff from overspray irrigation, a problem solved by drip. "All that water moving into traffic lanes creates liabilities for cities or property owners," he explained.

Contractors using drip irrigation like this "will bury the systems and put emitters under the lawn," Olson noted. "You can shank it 2 or 3 inches underneath the surface."

The Olson contribution to solving the problem was a "complete irrigation system in a head," which

has 12 outlets and a filter, he said.

Each outlet is pressure-compensated, which is standard now in the drip irrigation supply field. Users can control pressure to adjust to any elevation changes and extend the system to fit the requirements.

"It just screws onto a half-inch riser," Olson added. "We sell a lot of these systems for use on ground cover and shrubs."

**LANDSCAPE SPECIALTIES.** A pioneer in the drip field is Fred Smiley, chief executive officer of Pepco Water Conservation Products Inc., Fresno, Calif.

"We started in business 10 years ago. We decided to focus on the commercial market: landscapes for city parks, schools, industrial buildings—everything but grass. People in this business have been using products that were designed for agriculture."

They didn't work, he said.

"You put a landscape in for its aesthetic value. We developed products for the landscape industry. We went to watering individual plants instead of having tubing lay there around the area with emitters in it. Over the years, the method has caught on, saving people on water and labor."

How does it save labor? "Because you're not using water to grow weeds," Smiley responded.

Pepco's four-plant system re-

(continued on page 80)



Drip irrigation's targeted applications of water make it a versatile landscape tool. Credit: Rain Drip Inc.

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## Drip Irrigation

(continued from page 78)

mains an industry standard. Smiley said the "compensating high volume emitter" is a key innovation.

"Suppose you, as a homeowner, had one area connected to your irrigation system where a sprinkler was throwing water all over the house. We fixed it so you could take that sprinkler off, put on our unit and water four plants. A similar unit handles eight plants. You could have a selection of water volumes from two through 20 gallons per hour out of each outlet."

**DESIGN OPTIONS.** The Olson 12-outlet system may sound like one-upmanship, but that competitive product is restricted to 2 gallons, Smiley pointed out. It all depends on how much water the property actually needs.

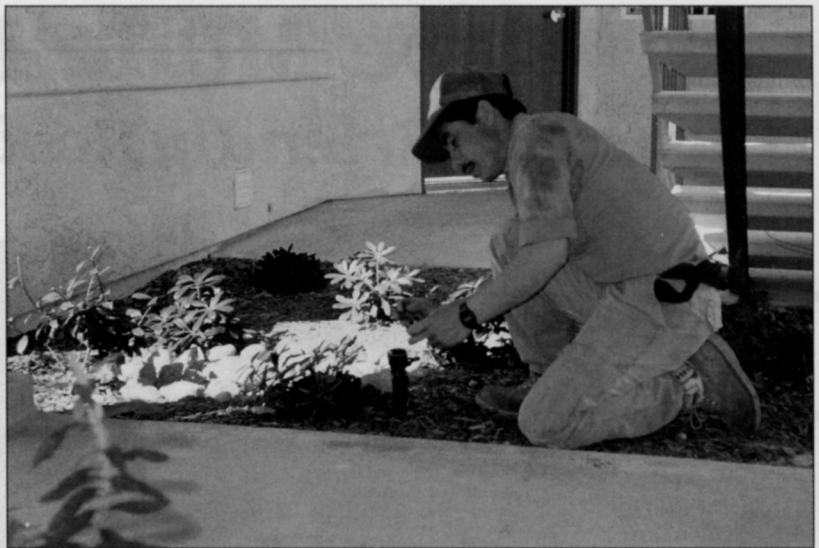
"Ours will put out as much water as if you were using sprinklers, but target it to one plant, so it can be on the same circuit," he explained. "Do you have a big tree? You can go up to 20 gallons an hour. Is there a

small shrub? In that case, you'll probably use two gallons."

Subsurface drip for turfgrass has a way to go before it solves the problem of grass roots that work the wrong way, moving into the emitter pores and clogging the works in their efforts to seek water, Smiley predicted.

"I worked at that problem 10 years ago with laser-drilled tubing," said the avid researcher and entrepreneur. "We put it in the turf every 12 inches. If the system's maintenance wasn't correct or the watering schedule was off, the lawn went into stress. Roots looking for water would intrude into the pipe and plug it up."

Today, the main lawn applications for drip, said Smiley, are apartment properties with little narrow



Convenient fertilization is possible with drip irrigation. Here, a worker inserts a water-soluble fertilizer pellet into a multiple-outlet drip irrigation head. Credit: Olson Irrigation Systems

strips of grass beside buildings.

Many drip systems are sold to landscape contractors who have suffered culpability from spray heads getting stumbled upon by children on playing fields, or other accidents relating to pipes or heads

extending above the ground level.

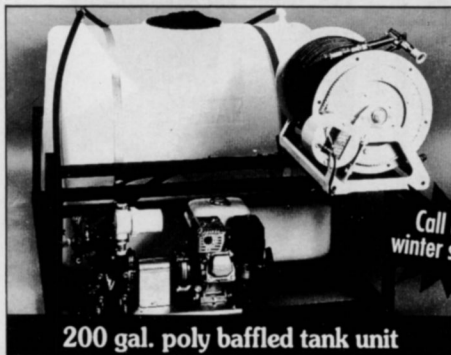
**WATER SAVERS.** When it comes to coping with water restrictions, drip irrigation is an unassailable method, Smiley explained. "You're saving

(continued on page 82)



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USE READER SERVICE #73

## Drip Irrigation

(continued from page 80)

as much as 70 percent of the water."

He wishes more landscape professionals would take the time to learn the art of drip irrigation. "Too many people want to take an easy way out. They run a piece of hose on top of the ground and attach an emitter to it." Is it instant drip? No. "We put out a nice handbook, a how-to guide. Landscape professionals can learn a lot about drip."

**'NATIVE' LANDSCAPES.** "People are seeing the beauty of 'unthirsty' native plants," said Anita Matlock, product manager for Rain Bird Sprinkler Manufacturing Corp., Glendora, Calif. "Drip has proven to be the way to go for native plants, but people in many states other than California, Florida and Arizona are attracted to the same efficiencies.

vice president of sales for Rain Bird Inc., Simi Valley, Calif. "Drip is becoming more sophisticated. It will handle different applications."

We have colored tubing that matches the landscape," she noted. "For example, in Arizona, we have sand-colored tubing that landscape architects love. It goes unnoticed."

Such camouflaging helps fight vandalism, which is a problem where people see black tubing.

Burial of the main lines is a key innovation, she said. "People don't see anything. The little tubes coming up to the plant become invisible and blend in with the landscaping. We have adaptors that go from PVC to polyethylene, so contractors can use the maximum amount of PVC underground."

**NOT JUST FOR DROUGHT.** Drip is not just for drought-stricken states. "It's suited for hard-to-water plants



This multiple-outlet emitter head is shown in an above-ground installation. Credit: Olson Irrigation Systems.

More landscape professionals are using low-volume irrigation, specifically drip."

Designers are getting requests for drip and other low-volume maintenance for shrub beds, she said. "Contractors and designers alike want to learn how to do it right. We're committed to training and education. We focus on it heavily here at Rain Bird."

**DESIGNER COLORS.** "Drip irrigation is increasing by about 20 percent a year in the commercial landscape market," noted Ruth Mehra,

also," Mehra added. "I worked with a Chicago contractor who used our system on a penthouse garden for planter boxes. She was thrilled. It's being used all over the country."

Irrigation designers are pouring more and more ingenuity into conversion devices for drip, she said.

"The new systems let contractors use the underground PVC systems. They connect from a half-inch riser, using a conversion device that converts it from spray to drip. I think that's a major trend."

Her advice for landscapers using

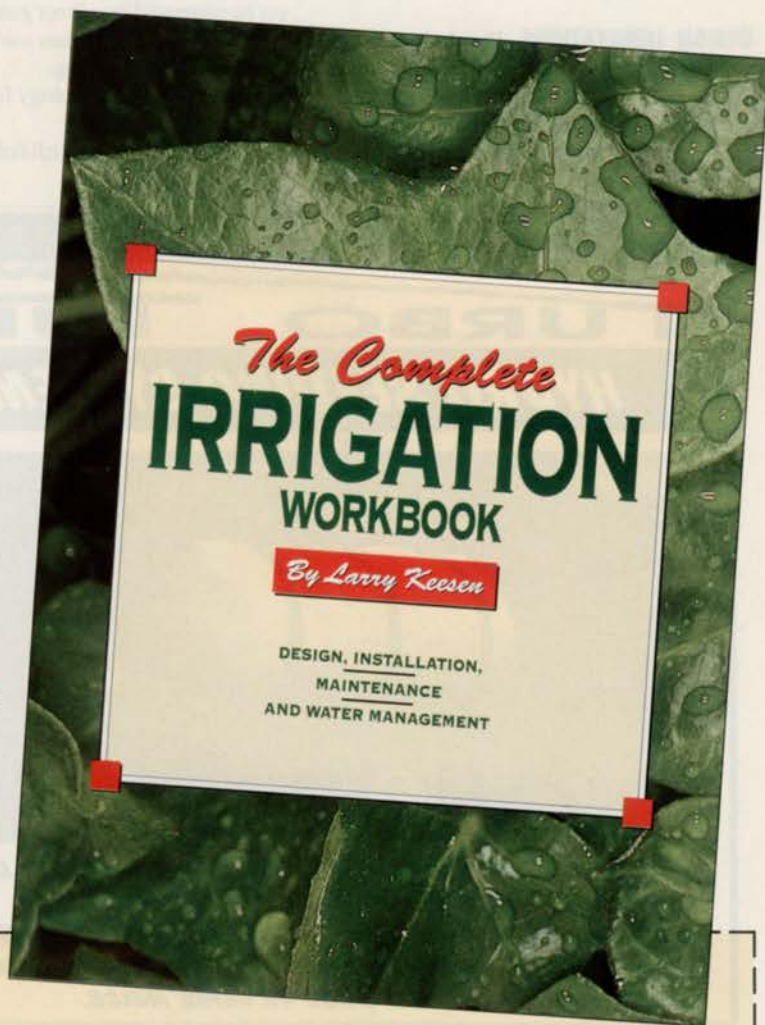
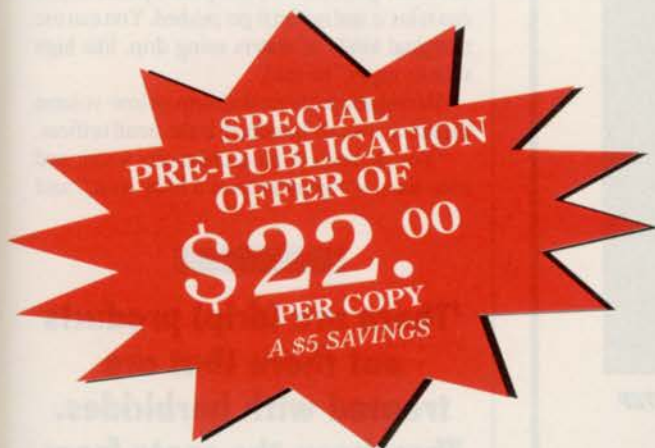
(continued on page 84)



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## Drip Irrigation

(continued from page 82)

drip is: "Use proper filtration and proper maintenance, such as flushing out the lines every two to three months. Keep the filters clean and use proper pressure regulation. You won't have any problems."

**DESIGN INNOVATIONS.** Phil Lubars, sales manager for Drip-In, Fresno, said his company's drip systems reflect a unique technology.

"We take out the emission devices and insert them into the interior wall of the polyethylene

hose at the time we extrude it. We are putting the emitters inside, which creates an integral dripper line for the system.

"The newest product we have is the quarter-inch, which is spaced every 6 or 12 inches. Some other products are spaced as much as 24 or 36 inches," Lubars added.

For subsurface, Drip-In recommends its product be pretreated by a "root guard" process patented by Geoflow. Lubars said this solves the problem of root clogging.

Drip irrigation technology for turf is around the corner, he predicted.

"There have been football fields installed with

drip, at schools and parks. When a system with a spray head is installed, you better make sure the pops down every time it pops up, because anyone walking or playing there can fall over it and sue."

Maintenance costs are reduced with drip irrigation for turf, he added, citing a California school district that now drip-irrigates five acres of turf. "Before, whenever they turned the sprinklers on, they had to make sure somebody was out there checking that they were operating correctly. If not, they might be spraying water onto cars parked alongside the street and causing damage."

**GROWING INTEREST.** Thomas Kimmell, executive director of the Irrigation Association, Fairfax, Va., said the fastest-growing portion of the drip irrigation industry is agriculture, specifically for row crops. Many of the same advantages that apply to agriculture extend to landscapes, which explains drip's growing popularity in the contracting industry.

"You can extend the growing season with drip, manage the crop better because you control the water and measure exactly how much and when the water goes on. You can push a plant; or you can relax it and not let it get pushed. You can use marginal kinds of waters using drip, like high salinity types," he said.

The biggest problem with drip, or low-volume irrigation overall, he added, is the small orifices.

"You do need to have clean city water, and even then, it's good to have a filter on it," said

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**'There are (drip) products out there that are treated with herbicides. They keep the roots from growing in, which makes subsurface systems more forgiving. It has been used in parks and football fields.'**

Kimmell. "It's easier to clean one filter than it is to clean a lot of small orifices.

"Drip sprinkler products are doing well in places where the rules have changed," he added.

The Southwest has taken an interest for many years in xeriscaping; California's drought stimulated interest in drip. There, drip's tight control of water is perceived to be essential. "As far as the rest of the country, it's not a big deal," he noted. Some systems are sold in the Midwest, Kimmell said, but distribution is limited.

"When the ag market ran into trouble," he explained, "irrigation suppliers began looking at turf and landscape. In the past five years, products

(continued on page 86)

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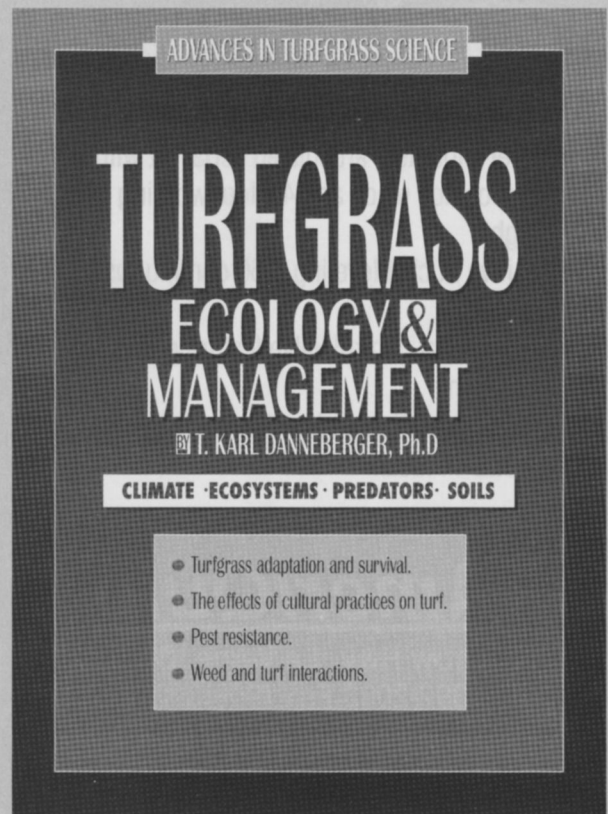
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USE READER SERVICE #113

## Drip Irrigation

(continued from page 84)

have been built specifically for that kind of application.”

A trend peeping its head over the horizon is buried drip, Kimmell added. “There are products out that are treated with herbicides. They keep the roots from growing into the system, which makes subsurface drip more forgiving. It has been used in parks and fields.”

**SUBSURFACE SYSTEMS.** “Drip certainly has come of age,” said David Zoldoske, director of the Center for Irrigation Technology at California State University, Fresno. “It is now an accepted part of the landscape. We’re starting to see movement toward subsurface drip for ground cover and turf plots. I think there is a maturing of products. We’re seeing multi-outlet drip emitters replacing bubblers.”

Subsurface drip on turf is prom-

recalled. “For groundcover beds, we’ll put it on in a grid fashion, perhaps using 12-inch spacings between emitters. If we’ve got a long run like 5 feet between hedgerow plants, we’ll use push-in emitters. This way, every 5 feet, we can get a gallon per emitter, right on the plant ball. This tends to be a very efficient output for our purposes.”

Drip was just taking off when Leach joined the company five years ago. “We still run our estimates both ways, for drip and spray. But now, we see that drip is going to be the most effective choice. Generally, we will not offer an option, unless it is requested.”

He has found good results with pine straw or bark mulch for subsurface applications. “Those materials compound the effectiveness of the irrigation water. It is directed to the root zone instead of being sprayed on top of the mulch. Water evaporates less this way and goes directly to the roots.”



Subsurface drip emitters can be spaced and adjusted to meet the water requirements of trees spaced at intervals. Such systems also simplify day to day maintenance of the site. Credit: Larry Keesen

ising, he noted. “We recently installed over an acre on our campus and it’s doing well.”

John Leach, who works in design sales for Greenscape Inc., Holly Springs, N.C., said he’s doing more drip irrigation for his residential than his commercial accounts.

“Those accounts use a lot of spray heads,” he explained. “Drip gets a fairly good reception in the residential area, for beds and such. It tends to be a little more expensive on the front end — you’re not putting a head every 15 feet, but an emitter every 18 inches — but it can be presented and sold because of the possible water savings.”

Drought is not the motivator in his climate. There, it’s water costs.

“We’ve used drip in just about any type of planting bed,” Leach

**PRECISION COUNTS.** Today’s drip systems require some science, Leach said. “Our emitters will put out one gallon of water per hour. So we calculate, depending on soil type, what the shrub requires.”

Good filtration is important to making drip work, he added.

“Don’t use anything elaborate or costly. Just put 100-mesh filter close to the water source.” Pond water won’t strain properly, but most city or well water is usable.

“I use drip systems in two market areas, Raleigh and Pinehurst,” Leach explained. “They have two very different soil textures: one is clay, one is sand.”

While some people think that sand clogs the little holes preventing emission, the filter keeps the

(continued on page 88)

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## Drip Irrigation

(continued from page 86)

sand out, he said. The smaller particles in clay either filter out or float right through the holes.

"As for adjustment of the hose itself, the plants only need water during their years of establishment, which is usually up to three years. After that, you shouldn't be irrigating them until you have a drought," Leach explained. "With the placement of the hose toward the root zone already, you're covered, and can place additional emitters as that root zone grows."

**DRIP DRAWBACKS.** Not quite as enamored of drip irrigation is Dick Crowl, owner of St. Joseph Irrigation, St. Joseph, Mo.

"We've used microsprays and regular drip, which is hard to drain. We don't use automatic drains; we use the blowout type. It's hard to tell if the system is working until it's too late.

"It's high maintenance. Window washers get in the beds and tramp on the drip irrigation, as well as on

## Rules of Thumb for Drip System Design

Initial planning in any project is important, especially before designing a drip irrigation system. According to Rain Bird Sprinkler Mfg. Corp., Glendora, Calif., several rules of thumb should be considered first:

- Remember that filtration and pressure regulation may be necessary.
- Job-site elevations may cause pressure variations in a system.
- Plan on wetting a minimum of 50 percent of the plant's area.
- Design the system for mature plant material.
- Design to avoid salt build-up in plant root zones and salt leaching in vulnerable areas.
- Use 300 feet as a rule of thumb for maximum tubing lengths to reduce and control flow losses of pressure and to achieve more uniform flow rates from emitters.
- Keep actual water emission points of the system above the soil surface.
- Use proper backflow prevention devices.
- The climate and potential evaporation rate will have an affect on the site's water use.
- Don't forget to include plant type, plant size and soil texture in system calculations. — from *Rain Bird Landscape Drip Irrigation Design Manual*, by Keith Shepersky.

the plants," Crowl added.

Subsurface placement of tubes offers some help. "We finished a job where we buried tubes under cloth, and I think they will be alright there. The biggest thing is not hav-

ing a feel for how much water is actually there. If a tube is broken, I don't know it."

He has been going back to older technologies like spray irrigation, after a rather unsuccessful flirtation

with low-volume methods.

Crowl got into drip irrigation to save water and to target the plant. The technology has to do a better job of selling him. "I suspect that most of this is being used in the bigger markets, like southern markets with exotic plants."

Spray systems have their drawbacks, too. "There's no sense spray irrigating a whole flower bed if there are just a few plants," which also helps the weeds along, too, he pointed out.

"As an alternate to that, we tried adjustable pop-up heads, or in-strip heads, each one geared to just one plant. But you get a lot of water out in a short period of time, sometimes more than you need.

"If the plants are sensitive, there may be a problem. If drip irrigation could be monitored better so you would know that everything is working, it would make it a lot more attractive, at least in this part of the country." ■

The author is Contributing Editor to *Lawn & Landscape Maintenance* magazine.

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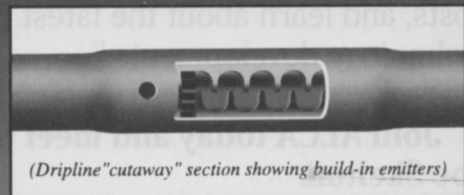


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USE READER SERVICE #67

# Playing The Numbers Game

*Operating ratios are the key to tracking a lawn or landscape company's health. Smart contractors won't make any decisions until they know their assets, debts and efficiency rates.*

*By Curt Harler*

Hard figures will show whether a landscape contracting business is growing at a healthy rate or if it needs drastic changes to remain profitable. Photos this page: ALCA



**C**HAT WITH 100 landscape contractors and 99 will tell you they love the business and love working outside. Almost as many will tell you they hate the bookkeeping that keeps them away from the fun part. But like report cards in school, it is the book work that reveals whether a business is passing or failing.

Joe Short, business manager for Ocean Woods Landscaping, Hilton Head Island, S.C., said that if he could use only two financial statements, he'd take the profit-and-loss statement and the balance sheet. There are a lot more financial analysis tools available to a business. Each is valuable when and where it is needed.

**STEP BY STEP.** "Go in stages," Short advised people setting up business operations systems. "Start with a company total and then departmentalize." From a company wide view, the next step is to focus in a bit closer, perhaps on maintenance. "As you grow, departmentalize the maintenance figures. Later, break down individual areas."

Ocean Woods maintains both departmental and consolidated record keeping. As a full service landscaping business, Ocean Woods sees about 70 percent of its revenues in maintenance and 30 percent in installation services.

It keeps figures on 10 individual departments. Some areas, like irrigation, will cut across both the maintenance and installation areas. Individual areas may carry a staff of anywhere from two to 14 men.

"Each of the 10 departments is its own little company. The supervisor is aware of the profits and losses for that department," Short said.



Tim Aalbu, chairman of Aalbu Landscaping and Maintenance Inc., Everett, Wash., arranged his business into three profit centers, each of which shares overhead. The groups are landscape maintenance, landscape contracting and special services.

"Special services is a catch-all group for maintenance operations," he explained. "All three divisions share a percentage of revenues and each must prove itself as a profit center."

Aalbu maintains yearly budgets for each division. However, some items like electricity, telephone and advertising are treated as general overhead costs.

"Our yearly budgets are based on the previous year's history and on where we want to go in the coming year," Aalbu said.

"It's important to stay in the loop," said Short. "It's prevalent for new companies to rely on an accountant for the numbers. But you know your business better than your accountant. Help the accountant produce those numbers. For example, make sure that chemicals are allocated to the right place. Only you know where they belong."

**ALLOCATE RESOURCES.** The business statements can help a manager re-allocate resources. While some items can be budgeted across the board, most equipment is assigned to one division during the course of the year.

"The construction division's needs are different than what maintenance needs," Aalbu pointed out. However, should one operation need to borrow a piece of equipment for a few hours for a particular project, the cost is not charged back against the operation.

The apportionment varies across the board, although maintenance usually sees 70 to 75 of the allocations, construction gets 15 to 20 percent and the rest goes to special services.

That follows the proportions set for sales, with maintenance earning 70 percent, commercial landscaping 16 percent, residential landscaping 10 percent and the rest to miscellaneous sales.

However, officer salaries are allocated in different percentages than administrative salaries. And while maintenance gets the lion's share of the budget for salaries, 75 percent of the dollars spent



Lawn and landscape industry averages are a basis for comparison. Credit: CLCA

on advertising are allocated to construction, with just 20 percent going to maintenance and five percent to special services.

**COMPARE THESE RATIOS.** Now more than ever, it's time to look beyond the latest in lawn mowers and irrigation tubing and closely examine your financial ratios. Your accountant can provide you with the same ratios we discuss here for the lawn and landscape business.

All businesses, from gas stations to department stores, use these ratios. However, they do differ from business to business and, while they are great guidelines, you should not adhere to them slavishly. Robert Morris Associates gathers and copyrights the numbers for the use of banks and other financial institutions.

Use the guidelines to figure your own ratios and compare them to the lawn industry averages. But remember to treat them as guidelines ... no one number is right or wrong.

If your figures are far from average, it's likely to be a warning flag that you are falling behind your competition or are not investing enough back into the business.

"We look at our statements on a monthly basis," Short explained. "We keep our numbers on a short string. But it's not just numbers, it's experience that counts. When you have a lot of years in an industry, you can sense trends as they develop."

Short advised newcomers not to wait around developing bookkeeping and business plans. "Get going with your business and improve the record keeping as you go.

"Financials have to reflect what people are doing," Short concluded. "Manage your people well and the profits will follow."



## OPERATIONAL COSTS WORKSHEET.

Note: Industry percentages are rounded-off slightly; some totals are approximate.

**START WITH ASSETS.** For the most recent fiscal year available, 1993, a typical lawn service business had total assets of \$337,088. Most of the figures below are expressed in percentage terms, not absolute dollars. Presume that 100 is equal to your total assets.

A typical lawn service business in the Robert Morris Associates study finds 38.2 percent of its assets in fixed assets.

1. Enter your fixed assets here: \_\_\_\_\_

The average lawn care business has 9 percent of assets in cash or its equivalent.

2. Enter your figure here: \_\_\_\_\_

Just over 11 percent is the average in inventory.

3. Enter your figure here: \_\_\_\_\_

About 29 percent of assets are in receivables, which is money owed the lawn service business.

4. Enter your figure here: \_\_\_\_\_

All other current assets for lawn service businesses average about 3.2 percent.

5. Enter your figure here: \_\_\_\_\_

To get total current assets, add together the figures for cash, receivables, inventory and others. Industry average is 52.4 percent.

6. Enter your total here: \_\_\_\_\_

Intangibles, such as the value given for franchise rights, or perhaps the value of a non-compete agreement, equal just 1.5 percent of an average operator's assets. You might not have any intangibles.

7. Enter your intangibles here: \_\_\_\_\_

Prepaid expenses like fire insurance total about 7.3 percent.

8. Enter your figure here: \_\_\_\_\_

Total should be: 100 percent (give or take internal rounding error)

9. Enter your total assets here: \_\_\_\_\_

Average net sales were \$758,877.

10. Enter your net sales here: \_\_\_\_\_

These figures represent the more successful lawn service firms. How do you compare?

**LIABILITIES BREAKDOWN.** Liabilities are money you owe. A typical lawn service business has about 10.8 percent in short-term notes (loans).

1. Enter your figure here: \_\_\_\_\_

Current maturities of long-term debt (the amount due in 12 months) average about 8.1 percent.

2. Enter your figure here: \_\_\_\_\_

Trade payables average 12.8 percent.

3. Enter your figure here: \_\_\_\_\_

Income taxes payable average 1.5 percent.

4. Enter your figure here: \_\_\_\_\_

All other current payables — rent, bonuses due employees and other expenses you owe before you actually part with the cash — average 7.6 percent of the total.

5. Enter your figure here: \_\_\_\_\_

These liabilities added together equal about 40.9 percent of a lawn service business' debt.

6. Enter your figure here: \_\_\_\_\_

Long-term debt (beyond one year) represents an average 20.1 percent of the outstanding debt.

7. Enter your figure here: \_\_\_\_\_

Deferred tax liabilities total about 1.1 percent.

8. Enter your figure here: \_\_\_\_\_

All other non-current debt averages approximately 1.3 percent.

9. Enter your non-current debt here: \_\_\_\_\_

Add the current and long-term debt, deferred taxes, and other debt and subtract the total from 100. That leaves us with between 35 and 36 percent as an average net worth figure.

Do your figures match these? This number is the owner's investment in the business. The rest of the funds are borrowed, long-term or short-term debt and trade payables.

**HANG IN THERE.** Now we get to the easier part.

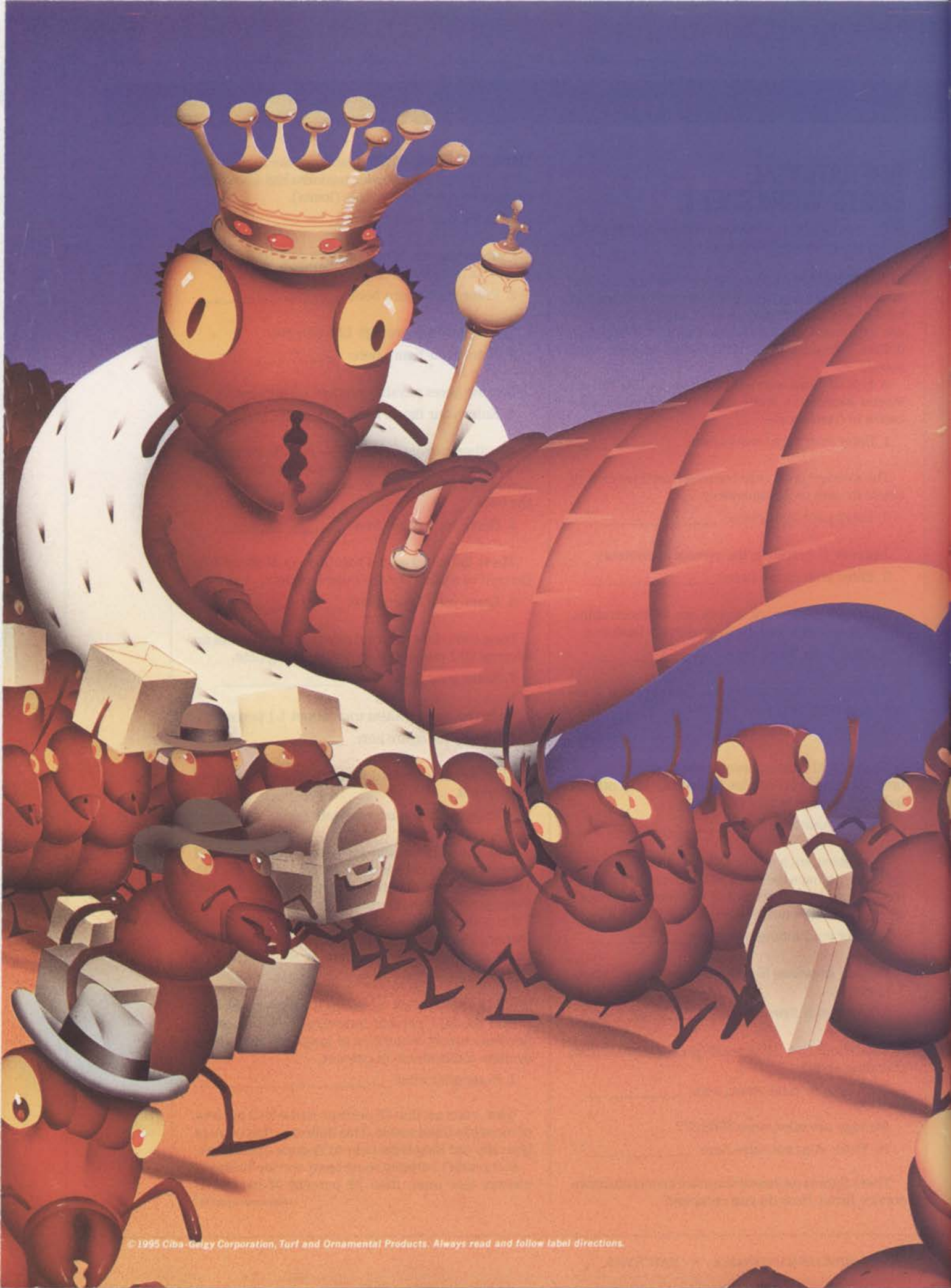
Add the 20.1 percent long-term debt to the 8.1 percent current maturities of long-term debt. The average totals about 28 percent.

1. Enter your total: \_\_\_\_\_

Now, contrast that 28 percent to the 38.2 percent of money in fixed assets. This indicates that owners typically use long-term debt to finance operations.

It shouldn't surprise most lawn service business owners that more than 94 percent of income is

(continued on page 94)



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**USE READER SERVICE #101**

## BUSINESS MANAGEMENT: PART 3

(continued from page 91)

**WORKING UP THE RATIOS.** First, figure your "current ratio." That is your total current assets divided by total current liabilities.

Again, the number will vary by industry. For lawn service businesses, it should be about 1.3 percent. Two percent is high for lawn service businesses; under 0.5 percent is dangerously low.

1. Enter your current ratio: \_\_\_\_\_

Next, figure your "quick ratio." This is cash plus receivables divided by current liabilities.

2. Enter your quick ratio: \_\_\_\_\_

This figure typically is 1.0 percent for the industry.

The quick ratio and current ratio measure liquidity; a range would be 1.4 to 0.6 percent. Earnings before interest and taxes (EBIT) shows if you can pay your interest. Divide EBIT by interest. The industry average is 2.7 percent. The higher this number, the bigger the smile on your banker's face.

3. Enter your number here \_\_\_\_\_

Now, add up net profit plus depreciation plus amortization of intangibles. Divide that by current maturities of long-term debt.

4. Enter your figure here: \_\_\_\_\_

Look for a figure around 1.9 percent — down near 1.0 percent is low. Around 3.4 percent will get you a pat on the back from your banker, for this figure tells how well you can handle debt. The larger the number, the greater your margin of safety.

**SOME SIMPLE RATIOS.** Divide your fixed assets by your net worth.

1. Enter your figure here: \_\_\_\_\_

The result should be about 1.0 percent. The RMA study found numbers ranging from 0.5 to 2.2 percent. As in golf, the lower the score the better.

Now divide your total debt by your total net worth.

2. Enter your figure here: \_\_\_\_\_

The industry average is 1.8 percent with a range of under 0.8 to 4.4 percent. This is a measure of leverage; again, lower is better. Lawn service firms typically have \$1 in debt to every \$1 of worth.

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USE READER SERVICE #74

Now, divide your profit before taxes by tangible net worth.

3. Enter your figure here: \_\_\_\_\_

This figure shows what your pretax return is on your lawn service investment. The industry average of 23.2 is neither good nor bad—just an average. The range runs from 8.2 to 50.4 percent. Try to be closer to 50.4.

How productive are you and your workers? Divide your sales by your net fixed assets.

4. Enter your figure here: \_\_\_\_\_

Average is around 7.9 percent. If it's closer to 12.4, plan on paying a big Christmas bonus. If it's nearer the low of 4.8 percent, look at your productivity.

#### ONE LAST FIGURE

Now, divide your percentage compensation by sales to find out how well you are paying yourself.

1. Enter your figure here: \_\_\_\_\_

This figure was left blank by half of the respondents to the RMA study. Those who did reply re-

ported an average figure of 5.2 percent of sales.

Since the average landscape service reported nearly \$750,000 in sales, multiply this figure by 5.2 percent, and discover that your competitor paid himself about \$39,000 last year. This excludes earnings retained in the business, or business growth.

**DON'T LIKE THE RESULTS?** If you, or your accountant, aren't happy with these numbers, some strategy review might be in order. Look to improve profitability and manage your expenses. Don't take on a more expensive lease or invest in inventory unless you're absolutely sure of what you're doing.

Keep in mind there is no absolute "good" or "bad" number. These are averages. As long as you, your banker and your accountant agree on the reason for a major variance, you're OK.

If you can't give a good reason why your operation is far from different from the norm, you may be looking at a danger sign. On the plus side, remember that identifying or defining a problem is more than halfway to solving it. ■

*The author is a free-lance writer in Strongsville, Ohio.*

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USE READER SERVICE #104

# Trees & Ornamentals

## DEALING WITH WINTER'S AFTERMATH

**DIAGNOSING** and treating winter damage to trees and ornamentals requires more than a working knowledge of plant growth and nutrient needs. It also calls for good detective work, a long memory, knowledge of pruning techniques and patience.

Although damage to trees and ornamentals may be obvious, some special circumstances may require the landscape contractor to look into plant hardiness ratings, area wildlife patterns or even maintenance practices done in years past.

Chances are that your clients will want to know what caused the damage so that it can be avoided in the future. And they'll want to be reassured that your pruning efforts will bring the plant back to good health.

**OBVIOUS DAMAGE.** On the first spring visit to a landscape, the contractor should look for obvious signs of damage to branches from snowfall, wind, heavy rains and ice storms. Even a mild winter can cause damage, and it will be easy to spot, according to Trevor Vidic, technical adviser at the The Davey Institute, Kent, Ohio.

"Look for broken limbs on big, woody plants," he recommended. "You'll see that the fiber is exposed when the limbs were broken by wind or snow and ice loading. Sometimes, a branch may be dead and dried out already, and the snow or ice just broke it off."

In either case, many large tree limbs can be vulnerable and some of the damage probably could have been avoided by preventive maintenance programs.

"Usually, the arborist was called in too late and the owners should have had a tree cabled to prevent this type of damage," Vidic noted.

Smaller, ornamental plants show damage as they begin to leaf out, he explained. "Gently run your thumb over the buds. If the whole stem snaps off or the buds break off, the tissue is desiccated — it's dead and hasn't gotten any water.

"On warm winter days during a thaw," he continued, "plants still continue to photosynthesize, respire and have a little root growth. If there is dieback, it's usually from

the outside tips downward and damage will show as it begins to leaf out."

Vidic noted that contractors must wait



**Bushy ornamental plants show damage from the weight of heavy snow and ice. Credit: Davey Tree**

until buds and leaves appear to assess any dieback in ornamentals and trees. "During the initial leaf surge from the bud, you'll see that certain leaves don't leaf out or that only the buds below a certain level on the stem are still intact. It indicates that the plant's

(continued on page 98)

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## Tree News

(continued from page 96)

vascular transport system is not working out to its farthest extremities."

He added that the stunted growth may appear in a uniform pattern over the plant's outside edges or only on certain stems. "In a way, the plants are pruning themselves."

**DEEP-FREEZE FACTOR.** The next step on a landscape visit is to survey the established plants in the area for their hardiness or freeze

tolerance. Many plants are marginally hardy at the outer reaches of a growing zone and therefore, may be more vulnerable to damage during the colder winters.

In extremely cold winters, even those plants suited to the growing zone may show extensive damage, or even die, from the stress on their systems.

"Plants are hardy to an average minimum temperature and this usually affects smaller woody plants. During a winter like 1994, it was so cold that the tissues of many plants froze and were killed — they never

recovered from that one night when temperatures went below minus 20 degrees," Vidic explained. "When you see mature trees in a landscape, you know they have survived all kinds of winter weather conditions over many years."

Check young plants and those borderline varieties stretching the limits of the growing zone for damage from an unseasonably or merely very cold winter. It can be proof that the plant selection gamble has failed.

"A hard freeze is the litmus test of hardiness," noted Vidic. "It's not that anything breaks, but nothing grows afterward. Cold damage is more insidious — you have to wait for the leaf flush to realize the damage."

**DETECTIVE WORK.** It can be several months between a winter storm, freeze or thaw and the telltale signs of damage, Vidic pointed out. Usually, it will show on the plant's extremities, or outer edges.

For instance, for trees or shrubs situated in

# Root Zone Feeder

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**One person can drill up to six holes per minute.** The unit features a two-cycle gasoline engine, 20-lb storage tank on a heavy-gauge steel platform, and a heavy-duty earth auger. Set up time is minimal. No hoses to drag. No liquids to mix. No big trucks to park.

The Webster TC-300-2 can also be used to improve aeration and drainage in heavy clay or compacted soils. Fill hopper with vermiculite or pea gravel, and use the same drilling and filling procedure.

This system is ideal for commercial gardeners, park managers, lawn maintenance contractors, arborists and tree care companies, landscape contractors, orchards, and homeowners with wooded lots.

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**Broken branches are easy to spot; other damage may be more subtle and may not be obvious until later.** Credit: Davey Tree

poor drainage areas, an extended thaw or mild flood in mid-winter may not show the root damage until months later, when the leaf canopy fails to fill out, or when leaves develop and then die.

This can be especially tricky for contractors and arborists called to a landscape in July to explain what's wrong with a plant. "We may be called to diagnose a tree in July, when the weather in April holds the key to the problem," he explained.

Energy stored in the tree may prolong growth until the damage takes hold. Leaves

(continued on page 100)

USE READER SERVICE #66





# 3 Little Pigs Take Note.

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leaves, and the occasional loose brick. It's also extremely light, so you can work significantly longer with less fatigue. But best of all, it's now at a

great low price. For a demonstration, visit Stihl Territory at your local Stihl dealer. Just call 1-800-GO-STIHL to locate the dealer nearest you. **STIHL®**

## Tree News

(continued from page 98)

may start to grow, then suddenly stop as the effects of winter damage are unmasked.

In the case of winter flooding, damage may occur after only a few days of standing in water-saturated soil, Vidic said. "Soil has to have a certain amount of oxygen for trees to respire. Floods can be killers because all the air space is taken out by the water, which kills the roots. If the roots go, the tree follows. In standing water, the plant may struggle and begin dying back from the tips.

Salt used on hardscapes also damages tree and shrub roots by pulling water out of cells in a domino effect, Vidic pointed out. "You'll see damage at the top of a tree, where it can die back almost to the extent of the damage to the roots."

Plants situated near areas where salt is sprayed are in double jeopardy, he said. "Junipers and arborvitae, which often are used in borders, can get root damage plus damage to the leaf tissue from salt spray. There, the same thing happens — salt draws water out of the cells in the leaves."

**BAMBI AND THUMPER.** Another kind of winter damage to trees and ornamentals is

not caused by weather directly, but by wildlife. Unusually harsh winters can cause hungry deer, rabbits and other animals to find food in the tender stems of young plants. This can be a real problem in more countrified landscapes that are within easy reach of animals.

Deer and other animals appear to prefer some plants over others. Since rabbits and similar animals have strong cutting teeth, their damage to stems looks more like a clean cut. Deer, who have more chewing teeth, will mash or tear off stems. All of these injuries are an open invitation to pests and diseases once the weather warms up.

**PRUNING FOR RECOVERY.** Early spring pruning gives contractors the opportunity to spot damage and place cuts so that they will soon be hidden by new growth.

Vidic stressed that pruning doesn't harm trees if it is done properly. If there is a question about the tree or shrub's damage or which pruning technique to use, he recommended that contractors contact a professional arborist.

Common-sense pruning techniques are best. "First, eliminate the damage by cutting the damaged stem back to the next lateral branch or to the next appropriate bud on a

young shoot," Vidic explained. "Select a bud growing in the direction you want the plant to grow and make a clean cut.

"Don't overprune. Cut to eliminate the damage but don't leave a stub. It attracts insects and diseases like a sugar stick. You want the remaining branch or stem to grow out or up to replace dead areas," he added.

Extensive damage may mean a long recovery. "Sometimes you have to make less than ideal cuts. If it's dead, what can you do?" Vidic asked.

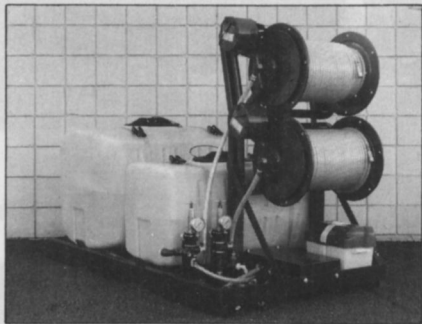
"You have to go with what the plant gives you and give it time to recover. This may mean having the pruner come back later in the season, or even in the next growing season, to see what new growth the plant has generated."

Trees that crack from low-temperature injury often enclose the wound themselves and may not need repairs. "We tell people that it might not be a 'frost' crack, but may be generated by an internal defect in the plant," he said.

"We recommend that people wait until spring and see if the crack closes itself. However, there are cases where a callus may continue to open and close itself every year, when repair procedures would promote permanent closure." ■

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USE READER SERVICE #70

# People

**ROBERT KILLIAN JR.** was appointed senior vice president of sales and marketing for Kubota Tractor Corp. His experience includes 20 years of sales and marketing.

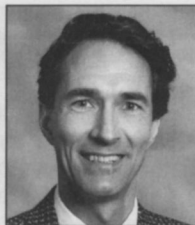
**John Chick** was named to the newly created position of sales manager for Snapper's commercial products division. People in other new positions for the division include: **Paul Dixon**, as manager of technical services; **Carl Seyerle** and **John Sheldon**, as managers of product development for commercial turf maintenance equipment; **Greg Kammer**, as manager of marketing and advertising; and **Amanda Nix**, as administrative assistant.

**Paul Zarlengo** joined the sales team at Benham Chemical Corp. He has more than 15 years in the lawn care and professional turf industry, recently serving as a technical representative for O.M. Scott & Sons Company. **Dave Polen** will represent Benham in central Michigan. His experience includes six years in the turf industry and service at United Horticultural Supply.

Jacobson division of Textron Inc. appointed **Richard DeVaughn** vice president of engineering, with responsibilities for all engineering activities.



Killian



Mikel

Sandoz Agro promoted **Guy Mikel** to vice president of the specialty business unit. In addition to responsibilities for business in the turf and lawn care, pest control and industrial weed control markets, he will head the firm's strategic products group and Canadian business unit. **Dan Hess** was named vice president of the company's research division in Palo Alto, Calif. He replaces **Ruedi Sandmeier**, who was promoted to lead Sandoz Agro's worldwide research projects.

New appointments at Briggs & Stratton include: **Dan Schneider**, corporate business planner; **Joe Wright**, plant manager for the casting facility in Ravenna, Mich.; **Frank Alonge**, die cast area manager for the large-engine production facility in Statesboro,

Ga.; and **Patricia Hanz**, senior counsel and director of environmental compliance.

Ruppert Landscape Co. appointed **Jay Long** to the newly created position of director of employee development. His responsibilities include training and certification programs, employee orientation, English programs for non-English speaking employees and facilities management. **Bill Collins** was named sales

coordinator for the Maryland landscape installation branch. He brings more than 20 years of industry experience to the position.

**Kelly Lewis** has been appointed manager of the Oakton, Va. nursery operations. He has 17 years of nursery industry experience.

Zeneca Professional Products named **Ernie Mahlmann** to technical sales lead. He will handle sales and service support for the company's pest control and turf and ornamental product lines.

RedMax promoted **John Keeler** to senior vice president, sales and marketing in North America.

**Bill Scheele** joined the engineering department of Encore Manufacturing as product engineer. He will concentrate on product research/design and quality. ■

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# Products

The Shrake sifting shovel from **Environmental Protection Developers** separates unwanted debris like sticks and rocks from usable soil. It can be used as a regular shovel or as a combination shovel-rake for



landscape preparation, composting, separating bulbs and general cleanup tasks.  
**Circle 126 on reader service card**

**Snapper's** new commercial midsize walk behind mower in the Pro 7 series has a 52-

## PRODUCT SPOTLIGHT

**Kubota's** B-series tractors range from 17 to 24 PTO horsepower to suit various landscaping applications. Three models come with 3-cylinder, 2,600-rpm diesel engines built for high output, low-speed torque and high torque rise. Engines operate at only 84 dbA and meet emission standards.

Tractors feature a retractable seat belt, ROPS, color-coded controls, large-capacity fuel tank, power steering and low-vibration design. A high clearance front axle and a full-floating, ISO-mounted flat deck provide maneuverability and easy access from either side. Hydrostatic transmission is available.

Contractors can opt for separate and simultaneous live PTO, along with a one-way clutch on PTO gear-drive models that gives free-power disconnect when shifting or stopping. All tractors have a 3-point hitch for quick attachment to loaders, tillers, snowblowers and other implements.

**Circle 125 on reader service card**

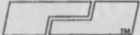


inch cutting deck that comes with three 18-inch cutting blades, and can be outfitted with mulching blades. Two models offer either gear transmission with pistol-grip

controls or hydro transmission with a loop handle. Both feature a 16-hp Briggs & Stratton V-twin engine. Design improvements incorporated into this mower include

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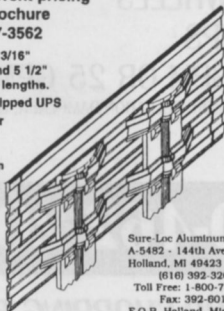
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Spray drift pocket calculator from **Spraying Systems** gives applicators instant feedback on how to configure their sprayers for maximum effectiveness. The



Drift Manager calculates variations on sprayer speed and application rate to show recommended combinations of sprayer tips and pressures that would produce the droplet size less likely to drift. Weather conditions, spray boom height and drift control agents also can be calculated.  
**Circle 128 on reader service card**

Manage herbicide from **Monsanto** has been registered for control of yellow and purple nutsedge in turf. The formulation, which is based on the active ingredient halosulfuron, has been tested to eradicate nutsedge without harming warm or cool-season turf grasses in North America. It can be applied at rates of less than 2 ounces per acre and has shown low potential to move to groundwater supplies.  
**Circle 129 on reader service card**

**Bigfoot** fertilizer spreader from PSB is equipped with a 1.8-cubic-foot hopper capacity, three-port hopper design for spread pattern variations and 13-inch pneumatic tires. The spread pattern "trim"



control and optional edge guard can be activated while operating. The commercial-size spreaders come with stainless steel or epoxy powder-coat painted frames for long life in the field.  
**Circle 130 on reader service card**

Forward-mount riding mower from **Dixon** provides a 60-inch cut with a four-wheel carriage that allows it to follow small changes in the terrain. Model 6601 has a



zero-turning radius design, as well as a 22-hp Kohler engine, V-belt deck drive, tilt-up body and compact length. It weighs only 700 pounds for easy transporting and maneuverability.  
**Circle 131 on reader service card**

# THE PROS CHOICE.

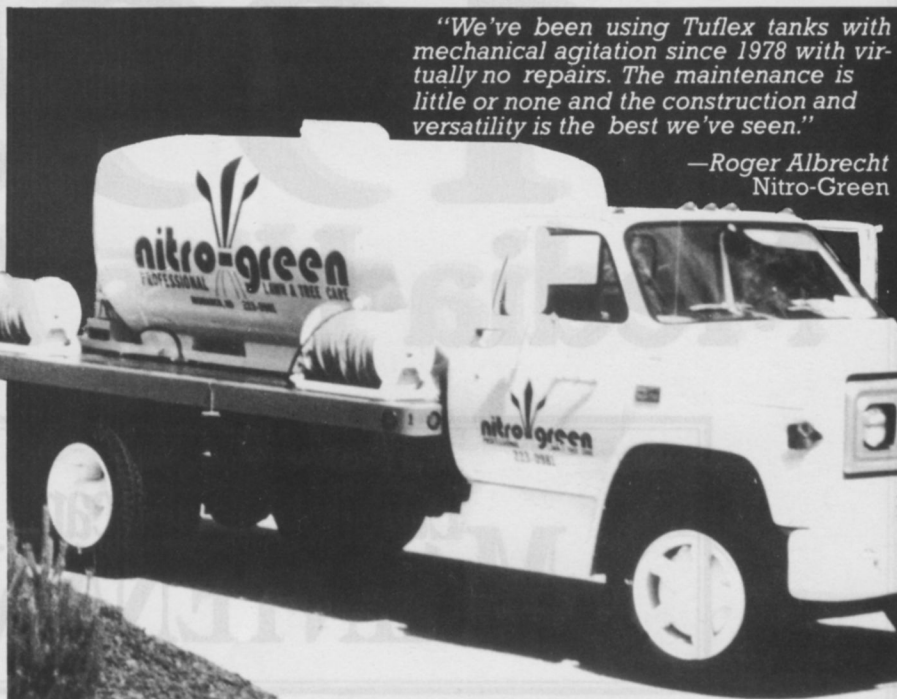
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Pinpoint™ granular insecticide from **Valent U.S.A.** controls soil-borne or leaf-feeding pests in container-grown ornamentals. It has been tested to control a variety of insects without being phytotoxic to fragile ornamentals and can be used with standard fungicides, herbicides and fertilizers. Pinpoint needs no watering-in and is easily absorbed by plant roots. It is a non-restricted use insecticide with a 12-hour re-entry period, making it suitable for integrated pest management programs.  
**Circle 132 on reader service card**

The T-90 Series II HydroSeeder® from **Finn Corp.** has design improvements including a Kubota 1703 diesel engine for reduced emission and increased fuel efficiency,



direct-drive pump/clutch configuration and full-platform tower for maneuverability. This model handles mid-size hydroseeding projects and offers a one-step process of seeding, fertilizing and mulching up to 1/4-acre per load.

**Circle 133 on reader service card**

**J. J. Mauget** introduced Inject-A-Cide AV insecticide, a nonrestrictive, full-season insecticide for the control of spider mites (except conifers), elm leaf beetle, leaf miners, fall webworm and sycamore lace bug on ornamental trees in exterior and interior landscapes. It injects into trees larger than 2 inches in diameter using the Mauget Micro Injection system, which injects a pressurized, premeasured dose of material into the tree's xylem tissues for direct flow into its sap stream.

**Circle 134 on reader service card**

Zero-turn walk behind mower from **Scag** features a dual-pump/motor drive system giving independent power to each wheel for no-scurf turning.

Hand controls are designed to need 30 percent less grip force, and forward speeds are controlled with a single lever for changing on the go. Cutter decks range



from 36 to 72 inches. Other features include tracking adjustment capability and an electric start option.

**Circle 135 for reader service card**

Protective coveralls from **Gempler's** are constructed with a liquid-proof film that is sandwiched between two layers of nonwoven fabric that keeps pesticides and other chemicals out, but lets moisture vapor escape. The Comfort-Gard 150 line is said to breathe like cotton overalls to keep workers comfortable during applications on the hottest of days.

**Circle 136 on reader service card**

(continued on page 107)

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## Products

(continued from page 104)

Video demonstrates the design and installation options of **Versa-Lok®** segmental retaining wall systems. Methods for mortarless construction of curves and corners, on-site splitting for modifications



and special landscape applications are highlighted. The video also details each step in the process: planning, base preparation, alignment and fill placement. **Circle 137 on reader service card**

Two walk behind aerators from **Toro** feature a roll-type design to improve productivity for commercial contractors. Model 680 has open tines that spade the

turf, while Model 880 uses a mechanical coring technique like that used in larger commercial aerators. It also centers the weight directly above the tine shaft to reduce operator effort and make it easier to operate for extended periods of time. The 880 aerator also uses caster-type wheels in the rear for maneuverability and stability on steep slopes.



### Circle 138 on reader service card

Trimec S.I. (sod and industrial) broadleaf herbicide from **PBI/Gordon** is said to control both annual and broadleaf weeds on sod farms and industrial turf sites. The formulation, which contains 2,4-D, MCPP and dicamba, is labeled for use on both warm- and cool-season grasses. It has been shown to have a high degree of turfgrass tolerance, can be applied over a wide range of temperatures and spray volumes and can be tank-mixed with other fertilizers and other pesticides.

### Circle 139 on reader service card

Wide-deck riding mower from **Encore** measures 61 inches and features zero-turning radius design, a 20-hp Kawasaki liquid-cooled engine and an Eaton 771 dual-path hydrostatic drive system.

The true floating deck comes with three cutting blades that move at almost 19,000 feet/minute. A trunion on the front axle improves handling.

Operating and design features include adjustable controls, a 52-inch deck option, parking brake, system warning lights and an electric blade clutch brake. Special foot-



operated deck lift with lock was designed to increase productivity.

### Circle 140 on reader service card

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Arbortape™ high strength woven tapes from **Nepto** are said to provide girdle-free tree staking and root ball binding. The flat, woven design, low elongation and low-abrasion yarns avoid common girdling

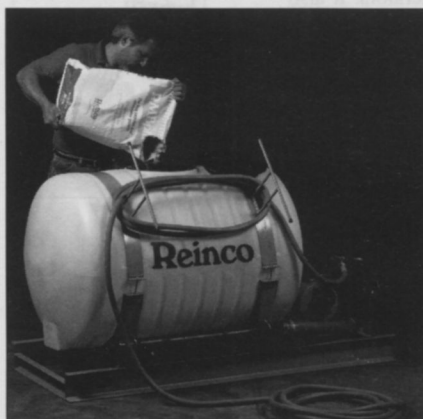


problems associated with wire or hose methods. It fastens to any stake or anchor with traditional knots or staples and allows for limited stretch and movement of a tree as it grows. White color is highly visible. Printing options include contractor's name or safety/handling instructions.

**Circle 141 on reader service card**

**Reinco's** TA-150 tackifier applicator mixes and sprays 1/2-acre batches of powdered or liquid tackifier up to 180 feet using an ordinary garden hose. Contractors can apply tackifier to hay and straw to stabilize soils and hold seed in place on residential and

smaller commercial hydroseeding projects. Portable unit comes with a 150-gallon polyethylene tank, a 50-foot hose, brass



nozzle and remote spray valve for easy use.

**Circle 142 on reader service card**

**One Step Turf Machine** offers a self-propelled spreader for both granular fertilizers and liquid weed controls that spreads an area 10-feet wide. It comes with an electric start 5-hp motor, 6-gallon tank capable of spraying 24,000 square feet, remote wand with self-coiled hose and brass and stainless steel construction. Easy-

load transport platform is optional.

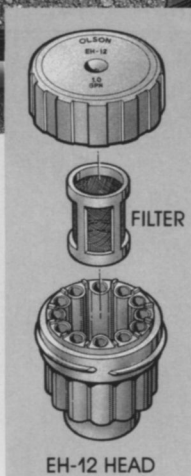
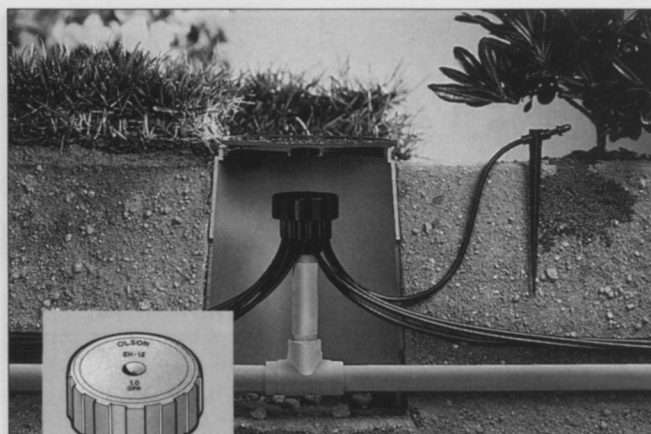
**Circle 143 on reader service card**

Bird repelling system from **Bird-X** uses four ceramic speakers that send ultrasonic waves in a 360-degree pattern to repel unwanted birds from a site. The frequency level irritates birds and can be adjusted to make it



impossible for birds to acclimate. Humans cannot hear the varying sound patterns.

**Circle 144 on reader service card**



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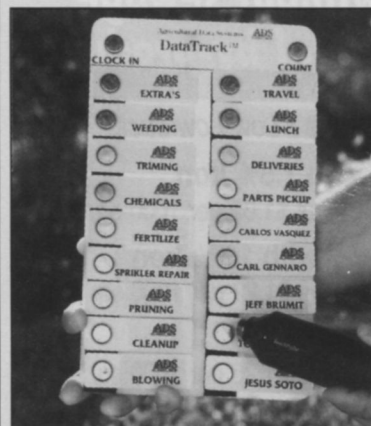
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# Calendar

**MAR. 24-26** ALCA Student Field Days, North Metro Technical Institute, Acworth, Ga. Contact: Associated Landscape Contractors of America, 12200 Sunrise Valley Drive, Suite 150, Reston, VA 22091; 703/620-6363.

**MAR. 29** 36th Annual Entomology Conference, University of California-Riverside. Contact: 909/787-3718.

**APR. 12** Turf Day 1995, Alameda County Fairgrounds, Pleasanton, Calif. Contact: Automatic Rain Co., 415/323-5161.

**APR. 25-27** Practical Approaches for Effective Erosion and Sediment Control, Boston, Mass. Contact: International Erosion Control Association, 800/455-4322.

**APR. 28** Building With Trees, Anchorage, Alaska. Contact: National Arbor Day Foundation, 402/474-5655.

**MAY 1-12** Basic Tree Climbing School for Beginners — Arboriculture I, Millstone, N.J. Contact: Dave Shaw, Committee for the Advancement of Arboriculture, 908/431-7903.

**MAY 2** Microscopic Identification of Turfgrass Diseases, Cook College, Rutgers University. Contact: 908/932-9271.

**MAY 3 & June 4** New Jersey Certified Tree Expert Educational Seminar, Millstone, N.J. Sponsored by the Society of Certified Tree Experts and the Committee for Arboricultural Advancement. Contact: Gary Lovallo, 908/591-1113.

**MAY 4-5** Digging Deeper for Better Solutions, Columbus Convention Center, Columbus, Ohio. Contact: Tree Care Educators, 605 SE 70th Avenue, Portland, OR 97215; 503/254-0482.

**MAY 21-23** Trees, People and the Law, Lied Conference Center, Nebraska City, Neb. Contact: The National Arbor Day Foundation, 402/474-5655.

**JUNE 23 -25** Plantec: International Trade Fair for Horticulture, Frankfurt, Germany. Contact: Messe Frankfurt, 404/984-8023.

**JULY 11** Turfgrass Establishment and Maintenance — Managing Turf Insect and

Disease Problems, Tom's Country Place, Avon, Ohio. Contact: Tom Shockey, The Ohio State University Department of Horticulture and Plant Science; 614/292-3846.

**JULY 19-20** Midwest Grounds Management Conference, Illinois State University, Normal, Ill. Co-sponsored by the Midwest Association of Physical Plant Administrators and the Professional Grounds Management Society. Contact: Mike O'Grady, 309/438-2032.

**JULY 26** University of Georgia Turfgrass Field Day, Georgia Station, Griffin, Ga. Contact: Gil Landry, Extension Crop and Soil Sciences, 404/228-7300.

**JUNE 27-29** Practical Approaches for Effective Erosion and Sediment Control, Toronto, Ontario. Contact: International Erosion Control Association, 800/455-4322.

**JULY 26-29** American Association of Nurserymen Conference, Minneapolis Convention Center. Contact: AAN, 1250 I St. N.W., Suite 500, Washington, DC 20005; 202/789-2900.



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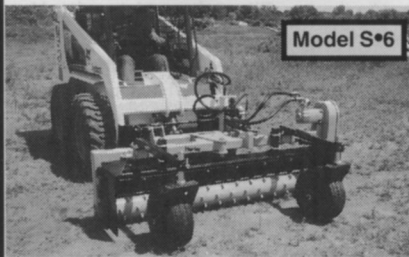
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#### Insect Controls

(continued from page 50)

At first, the Bt toxins appeared to be active only against foliage-feeding caterpillars. We now have more than 5,000 identified strains of Bt and most of these produce a protein crystal, which may affect some insect or another.

Some of the newer strains have better activity than the early strains for killing caterpillars. Most of these strains belong to the Bt "kurstaki" variety (i.e., Caterpillar Attack,® Dipel,® Javelin,® Thuricide® and others).

Bt "tenebrionis" (also known as "san diego") varieties (i.e., M-One,® M-Trak,® Trident II®) have shown activity against leaf beetle larvae. These beetle varieties have been used successfully for the management of elm leaf beetle and willow leaf beetle larvae. The key to success is to make the application when the larvae are still very small.

The Bt "israelensis" varieties (i.e., Vectobac®) have activity against both mosquito and black fly larvae in aquatic habitats.

The newest Bt variety to be developed is the "japonensis" strain Buibui.

This strain was able to kill white grub larvae in the laboratory and new field tests have confirmed that surface applications of the Bt provide excellent control of Japanese beetle and masked chafer grubs. Expect products on the market within a year or two.

In the mean time, environmentally sensitive areas (parks, landscapes near waterways, etc.) can be treated with the currently registered Bt products when leaf-feeding caterpillars or leaf beetles are problems.

**BACK TO NATURE.** Pyrethrin, rotenone and nicotine have been the standard botanical insecticides used for years. However, recent research has indicated that many of these "organic" pesticides have adverse side effects comparable with many of the synthetic pesticides.

On the other hand, azadirachtins, the active insecticidal chemical found in neem tree oil, appears to have minimal adverse impacts.

This compound acts as a feeding deterrent and insect growth regulator. It has very low mammalian toxicity and almost no effect on other vertebrate animals. As with most IGRs, azadirachtin has been slow in development because research on timing of the applications to susceptible stages of the insect is critical.

At present, several products containing azadirachtin (BioNeem, Turplex, Azatin®) are available for use on ornamental plants and turf. On ornamentals, tough-to-manage whiteflies and leafminers can be controlled, as well as a host of other leaf-feeding pests. Cutworms and sod webworms in turfgrass also are managed well with azadirachtin.

The key to successful use of azadirachtin is to monitor the pest and make an application when the pest insect is an actively growing nymph or larva. The younger the better.

Insecticidal soaps and horticultural (and dormant) oils continue to gain favor for the management of a variety of ornamental pests. Spider mites, scales and aphids, which often are resistant or difficult to manage with the traditional contact and stomach insecticides, can be easy to manage with soaps and oils. Originally, scientists thought that the soaps and oils suffocated the insect or mite, but we now can see that the action is a bit more complex.

Soaps and oils disrupt cell membranes, causing the cell contents to leak out. This is why the insect or mite must be touched somewhere on the body for the action to be effective.

Soaps and oils also can act as penetrants, aiding in the passage of a standard pesticide through the waxy covering of insect cuticle.

**RAPID CHANGES.** The ornamental and turf management industries are changing rapidly to reflect the wants and needs of their customers. Greater use of IPM principles will require an intensive educational effort for both the industry and for customers. In order to use the IPM tactics, reliance on alternative biorational and biological controls will be needed.

Fortunately, through research, development of proper application techniques and timing have made many of the alternative controls as effective as the former standard pesticides. ■

The author is landscape entomologist at The Ohio State University, Columbus, Ohio.

Editor's note: Mention or absence of any product in this article is not meant to be an endorsement or criticism. Lawn & Landscape Maintenance magazine wants to learn of new products as they are available. Please send announcements to: LLM, 4012 Bridge Ave., Cleveland, OH 44113. Read the label of any pest management product before using.

Historically, landscape services have been fueled by the 'pay for spray' mentality. If we couldn't find something to do on the landscape, we didn't get paid. In short, the green service industry is the last to get paid for our expertise.

# Classifieds

## RATES

All classified advertising is 75 cents per word. For box numbers, add \$1 plus six words. All classified ads must be received by the publisher before the first of the month preceding publication and be accompanied by cash or money order covering full payment. Submit ads to: *Lawn & Landscape Maintenance* magazine, 4012 Bridge Ave., Cleveland, OH 44113. Fax: 216/961-0364.

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