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> Ruppert Landscape's focus on people and profit continues to drive

its healthy growth.

Planting Trees and Ornameniuls In this issue: Erosion Control M Innovations L

Managing Diseases

Versatile Mowing Decks



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USE READER SERVICE #53

Lawn & Landscape

VOLUME 16, NUMBER 5

Cover Photo: Ron Ceasar Photography, Washington, D.C.

FEATURES

90 Cover Story: **LO** Cultivating People

Ruppert Landscape's focus on people and profits has resulted in a strong culture based on growth and success in its markets.

G No-Nonsense **U** Planting Benefits Trees and Shrubs

Proper selection, sensible handling and common-sense feeding techniques will give trees and shrubs the essentials for growth.

FG Erosion Control **U** Gets Complicated

Biological and technical innovations give contractors new tools to tackle more complicated erosion control projects.

6 Managing Diseases in Turf and Ornamentals b

Plant diseases are hard to control, but they can be managed. Good cultural practices and specialty fungicides make the difference.

Q Mowing Decks O Become Versatile

Mulching ease, hydrostatic drive and floating decks are key elements in the contractor's choice of a mowing deck.

88 New Chemistry Impacts the Industry

Imidacloprid offers high performance, low use rates and low toxicity. This presents new opportunities to market pesticide services.

N Business Management Series Part 5: **JJ** Planning for Profit

Learning to budget for profit will add security and sanity to an otherwise unpredictable business. It starts with a good system of tracking costs and profits as they develop.

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Editor's Focus

Protection Agency has halted its efforts to set guidelines for pesticide application posting and notification.

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Editor's Focus

SEASON OF GROWTH. When the growing season comes on strong, many lawn and landscape contractors have little time for anything else other than meeting their production goals. Trying to squeeze in a multitude of services from fertilization to irrigation system maintenance is a big challenge.

The staff of *Lawn and Landscape Maintenance* is challenged too, with a variety of projects. Cindy Code is off on a threemonth sabbatical (one of the unusual benefits employees enjoy here at GIE Publishing Company). The rest of us are working to prepare future issues, answering your many questions and taking the time to learn more about this diverse industry.

We're also preparing for several upcoming programs aimed at making *LLM* more relevant to your daily business. One of them is *Lawn & Landscape On-Line*, which will make a wide range of industry information available directly to your personal computer. Another project in the works is the publication of more customized magazines with an editorial focus targeted to your business mix and geographical area.

Both of these projects center on two-way communication between the *LLM* staff and our readers. As a relative newcomer to this industry, I realize the benefit of talking with you to learn about your problems and successes and understand how your market functions. And I need to learn a lot more. Please feel free to contact me with your suggestions for editorial coverage, news developments, corrections or personal business experiences.

SEASON OF HYSTERIA. Industry insiders tell me another rite of spring seems to be the annual pesticide hysteria story. It usually raises its ugly head in the form of a "study" claiming some awful consequence from using, living near or just "being exposed" somehow to nameless chemicals.

This year's story, which linked chemical lawn treatments and home pest control products to childhood cancers, broke as a report in the *American Journal of Public Health*. In no time, it was picked up by newspapers, radio and television (see page 13). USA Today made a feature story of it, followed by a list of home remedies that included using a hand vacuum for mosquito control and human urine as a spot treatment for weeds.

Each year the story is different, but it has the same result — consumers learn to fear pesticides and the local lawn or landscape contractor gets the heat.

There's something wrong with this picture that even someone new to the industry like myself can see. It assumes that people can't



reason, it exaggerates danger and it makes people afraid of things that have a very remote chance of ever harming them. It also hurts business.

The media cannot resist the controversial side of things. It also has little patience for research, so we see and hear more "headline" stories based on conjecture and opinion that somehow become "facts" to be quoted later. A story built around sensation offers nothing of value to the consumer who wants to make intelligent decisions or understand the events going on in the world.

Green industry groups, however, know how to respond to these stories with dignity and intelligence. They offer facts to counter outrageous statements. They explain the long, difficult process of pesticide registration and show how hard it is for a single product to emerge into the hands of the user. They point to scientific testing methods and challenge any bogus study based on opinion or shoddy research.

The industry's leaders are taking the right track, but I don't think everyone hears it. Those education efforts are just a drop in the bucket compared to what needs to be done. The average consumer will read a newspaper's cover story, but most likely won't see an association's reply letter to the editor a month later. I suspect the public still clings to some pretty old-fashioned ideas of pesticides based on the DDT model.

Customer education should be a priority from the individual contractor on up, not just from the industry associations down. The story of safe, sensible pesticide use should be told over and over again.

It takes a massive effort for the calm voice of reason to be heard above the screaming *i* headlines. And it won't happen unless everyone in the industry, large and small, speaks up. — *Sue Gibson*

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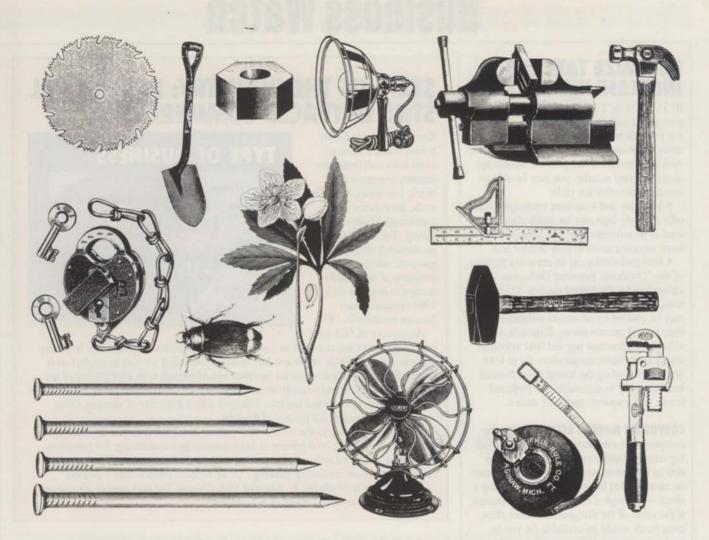
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USE READER SERVICE #66

Business Watch

MINIMIZE TAXES TO INCREASE NET INCOME

IF YOU DIDN'T like 1994's tax picture, plan ahead with two goals in mind: increasing your net income by minimizing your taxes. By investing your company's available cash in investments that provide tax-exempt or tax-deferred income, you may be able to increase your after-tax yield:

 Medium- and long-term municipal bonds offer relatively high after-tax yields compared to taxable investments. This can translate into more income carried to your bottom line.

 Preferred stocks can be attractive because of the "Dividends Received Deduction" allowed under the federal tax law. Corporations, with the exception of "S" corporations, may be entitled to substantial reductions in their federal income tax on dividends, provided the corporations buy and hold individual stocks of domestic corporations for at least 46 days (including the record date). Similar benefits apply to adjustable-rate preferred stocks and corporate preferred stocks.

CORPORATE MARGIN ACCOUNTS. If your company owns marketable securities, including restricted and control shares, it may be able to borrow money against these securities on an as-needed basis — simply by writing a check — through a corporate margin account. If the value of the margined securities rises, extra funds would be available for you to borrow to meet cash flow or other needs.

When your company borrows from this type of account, you avoid the paperwork that a typical bank loan entails, and you don't lose any time waiting for loan processing.

The risks of a margin account should also

STATE OF THE INDUSTRY: RESIDENTIAL STILL OUTPACES COMMERCIAL

Services to single-family homes outrank those to other lawn and landscape industry segments by nearly two times, according to the latest *Lawn & Landscape Maintenance* survey. The study, based on impartial third-party research, asked a random sampling of our 48,000 readers to describe their 1994 operations and forecast business in 1995.

An average of 54.3 per-



cent of the landscape con-tractors, lawn maintenance contractors, chemical lawn care services and ornamental shrub and tree services performed services to single-family homes. Commercial and industrial facilities ranked second, with 28.9 percent of the services. Services to multi-family structures accounted for 10.6 percent of the total, and government or insti-tutional facilities followed with 5.4 percent of services. Other services ranked a mere 0.8 percent of the total.

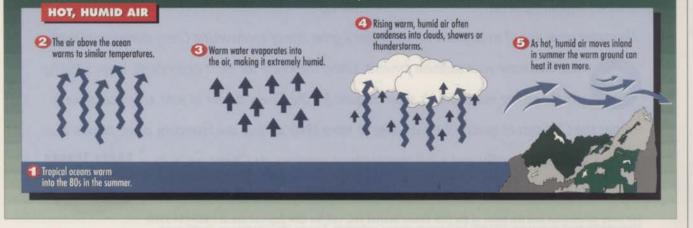
Of those responding to the survey, 40.3 percent described their primary business as landscape contracting; 35.6 percent as lawn maintenance contracting; 6.8 percent as ornamental shrub and tree care; 6.7 percent as grounds management; 5.6 percent as chemical lawn care (excluding mowing). Other services totalled only 5 percent.

*The study was conducted by Research USA, Chicago. The high number of responses gave the data an accuracy range of ± 5 percent.

be weighed. If the value of your securities declines, additional funds or securities would have to be deposited to meet minimum legal requirements. If you fail to make such a deposit, your brokerage firm may liquidate securities to keep the account within legal limits. Before selecting investments and using tax strategies that can help steady your cash flow, contact a financial services professional and consult with your tax adviser. — John Houlihan, Dean Witter Reynolds, Melville, N.Y.

HOW HOT AIR GETS HOTTER

Humid air masses in the United States usually rise in the Gulf of Mexico or the Caribbean Sea but sometimes come from the Atlantic or Pacific oceans. Hot, dry masses form in the desert Southwest.





LOOK BEYOND ORNAMENTALS TO A TOUGH TURF INSECTICIDE

Get tough with **Mavrik***Aquaflow. Mavrik isn't just for ornamentals anymore. New tested, proven rates make it one of the toughest turf insecticides on lawns today. It controls a broad range of hungry surface feeders and nuisance pests –

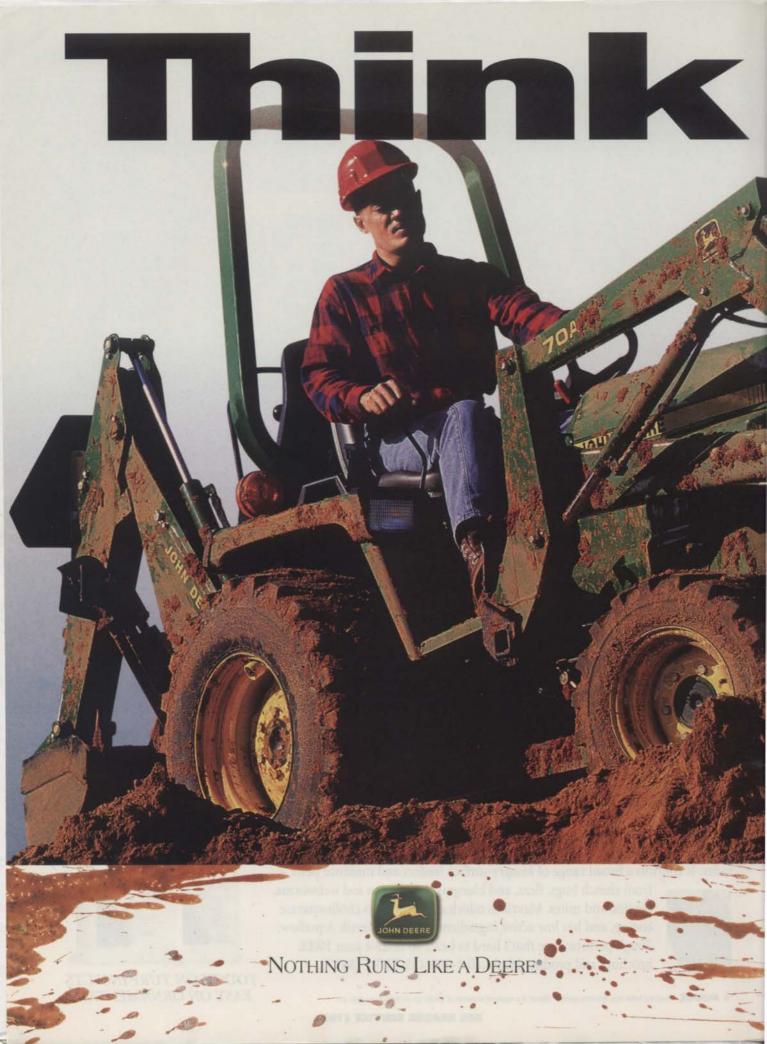


from chinch bugs, fleas, and bluegrass billbugs to sod webworms, beetles, and mites. Mavrik is odorless, requires no cholinesterase testing, and has low active ingredient per acre. Mavrik Aquaflow. Tough performance that's hard to beat. To receive your **FREE** brochure and product label, call **1-800-435-TURF** (8873).



TOUGH ON TURF INSECTS EASY ON ORNAMENTALS

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John Deere compact tractors are out to put you in an ugly frame of mind. No small task considering their inherent good looks. Looks that have often led to the mistaken belief that these hydrostatics are little more than glorified lawn and garden tractors.

But hold the phone. These rugged 20- to 33-hp diesels take second seat to no other compact. In fact, when it comes to tackling tough tasks, these 55s have "ugly" that goes clean to the bone. Especially with regards to wallow-in-the-mud backhoe/loader work like you see here.

And best yet, these tractors are blessed with the fastest hookup times in the industry (just five minutes, without tools).

Ugly can be beautiful. Visit your nearby John Deere dealer and see for yourself. Or call 1-800-503-3373 for information.

Environmental Forum

POSTING GUIDELINES HALTED. Re-

sponsible Industry for a Sound Environment recently reported that the United States Environmental Protection Agency has ended its efforts to set written guidelines for states regarding application posting and notification.

Allen James, executive director of RISE, told *Lawn and Landscape Maintenance* that this decision ends nearly three years of discussions between RISE and other professional organizations who spoke against the guidelines, and the EPA.

"The EPA has decided that this is not a regulatory issue that they want to pursue. We view this decision to be very important to the industries we represent, as guidelines tend to create unnecessary alarm about the products our members represent," explained James.

The proposed guidelines had originally emerged from the EPA in 1993 following a white paper that reported discussions of the agency's Lawn Care Pesticide Advisory Committee. RISE, among other groups, fought to keep the EPA from offering the guidelines, which James called a form of "indirect regulation."

Congressional inquiries about the necessity of such guidelines, as well as the lobbying efforts of RISE and other groups, were instrumental in the EPA's reconsideration of the guidelines, James noted.

Although no formal guidelines will be published, the EPA will make information about posting and notification available to the states upon request, he said.

PLCAA PARTNERSHIP. Kudos to the Professional Lawn Care Association of America, which was recently praised for its participation in the EPA's Pesticide Environmental Stewardship Program. PLCAA is the first green industry group included in the EPA's salute to organizations that demonstrate a progressive approach to pesticide use.

Daniel Barolo, the EPA's director of the Office of Pesticide Programs, wrote to PLCAA officials to applaud the steps that the organization had already taken toward reducing the risks of pesticides. "To advance our common environmental goals, the next steps require collaborative public-private partnerships. (PLCAA's) willingness to join the PESP indicates (its) dedication to these goals, and the staff of the Office of Pesticide Programs are looking forward to working closely with (PLCAA)," Barolo said in the letter.

"This is a great feather in the cap of the lawn care industry," said Tom Delaney, governmental affairs director of PLCAA and the association's liaison for the partnership pro-



gram. "We're developing our environmental stewardship strategy now and, when approved, PLCAA members will be able to publicize their participation."

PLCAA earned partnership status with ongoing projects that promote responsible lawn care practices and the benefits of healthy turf to the industry and the public. Some of the projects PLCAA has initiated include establishing industry advertising guidelines, producing customer awareness brochures on pest control products and launching a national environmental "Benefits of Turf" campaign.

To receive more information on PLCAA environmental awareness initiatives, call 800/458-3466.

CLEAN WATER ACT. As expected, comprehensive Clean Water Act reauthorization legislation was introduced to the House by Bud Shuster (R-Pa.), chairman of the Transportation and Infrastructure Committee. The committee approved the rewrite of the 1972 Clean Water Act by a strong majority, with 13 of the 28 Democrats on the committee voting for the bill and only three Republicans voting against it.

Sections of the bill impacting the landscape industry include risk and cost-benefit analyses, toxic pollutants and on-point source management programs, according to Ben Bolusky, director of governmental affairs for the American Association of Nurserymen. As a member of the Clean Water Working Group, a coalition of leading national organizations, AAN will be reviewing the bill in detail and will be coordinating its legislative strategy.

The bill is expected to reach the House floor soon, but will face a challenge in the Senate's Environment and Public Works Committee, chaired by John Chafee (R-R.I.), known as a strong environmentalist. Most likely, his committee will produce its own version of the bill this summer.

The rewritten bill would bar federal regulators from imposing new restrictions on waste discharges into lakes or streams if the costs outweigh the benefits.

It would also set a three-tier system to prioritize wetlands regulation, repeal a current stormwater discharge permit program and include other language to shift regulatory responsibilities away from the federal government and into the hands of state and local governments.

EPA PRIORITIES. The AAN also reported some of the Environmental Protection Agency's top priorities for its 1996 budget:

• The EPA will stop processing or accepting applications that do not meet the its "safer pesticide" priority. EPA will expand its policy to encourage reduced risk or "safer" products beyond new active ingredients to include new uses of currently registered products, and new or safer formulations of previously registered products.

• The Agency's endangered species program will become enforceable. The program uses pesticide labels and countyby-county bulletins to alert pesticide users of restrictions the EPA believes are necessary to protect endangered species.

• In implementing its groundwater strategy, the EPA expects to publish regulations subjecting specific pesticides to state management plans and proposing strategies to minimize potential groundwater contamination.

EMISSION STANDARDS POSTPONED. The

California Air Resources Board has provided official notice that the Tier I emission standards will not be enforced until at least August, 1995.

According to the Outdoor Power Equipment Institute, the industry successfully argued that the CARB standards could not be officially enforced until the EPA has approved them.

Andy Brooks, chief of the Recall Branch of the Mobile Sources division of the EPA, said that his department will likely be approving California's standards by the middle of this summer.

The nonenforcement period will allow engine and equipment manufacturers to sell products not presently meeting the standard without threat of any enforcement action, OPEI reported.

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1. WHAT IS YOUR PRIMARY BUSINESS AT THIS LOCATION? (Please check only one) COMTRACTOR or SERVICES: Landscape Contractor (maintenance & installation) Chemical Lawn Care Company

(excluding mowing maintenance service) Lawn Maintenance Contractor Ornamental Shrub & Tree Service Irrigation Contractor Landscape Architect Other Contract Services (please describe)

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NEWS DIGEST

Parker Moves Its Manufacturing to Illinois

Parker Sweeper, a division of Minuteman International Inc., recently relocated its Springfield, Ohio, manufacturing operation to a 50,000-square-foot facility in Hampshire, Ill. The Hampshire site, with up to 200,000 square feet available for expansion, is designed to create greater manufacturing efficiencies.

Platte Chemical Widens Distribution

To meet growers' increasing demand for ready-mixed liquid boron, Platte Chemical Co., Greeley, Colo., licensed seven companies to manufacture and sell its patented liquid boron product. The increased production and regional sales networks should speed deliveries of the product.

Echo Breaks Ground for Expanded Growth

A 90,000-square-foot expansion at the Lake Zurich, Ill., facility of Echo Inc. will bring total manufacturing and warehouse space to approximately 250,000 square feet. Rapid growth over the last 20 years necessitated the expansion, which should be completed in June, 1995.

IECA Announces 1995-96 Directory

The International Erosion Control Association's 1995-96 *Products and Services Directory* is now available. The *Directory*, now in its fourth edition, is a primary source of information for the erosion and sediment control professional. For a copy, call IECA at 800/455-4322.

Ampersand Ventures Takes Over Kroy

Kroy Industries, York, Neb., was acquired recently by Ampersand Ventures. The new owners, who focus on emerging specialty materials and chemical opportunities, expanded Kroy's vinyl fence division to increase production by 100%.

Power Equipment Expo To Feature 600 Exhibitors

The 12th International Lawn, Garden & Power Equipment Expo is expected to present almost 600 exhibits in 250,000 square feet, according to show organizers. The Expo, which will be held July 30 to Aug. 1, will feature nearly one million square feet of area for hands-on demonstrations outdoors. For information, call 800/558-8767.

News in Brief

Growth in Business Means That Contractors Compete for Tight Talent Pool

A SURGE in the landscape contracting business inevitably means that competition for good employees gets tighter. This was in evidence this March at the Associated Landscape Contractors of America Student Field Days, held at North Metro Technical Institute in Acworth, Ga.

The event, which brings together competing teams of landscape students from colleges across the country, is held annually in the spring. The program originally started to allow individual students and teams from two and four-year landscape programs to compete in a variety of events to test their skills against representatives of other schools.

The gathering has grown yearly and added another dimension that was particularly obvious this year. It is a major recruiting occasion for many of the country's top landscape firms.

A record 800 students and faculty representing 36 schools gathered with representatives from landscape and industry supply firms for three days of network-



Landscape students rate individual plants during the exterior plant evaluation competition.

ing. More than 40 companies sponsored individual events and used the meeting as an opportunity to recruit students from some of the most well known landscape schools.

"It's a seller's market, as far as these students are concerned," said one contractor. "Competition for good people is tough this year."

Many company participants who visited for the first time last year returned this year prepared to recruit actively. Several first-time visitors this year plan to participate next year.

The competition covered a variety of interior and exterior landscaping skills. Individual events included annual and perennial plant identification, exterior landscape design, interior maintenance estimating, sales presentation, interior plant identification, exterior plant evaluation, interior landscape design, woody plant identification, skid steer operation, weed and turf identification and others. Several events were timed and participants had as little as 30 seconds to identify the common and biological names of specific plants.

Team events included wood construction, maintenance equipment operation, personnel management, landscape installation, patio construction, truck and trailer operation and irrigation assembly/installation. Teams in these events had limited time and were judged on appropriate skill levels, safety and knowledge of the subjects.

RISE, EPA Take Aim At Weak Pesticide Study

The lawn service industry took another body blow in February, with the release of a study linking pesticide use in the home to cancer in children. Chemical lawn treatments, along with professional and do-it-yourself pest control, were implicated in the study, "Home Pesticide Use and Childhood Cancer: A Case-Control Study," which appeared in the *American Journal of Public Health*.

The study generated extensive media coverage in newspapers and television across the country, including a feature story in *USA Today* with the headline, "Home Pesticide Use Linked to Some Cancer in Kids." However, groups including professional associations, the United States Environmental Protection Agency, an independent research evaluator and even one of the study's co-authors have stressed the limitations and shortcomings of the findings. The study matched 252 Denver-area parents of children diagnosed with cancer with 222 parents of healthy children living in similar locations. Parents were asked by telephone interview about their use of certain chemicals, including whether the lawn or other outside area had been treated for any reason.

From the recall of the parents, the study drew conclusions about the role chemicals may have played in the children's cancer. Among other "associations" the study claimed to reveal, yard treatments were said to have a "strong but imprecise" association to softtissue sarcomas in children.

To his credit, study co-author Jack Kleiss warned against making assumptions based on the findings. Kleiss told USA Today that the results are "only a suggestion because of the limitations of our study. You cannot infer cause and effect at all...further research needs to be done to elucidate that." Reaction to the study outside the media has been largely critical. Philip Cole, epidemiologist with the University of Alabama-Birmingham, said the findings present no causal relationship. "The positive results presented are so weak that they could not be interpreted as even suggestive of a causal relationship between home pesticide use and any form of cancer in childhood," he wrote in an evaluation of the study.

Although the EPA is reviewing the study, a communication dated March 2 called the methods used to measure actual exposure "crude."

"In addition," it continued, "the study looks at the broad uses of pesticides in and around homes, e.g. yard pesticides, and not specific chemicals. Thus, the insufficient information regarding what children were exposed to prevents use of this study by EPA as a basis for regulatory action."

Allen James, executive director of Responsible Industry for a Sound Environment, stressed that industry takes concerns about the health of children seriously and supports scientifically valid studies. "That is why these products are tested so stringently before the EPA and our companies permit them on the market," he explained.

"Parents should use common sense pre-

cautions with all pesticides, as with any household product. However, because of the weakness of this particular study, parents should not make decisions based on it," he concluded.

Pittsburgh To Host Decorating Conference

Plantscape Inc. will be presenting its 5th Annual Christmas Decorating Conference June 2-4, 1995, at the Vista International Hotel in downtown Pittsburgh. The conference features seminars on design, sales and marketing and operations for the startup beginner and the advanced professional.

Roundtable discussions and networking sessions are also built into the schedule. For registration information, contact Plantscape Seminars at (412) 281-6352.

PPEMA Reports No Problems with New Fuel

Research conducted by the Portable Power Equipment Manufacturers Association since January of this year reports no significant performance problems with currently manufactured products when operated using the new, reformulated fuels required by the 1990 Clean Air Act. The research focused on performance of twocycle engines used in chain saws, trimmers, blowers and cut-off saws.

Products tested included newly manufactured equipment now being shipped to California to comply with the state's air quality regulations for power equipment.

The PPEMA research program also included a survey of 23 state and regional power equipment dealers' associations to determine if the dealers have received any complaints about the new fuels.

Hand-Held Equipment Outlook is Positive

Shipments of every kind of hand-held, gasoline-powered equipment are expected to rise this year after a strong showing in 1994, according to the Portable Power Equipment Manufacturers Association.

Shipments in the United States are expected as follows: Chain saws to increase by 2.5 percent; trimmers and brushcutters to increase by 4.5 percent; hand-held blowers to increase by 3 percent; back pack blowers to increase by 7 percent; hedge trimmers to increase by 6 percent; and cut-off saws to increase by 9 percent.

(continued on page 16)

THE PROSCHO

Tuflex offers you a full line of tanks to solve your pest control problems, big or small. The experts at Tuflex carefully research and analyze your needs and assist you in designing and engineering the right tank and pump system to your specific requirements. Anything less would be a compromise solution.

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> *Roger Albrecht* Nitro-Green

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USE READER SERVICE #25

"ALCA is the best landscape business resource in the country."

"When I started my business seven years ago I needed expert advice," says Joe Skelton, president of Lifescapes, Inc., Canton, Georgia. "That's when I joined ALCA.

"By attending marketing and technical seminars, using the *Operating Cost Study* to estimate projects, enrolling in ALCA's business insurance program and simply working hard, I have been able to build my business to over four million dollars.

"ALCA is a great resource. Through their meetings, videos and publications, you can find out how to increase sales and profits, reduce costs, and learn about the latest products and technology developments."

Join ALCA today and meet people like Joe Skelton.

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ASSOCIATED LANDSCAPE CONTRACTORS OF AMERICA

News

(continued from page 14)

In 1994, shipments of every type of equipment increased with the exception of trimmers and brushcutters, which fell by 5.6 percent.

Houston Firm Designs New Community Forest

To celebrate Arbor Day in Houston, Texas, the new Houstonian Forest was created in a two-acre quadrant at the intersection of Loop 610 and Interstate 10.

Environmental Landscape Services of Houston, in partnership with the nonprofit group Trees for Houston and The Houstonian Hotel, donated the design and the plant know-how for developing this nature area.

The Forest was planted with a variety of trees, including Texas green ash, Montezuma cypress, crape myrtle, vitex and a variety of oak. When the trees take root and mature, the area will become a public park for the Houston area.

Trees for Houston, which coordinates the orderly planting of trees along the city's residential and commercial streets, donated the trees for the forest. The project will continue to enhance the area for years.



Houston Forest project participants meet.

Tests Show Mulching Makes Weeds Go

A three-year lawn-cutting project has found that grass clippings have multiple benefits when returned to the lawn. The project, sponsored jointly by the Rodale Institute and Garden Way Inc., found that clippings produced a lawn with fewer weeds which also greens up quickly in the spring and stays green well into the fall.

"It has been clearly demonstrated that when grass clippings are mulched into an otherwise fertilized lawn, the grass grows faster because of the addition of available nutrients from the

clippings," stated Dr. Terry Schettini, associate director of United States programs at the Institute. He added that grass clippings contain large nutrient resources that act as an organic fertilizer.

The results, according to Schettini, showed that mulching mower plots had a "lower weed population of dandelions, appeared to green up earlier in the spring and stayed green later in the fall." Plots that tested side discharge mowing with no bagging revealed a grass growth rate located between fully mulched and fully bagged plots.

Foundation Established For Bob Leslie Family

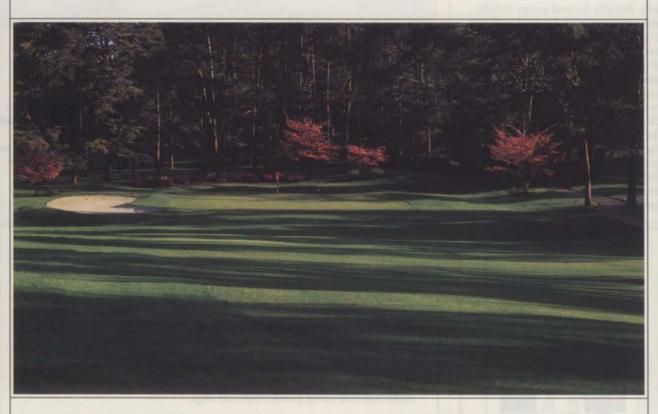
The Golf Course Superintendents Association of New Jersey announced the establishment of a fund for the family of Bob Leslie, who was a victim in the tragic murders at the Montclair post office in March.

Leslie was a commercial representative for the W. A. Cleary Co. and a member of the GCSANJ. The fund, set up by the Association's legal counsel, will be set aside to help provide for the education of Leslie's young children. For more information, contact GCSANJ at 201/379-1100.

(continued on page 113)



Now You Can Get Safe, Long-Lasting Fungus Control And Protect Your Budget, Too!



Nothing controls fungus problems longer – or at less cost – than DYRENE 4 Turf Fungicide, now available through The Andersons and their distributors.

DYRENE is an effective contact fungicide specifically for the prevention of leaf spot, snow molds, rhizoctonia brown patch, scleritinia dollar spot and copper spot. And since DYRENE is in a fungicide chemical family that's different from most other fungicides, it's the ideal choice where rotational fungicide programs may be required for successful disease management.



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Dyrene 4



Association News

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PLCAA

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RISE 1156 15th St., N.W. Suite 400 Washington, DC 20005 202/872-3860



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PNLA

1924 North 2nd St. Harrisburg, PA 17102 717/238-1673

Council. The group hopes to reform the way the federal government develops regulations that impact business.

"Explore Minnesota" will be the theme of the American Association of Nuserymen's convention and trade show July 26-29, which is co-sponsored by the Minnesota Nursery and Landscape Association. Highlights of the program include a series of tours for grow-ers, landscapers and retailers; on-site AAN wage-hour and computer consultants; a new ideas program for growers; and excursions to interesting sites in the Minneapolis region.

New frontiers in the lawn service industry will be the focus of the **Professional Lawn Care Association of America's** conference as part of the Green Industry Expo, to be held in Fort Worth, Texas, Nov. 12-16. Educational sessions will explore new developments in integrated pest manage-(continued on page 20)



MEMBERSHIP in **Responsible Industry**

the environmental debate. Through recruit-

ment efforts, RISE reports it gained 13 new

members this year in the basic, formulator,

associate and distributor categories. Mem-

Several state and national associations have

been licensed by the Associated Landscape

Contractors of America to provide the new

Certified Landscape Technician-Exterior

exams. Recently licensed groups include: Landscape Contractors Association of MD-DC-VA, Illinois Landscape Contractors of America, Canadian Nursery Trades Associa-

tion and California Landscape Contractors

Association. ALCA reports that eight other

groups have expressed interest or are in the

process of signing contracts to participate.

Vicki Buswell, ALCA administrative manager,

is the new director of certification for ALCA.

The flurry of regulatory reform in Wash-

ington has prompted ACLA to join Project

Tom DeLay, House Majority Whip, and

Relief, an ad hoc coalition aligned with Rep.

supported by the Small Business Legislative

bership currently totals 119.

for a Sound Environment continues to grow as more companies become active in

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18

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By the way, make it unbreakable and guarantee it forever.

That's what you told us it would take to make the perfect vineyard and orchard loppers. So we did it. And then some.

Our new line of aluminum-handled loppers cut so clean, so fast, so easy and are so strong and simple to maintain, that virtually everyone who has tested them says they're the best loppers they've ever used.

The blade cuts with astonishing ease. Long, to reach into tight areas; large, to slice easily through mature vines and branches; the blade is Radial Arc[™] ground and clad with a tough, slick, three-layer



fluoropolymer that reduces friction to a bare minimum. This blade requires one-third less force than a conventional blade to make the same cut.

The blade is a separate component. Changing it takes one tool and one minute.

The forged hook is designed to draw the material being cut closer to the pivot. This maximizes leverage and minimizes

the effort required to make a cut. The hook's curvature is shallow enough to easily slip between dense, tangled branches and support wires. Yet it is deep enough to hold the branch securely as the cut is being made. The sap groove is deep and wide for improved self-cleaning

The square-shouldered, right-threaded pivot bolt that enables quick blade change is positioned so that the hook and blade open wide with a minimum of handle movement - in other words, with less effort. And the same coating that makes cutting so easy also self-lubricates the pivot action.

The Santoprene® bumpers, which provide a cushy rebound at the end of each cut, are located low on the tang well clear of the action. Replacing a worn bumper takes only seconds. Tools needed? Your thumb and forefinger.

Our patented new handle design has astonishing strength. The thick-walled aluminum tubing is oval inherently stronger than round or rectangular stock. That strength is then compounded by an internal wedge of

high-density, glass-filled nylon that expands as it is compressed during handle mounting. Even given severe abuse, these handles are almost impossible to break. Given proper use, they're indestructible.

The hand grips are designed for comfort and durability. They're thick, to minimize hand fatique. They're molded of, tough polyethylene and the bottom is extra thick for longer wear when used to drag brush along the ground and into a pile.

Our new aluminum handled loppers come in three models. A 21-inch version with a 1¹/₂-inch cutting capacity



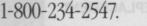
suitable for vines and shrubs. And 26 and 32-inch models with a 2¹/₂-inch cutting capacity for tree pruning.

Like all our professional tools, these loppers come with a lifetime warranty. If they break, we'll fix or replace them. Period.

We're also backing these tools with a "Fast or Free" parts warranty. If your Corona dealer is out of replacement parts, call us. We'll have them to you within 48 hours or they're yours free.

If you try these loppers, we think you'll agree that they're perfect, or close to it. So we're making you this moneyback offer. Buy a pair. Prune with them for two weeks. Use 'em and abuse 'em. If you agree they're the best, buy more. If you don't, return them to us along with a note telling us what you think would make them better. We'll refund your purchase price. Fair enough?

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26-inch AL 6640 and 32-inch AL 6660 cut limbs up to 21/2 inches thick.



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UMINUM BYPASS LOPPER 6620

21" 21"

Self-aligning **Pivot bolt**

21-inch AL cuts limbs up to 11/2 inches thick.

Association News

(continued from page 18)

ment, the fate of pesticides, biological weed controls and understanding epidemiology.

PLCAA also reported that its Certified Turfgrass Professional program, which is jointly operated by PLCAA and the University of Georgia, is catching on around the globe.

In addition to the 45 people who have completed the correspondence course, more than 600 people are registered for the program from across the United States and in countries as far away as Singapore, Israel and Bermuda.

The University of Hawaii gave the **Com-post Council's** National Backyard Composting program financial support through the donation of a \$30,000 grant.

The program, which includes a cost/benefit analysis of backyard composting and development of a standard educational curriculum for trainers, will focus on 60 workshops over a two-year span to train recycling coordinators on the development of backyard composting programs in their areas. In related news, the Council has joined with the **American Society for Horticultural Science Educational Program** to co-

sponsor a series of composting seminars for						
landscape professionals, nurserymen, educa-						
tors and extension agents. The seminars will						
cover proper compost use and application tech-						
niques and will be held at the following sites						
Baltimore, Md July 12-13						
Boston, Mass Sept. 26-27						
Pittsburgh, Pa Oct. 28-29						
Houston, Texas Dec. 11-12						
For more information, contact Adrienne						
Haubert at ASHSEP, 703/836-4606.						

An increase in membership in the landscape field and efforts to clarify the group's mission for state legislators have resulted in the name change from the **Pennsylvania Nur**serymen's Association to the **Pennsylva**nia Landscape and Nursery Association.

President Thomas Tilley noted that other state associations have made similar name changes because they missed having input into state legislation, when state representatives confused the landscape and nursery industries.

New PNA officers in addition to Tilley include: Philip Keil, founding partner of Trail Gardens, as vice president; Carl Jacobs, president of Shiloh Nurseries Inc., as secretary/treasurer; and Harry Barbour, secretary/ treasurer of Stoneboro Nurseries Corp., as immediate past president. IN BRIEF... The Dallas chapter of the Texas **Association of Landscape Contractors** held its first annual Foreman's Field Day in February at Richland College. Employee teams from local contractors met for competition and seminars on safety, troubleshooting, tree trimming and landscape practices... Pennsylvania Turfgrass Council awarded \$175,000 in research grants for turf research to Pennsylvania State University. This brings the total PTC donations to Penn State to almost \$1 million in the past seven years... Organizers of the Green Industry Expo in Fort Worth have announced a new feature for this year's show. It will be a \$15 per day registration option for the trade show only. The registration will allow participants with limited schedules the flexibility to see the exhibits and also admits them to the Outdoor Equipment Demonstration on November **16...National Arborist Association**

presented its Award of Merit to Asplundh Tree Expert Co., Willow Grove, Pa., for its technical advancements to the industry and its participation and support of industry efforts...**Turfgrass Producers International** is planning a study tour of turfgrass sod farms and agricultural activities in Chile and Argentina in October. The tour includes several side trip options.



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Compost Digest

DIFFERENT STROKES FOR DIFFERENT FOLKS

USING MULCH seems so commonplace today that we sometimes take it for granted. It is an automatic part of most landscape jobs, but the veterans in the green industry remember a time when mulch was not so popular. In the last ten years, the market for mulch products has grown mostly because more landscape contractors and homeowners are using mulch.

Forest by-products, once considered a waste product and burned in large piles, are now a valuable resource for many contractors who use them as mulch in the landscape.

Other products, however, have quickly caught on as alternative types of mulch. In fact, it seems that in the last five years, the options for various mulch products has increased tenfold.

Now, instead of using mulches only for moisture retention, many contractors use mulch for its color, reflective capacity in reducing soil heating or ability to increase organic matter in the soil.

MULCH CUSTOMERS. As a result of the variety of mulches in the marketplace, buying patterns and customer profiles have emerged into three distinct groups:

1. Organic mulch customer.

These customers epitomize the title "organic gardener" and they cannot seem to find a mulch that is fine enough or black enough. They love dark, rich organic matter and use it liberally in all plantings. Generally, they have tremendous gardens or equally impressive results in the landscape. Many of these customers are older and have used composted cow manure, leaf compost or other types of humus-rich materials for many years.



Color-enhanced mulches provide a low-cost way of improving a landscape without a major renovation. Credit: R. Tyler

They are usually willing to pay a premium to obtain these products and are meticulous in their work.

2. The traditional mulch customer.

These customers have been using forest byproducts for longer than they have been generally accepted as mulch. In fact, some of these people feel so strongly about using bark products only that they will not even consider using anything else, so any sales effort used in trying to convert them to a new mulch is wasted.

Although pine bark and hardwood bark mulch products dominate this category of customers, they sometimes can be ap-proached about other semi-traditional mulches like cypress or redwood mulch.

3. The commercial mulch customer.

Individuals responsible for maintenance at corporations often have to care for large landscape areas that are not generally viewed from up close. These areas often are mulched with a variety of materials, but especially popular are wood chips and other types of woody mulch products.

Recently, the introduction of colorenhanced mulches has made quite an impact in this market because of its affordability and ability to offer additional color to some older landscapes without complete renovation. The color-enhanced mulches have caught on and now architects are discovering their value as they use different colors to accentuate plantings of perennials during the design phase.

Commercial mulch customers are interested in experimenting with different color combinations to maximize the look of the entire landscape.

ADVANTAGES OF MULCH. With all of these choices of mulch products and the types of customers buying mulch products, let's not forget why we first started using it. Beside the design flare and aesthetic values, other values associated with using mulch to increase or maintain plant growth are listed in the table on page 24.

One of the most acceptable definitions of (continued on page 24)

	IDENTIFYING MULCH CUSTOMER CATEGORIES				
	ORGANIC CUSTOMER	TRADITIONAL CUSTOMER	COMMERCIAL CUSTOMER		
What do they want?	Plant performance, dark or black color is best, want to add mulch each year, plant a lot of annuals and perennials	Have old habits of adding mulch each year, tan is favorite color, reluctant to change or try new color	Are satisfied with utility mulch for weed supression, focus more on lowest cost, no preference on color		
Typical products	Compost, double-shredded bark mulch, bark fines	Hardwood barks, fir barks, hemlock barks, cypress mulch	Wood chips, single-shredded hardwood bark, colored mulch		
Typical market sector	Gardeners, design/build firms, firms with advanced horticulture degrees	Medium-sized contractors, garden sectors, private country clubs	Parks and recreation, schools, muni- cipalities, public golf courses		
Typical age	Older, 40-80	Middle, 30-50	Younger, 20-40		
Sensitivity to price	Price not too important	Price somewhat important	Price very important		

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USE READER SERVICE #61

Compost Digest

(continued from page 22)

mulch comes from Philip Craul's book, *Urban Soil in Landscape Design* (John Wiley & Sons, Inc., 1992): "Any suitable protective layer, organic or inorganic material applied, left on or near the soil surface as

ADVANTAGES AND DISADVANTAGES OF MULCH

ADVANTAGES

- 1. Conserves moisture
- 2. Moderates temperatures
- 3. Reduces soil compaction from traffic
- 4. Protects soil from erosion due to falling raindrops
- 5. Improves soil structure over time
- 6. Protects roots from mechanical injury
- 7. Increass soil fertility over the long run
- 8. Reduces the growth of weeds

DISADVANTAGES

- 1. Reduces gaseous exchange; suffocation
- 2. Rodent damage and root disease
- 3. Restricts evaporation of excess water
- (Source: Adapted from Craul, 1993).

Table 1.

a temporary aid in stabilizing the surface and improving soil microclimatic conditions for establishing (or maintaining) vegetation."

Note that a mulch does not necessarily have to be organic in nature. Many rock-based mulches are useful in walkways or for permanent mulches that are not re-applied every year.

Some bad things do exist with all the benefits associated with mulching. One of the most common problems is overapplication of mulch, especially when it is done late in the season.

When mulch levels exceed two or three inches and when the mulch is mounded around the base of the plant or tree, it forms a natural habitat for mice, moles and voles.

If these varmints find their home before winter sets in, they will use the tender, moist bark or fleshy portion of the plant just above the crown as their food source. Obviously, this can result in some irreparable damage.

Beside the problem with varmints in the mulch, other plants are sensitive to overmulching because it prevents them from getting enough air. Some plants are prone to soil-borne diseases like phytophthora root rot, a condition of wet soils. Table 2 from

PLANTS SENSITIVE TO OVERMULCHING

Rhododendrons		
Mountain Laurels		
Cherry Trees		
Spruces		

Table 2.

Craul identifies some problem plants to consider when using mulch excessively. One symptom of overmulching is the yellowing of leaves without adequate cause.

Many garden centers now carry six or eight mulches in bulk just to appeal to the contractor and the specific job they are performing. When choosing mulches, consider the variables discussed here and try to match the right mulch with the right situation. Also try to be open minded about different color and texture combinations that could make your next landscape intallation or maintenance project an award winner! — *Rod Tyler*

The author is a Certified Professional Agronomist and free-lance writer residing in Medina, Ohio. He is employed by BFI in Oberlin, Ohio.

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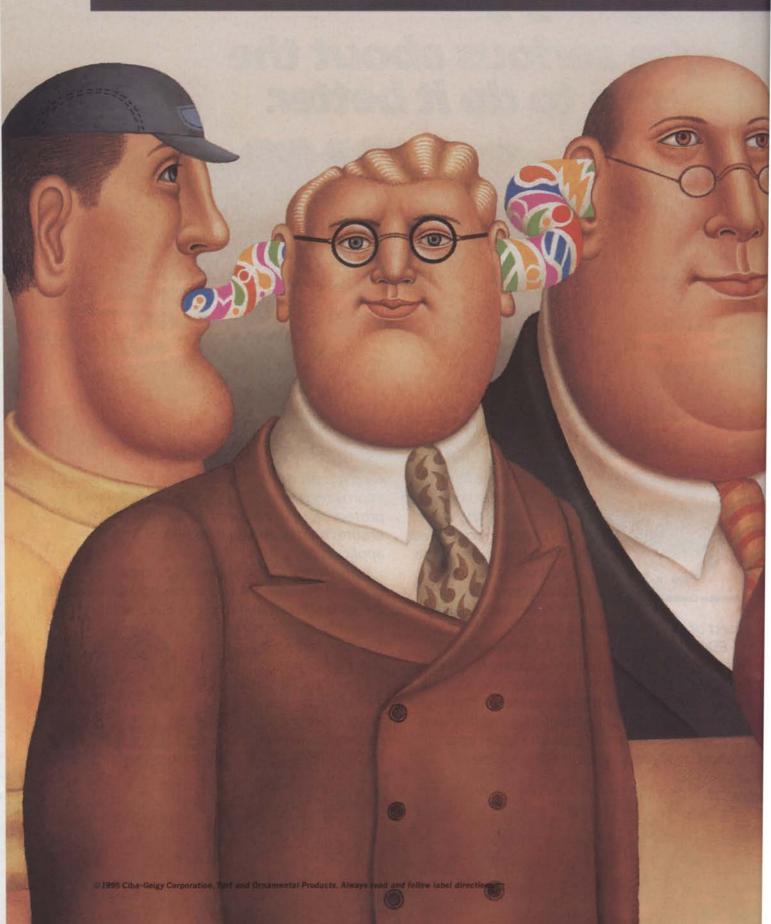
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Each system limits worker exposure, eliminates container disposal, and saves you money. It's the nature of Ciba to let our research be guided by the people who benefit from it the most. Our customers.

That's why we spend so much time keeping up with your needs. While other companies just try to keep up with us.



COVER STORY

Cultivating People Ruppert Landscape commands the respect of memory respect of many people in the

WHAT MAKES Ruppert Landscape tick? More than one competitor has wondered if the company has a magic formula for success. As one of the largest landscape firms in the country, Ruppert continues to set new standardsof excellence and financial performance that challenge most companies in the industry.

Ask this question of any Ruppert manager, and he or she will respond without hesitation: Ruppert ticks because of its people and its focus on growth.

Everyone at Ruppert counts. People are critical to the company's success and they know it. Ruppert's strong corporate culture stresses quality,

hard work, profitability and personal achievement. None of these elements works without the other and all employees know that their hard work and dedication to quality will pay off in two ways: profits for Ruppert and future opportunities for personal growth for themselves.

industry for its

growth and high

performance. Its

focus on profit

growth in the

future.

and people will

outstanding

standards of

A MODEST APPROACH. Craig Ruppert, who started the company and currently serves as president, is quite modest about Ruppert's position among the leaders in the industry. While he admits that the company plays an influential role, he asserts that "we're not an original company, we're just good implementers."

During the early years, Craig and his brother Chris looked to industry role models for guidance. "We've always paid attention to the many contractors out there who do so many things better than us. This includes companies in landscaping and out of it," said Craig.

Learning from the leaders continues to be important to Ruppert's management. "What we're good at is paying attention to what's going on around us. We're not innovators. There are great numbers of companies we've admired. We've learn



from and imitated them, which is a form of flattery," he said.

Ruppert's sentiments are echoed by others at the company. Don Jarratt, vice president, director of the landscape management division, said that the company's position of influence requires constant evaluation of its programs and systems. "Some people would say that we've become a benchmark in the industry, but I can name 10 companies who do things better than we can. There are so many things we can learn from them."

FOCUS ON GROWTH. Ruppert didn't start out as an industry leader. Actually, its roots are typical of many. Craig Ruppert started the business in 1971 doing residential mowing and maintenance work to earn money during high school.

"We did whatever people wanted. We didn't even have a truck. We walked the mower to the houses and cut the grass," he explained.

A few years later, he hired his brother Chris as the first fulltime employee. By the late 1970s, Chris had three or four employees, a few mowers and a pickup truck. He actively ran the business, focusing on administration and sales. When Craig



joined full time in 1980, the brothers reversed roles and Chris took on the production aspect.

With both brothers turning their energies into the business, steady growth became a regular part of Ruppert's business. They perceived that commercial work offered a better prospect of business and they gradually moved away from residential work and into commercial projects.

The company now concentrates on landscape installation and maintenance, but does not do design/build work. "In the commercial market around Washington, there are plenty of good landscape architects and designers," explained Chris Davitt, vice president, director of the landscape installation division. "There is not a great need to provide design work in this market like there may be in other cities."

The early years, especially, showed a phenomenal rate of growth. Craig Ruppert estimated that the average rate of growth for the last 10 to 15 years has been 32 percent. In the last five years, growth averaged closer to 20 percent. "While our growth rate is slower now, our revenues are bigger and our goals continue to get higher," he pointed out. Good people are the asset that drives Ruppert's success. The executive team oversees day-to-day operations (left to right): Chris Davitt, Ken Hochkeppel, Craig Ruppert, Chris Ruppert and Don Jarratt. Photo credit: Ron Ceasar Photography, Washington, D.C.

RUPPERT LANDSCAPE COMPANY INC.

HEADQUARTERS: Ashton, Md. BRANCHES: 10 branches in Maryland, Virginia and Georgia, split equally between landscape installation and landscape maintenance services. ESTABLISHED: Started in early 1970s by Craig Ruppert as a part-time job; incorporated in 1977. PRIMARY SERVICES: Full-service commercial

landscape installation and management (approximate 50-50 split in sales volume); irrigation management; wetlands mitigation through its environmental division.

1994 SALES: \$26 million 1995 PROJECTIONS: \$30 million NUMBER OF EMPLOYEES: Approximately 350 year-round, full-time; 500+ in peak season. About 58 percent of employees are in the maintenance division. OWNERSHIP: Craig and Chris Ruppert (brothers), 50-50 split.

EXECUTIVE SUMMARY

MANAGEMENT PHILOSOPHY: Be a leader in the landscape industry by being an aggressive, efficient and profitable landscape company. Provide quality work and consistently exceed our customers' expectations. Provide an atmosphere where company personnel can achieve their personal goals through the organization.

GROWTH PATTERN: Average rate of growth for last 10 to 15 years is 32 percent; averaged closer to 20 percent growth in the last five years. FUTURE CHALLENGES: Continued growth by expanding into other markets.

EXECUTIVE TEAM

CRAIG RUPPERT: Age 41, president. Started the business while in high school, doing residential maintenance. Hired brother Chris as first full-time employee in mid-1970s.

CHRIS RUPPERT: Age 43, vice president. Initially ran the business, handling administration, accounting, estimating and sales. Switched roles to production when Craig joined the company full time. CHRIS DAVITT: Vice president, director of the landscape installation division. Started with the brothers at age 11 doing odd jobs and working into a full-time position in 1981 after attending college. Handled maintenance and company operations until 1993.

DON JARRATT: Vice president, director of the landscape management division. Joined Ruppert full-time in 1985 after serving three cooperative internships in the landscape contracting

program at Mississippi State University. **KEN HOCHKEPPEL:** Vice president, chief financial officer. Joined Ruppert in 1987, later served as branch manager for both installation and management.

Ruppert recently expanded into the Atlanta market after winning an initial \$4-million contract from the Georgia Department of Transportation. Future plans call for careful moves into other "Ruppert-type" markets. Davitt defined those markets as areas with "plant material similar to what we're used to working with so there is no learning curve, a population big enough to support the market for services and an area that appreciates landscaping."

Davitt said that any decision to move into a new market will be based on the area's long-term potential. "Once we've invested in developing a reputation for customer service, it makes sense to stay and let that investment pay for itself."

The company culture is so closely aligned with growth that the thought of standing still does not compute with Ruppert managers."One of our challenges is continuing to grow, because so many good people want to advance and play a bigger role in this organization," he explained.

Craig Ruppert characterized the company's operating philosophy as "conservative," with an eye for steady growth of profits and cautious spending practices. "We're conservative on how we spend, on what we buy, on how long we keep our equipment. For instance, we maintain our vehicles in excellent condition and keep them for years, instead of buying new ones." The company maintains approximately 180 licensed vehicles.

This prudent outlook, coupled with ambitious growth plans, has been the key to Ruppert's rosy profit picture. "We've always been profitable,' Craig recalled. "Profit is important to us and everyone here is focused on it. They are aware of it as a top priority because profit makes our growth possible, it makes good customer service

possible and it makes long-term personal opportunities possible for the employees." He estimated that the firm is quite profitable compared to industry averages.

DRIVEN TO IMPROVE. One factor that contributed to Ruppert's early growth was its location in the busy market surrounding Washington, D.C. This growing area includes several large competitors experienced in commercial landscape contracting.

"Actually, we were fortunate to be located in a market that is as well developed as ours," said Craig. "There is plenty of good competition in this market. I would say in the early 1980s, Washington was a market ahead of several others from a professional landscape contracting standpoint. The market was strongly developed and there was an appreciation for landscaping."

The brothers looked to the market leaders as models. "In our market, Chapel Valley Landscape established the standards for work. Many area firms conformed to those standards or attempted to. Looking back, this made us all better companies."

Like other owners in the landscape industry, the Ruppert brothers learned from experience. The business of management and leadership doesn't come easy, and they learned to look for guidance anywhere they could find it.

"We've grown up quite a bit over the years," recalled Davitt. "When I joined the company in 1980, we didn't know a lot about personnel management. We just lead by example and ruled with an iron fist. Later, we brought in management consultants and learned a lot from them. We realized that we had much more to learn."

Exposure to the new theories of business resulted in a corporate culture that holds its own with any progressive company. Many elements are at the cutting edge of the quality movement, and some incorporate the most successful principles of Japanese management: people as the most valuable asset, kaizen (constant improvement) and justin-time production, to name a few.

Ruppert used management consultants to provide training in the Deming approach to quality. This has built a strong focus on customer service and work quality, as well as an intensive educational system.

"If we're going to have enough growth to provide opportunities for the people in our company, then we (continued on page 32)

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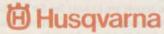


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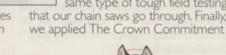


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Cover Story

(continued from page 30)

managers have to educate ourselves," said Jarratt.

The organization doesn't operate with specialists — it expects everyone to function as generalists. "The managers know that their job is to develop people that work for them. Personnel management is everyone's job. Customer service is everyone's job." Davitt said.

This has lead to a culture where managers frequently change roles, question established ways of doing things, devise systems of measuring progress and constantly search for ways to accomplish goals better. "We're driven to succeed," he added.

Driven is a good term to describe Ruppert's employees. "More than anything, I'd say our culture is a group of solid, hardworking people focused on a primary goal: to satisfy our customers through quality work and be profitable," Craig explained. "We are intense in a lot of respects. We bring a lot of energy and motivation to the job."

Ruppert insiders sometimes use the term "Ruppertized" to describe someone who understands the corporate culture. "We have a sense of urgency, of hustle, that is contagious," Davitt pointed out. "New people in the company feel a certain pressure to carry their weight. The longer you're here, the more understanding you have of our culture and the more lessons you learn."

Admittedly image conscious, Ruppert managers sometimes wonder at the company's perception within the industry. From the start, the brothers stressed a good image through clean trucks, neat employees, quality work and an attitude of "hustle."

As the company grew, its image blossomed into one of a standard for professionalism and innovation. Craig Ruppert agreed that the company strives for professionalism in every way, but does not feel it is particularly innovative. "We're looked at like innovators, but I think people assume we're different than we are. We focus intently on the day-to-day operations, the nuts and bolts of running a business."

He stressed that this focus on production is not without an eye to the future. "While it's important to plan, it's most important to get that grass healthy and get those trees planted on time."

CAREER PATH. "I'd say our biggest challenge is keeping good people," said Jarratt, who also oversees employee development and recruiting. "I'd also say our proudest accomplishment is virtually no turnover of our top management."

"People ask me how we hire good employees and my answer is always the same — there's always a way to do it," Davitt explained. "You can grow and you can get good employees. Some people are looking for the equation that will make it easier, but I don't know of one — just work hard to get good people, appreciate the employees you have, and listen to them."

While Ruppert does experience turnover, it is mostly at the crew level and the rate is "probably lower than the industry average," Jarratt noted. New employees enter a training program developed to give them the tools they need to succeed on the job and to help them achieve as much as they can within the firm.

It starts with the "Ruppert Values" brochure, which explains the company's mission, its expectations of customer service, the meaning of hard work, the importance of saving money and the value of projecting a good company image.

The employees then get a punch card that records any of the 44 courses offered in the training system. Everyone attends orientation classes on the company's values, history and structure. For field workers, additional orientation courses mix field and classroom study.

Production workers get two more classes on customer service and general safety techniques. Landscape installation crew members then study basic landscape planting (one hour in the field and one hour in class). Maintenance crew members review equipment operation (in the field and in class).

Theoretically, an employee could complete the entire series of classes in one month, but it typically takes about two years with changes in season. The series covers topics in Ruppert's internal curriculum on hiring, management techniques, pruning, backhoe operation, time management for production workers, time management for managers and many other subjects.

The large number of Hispanic workers employed by Ruppert necessitated the development of an internal English curriculum for Spanish speakers. The language barrier has challenged Ruppert managers in their dedication to providing clear and open communication with all employees.

Each of the company's 10 branches offers elementary and mid-level English speaking classes that employees can attend at night. In addition, all company correspondence, including an employee newsletter, are printed in both English and Spanish. The emphasis on learning English gives employees the opportunity to pursue a career path in the firm.

"We decided to teach English because our customers speak English," Jarratt explained. "Learning English will help our Spanish-speaking employees in their lives outside of work."

Several Spanish-speaking employees "on the cusp of promotion" were offered participation in an advanced English course. "This was out of house at the university level," Jarratt said. "The language barrier was holding these people back so we gave them a six-week English-language immersion program."

The company's annual field day brings together all employees for competition and fun. Last year's program featured a local Spanish celebrity from a television show in Washington, D.C., as the keynote speaker. According to Jarratt, the decision to invite the speaker was made as part of the philosophy that it is "important that the Spanish-speaking employees feel the company's commitment to them."

The presentation was entirely in Spanish, which was a switch for the English-speaking (continued on page 34)





5 oz. rate* after 24 hours HODGE PARK G.C., Kansas City, MO



8 oz. rate after 48 hours — Home lawn of turfgrass researcher, Bryan, TX



3 oz. rate (alternate 5 yard sections treated) Photograph after 72 hours. MONTGOMERY H.S., Crawfordsville, IN

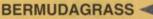


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Cover Story

(continued from page 32)

workers. "It gave us an appreciation for the kinds of things (the Spanish speakers) have to deal with every day," Jarratt explained.

SHARING KNOWLEDGE. Communication is a continuing struggle, especially as the company continues to grow, Jarratt pointed out. One new tool that managers rely on heavily is the computer.

Ruppert operations have evolved into a system that tracks resources, operating expectations and actual performance. This information is shared among all 10 branches. The 10 branch managers are equally divided between landscape installation and landscape management, with one branch handling all irrigation management projects.

The tracking system is especially critical because Ruppert has stressed individual autonomy and responsibility for each branch manager. "Our branch managers are like individual business owners," said Davitt. "They have as much autonomy and authority as possible.

"We see them as 'mini-Ruppert' companies —they hire their own people, set their own bonus programs, sell and estimate their own work and determine their own margins. One manager may be bidding for a lot more work than another branch — that's his decision."

How does corporate management fit into this arrangement? "We give them guidance on margins and we share information with them," he explained. "We want them to be individual, but we also don't want them to have to relearn some mistakes another branch made. Therefore, we give them guidance from the top."

Davitt continued: "There are thousands of lessons we've learned through the years, and we've learned more as we've let managers grow into their jobs. Our challenge is to find a way to pass along all those lessons. We may be learning something today in Maryland that should be passed along to our branch in Atlanta. Keeping the communication lines open is key, and creating a system that can be made into a management tool to be used everywhere in the company is the challenge."

Ruppert reinforces its training and support

programs with an annual management development day, when approximately 200 people in management meet for brainstorming, presentations and panel discussions with customers. "We hear a variety of customers and find that it's a tremendous learning opportunity to know their views," said Jarratt.

Customers are surveyed annually on Ruppert's service. "We've had customer focus groups that discussed our rating system and they told us what kinds of questions we should be asking," Jarratt noted. "We'd like to hold at least one focus group at each branch yearly."

Ruppert management also remains committed to the principle of "generosity of information." Craig Ruppert explained: "We believe that autonomy is created through information sharing, and we are quite open with our financial information. We share financial statements with employees on a regular basis."

He believes that sharing information is necessary for employees to understand the company's mission. "This empowers them and they start to think like managers and owners when they understand the big picture."

SHARING POWER. Ruppert's rapid growth has forced its managers to wear many hats over the years, but the hardest one to don is that of people manager, they agreed. The key, they also agreed, was good communication.

"Sometimes the absolute hardest thing to do is to realize that my job is creating an environment that makes people want to work hard for the company," said Davitt.

Jarratt has seen the company emerge from the entrepreneurial stage into a corporate entity. "Typically, the entrepreneur by nature is rather domineering," he reflected. "Instead, we have a team of managers that works well together."

As president, Craig Ruppert believes it is even harder to stay attuned to the nuances of the workplace in a large company.

"I'm the last one to know things sometimes. I've found that when you're in a position of leadership, people tend to tell you what they think you want to hear. I have to listen carefully (continued on page 114)

Ruppert employees gather at the annual field day for installation and maintenance competition, special programs and fun.





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No-Nonsense Planting Benefits Trees and Shrubs

Proper selection to match the site, sensible handling and common-sense feeding techniques give trees and shrubs the essentials for healthy growth.

by Steve and Suz Trusty



Select plant varieties that will thrive in a particular landscape setting. Photo credit: S. Trusty

BECAUSE TINY acorns grow into mighty oaks in a crowded forest, it should be easy to plant more mature, nursery-grown trees and shrubs — right? Actually, it's a complex task. Consider the number of mighty oaks in that forest compared to the hundreds of acorns produced by a single tree.

Matching an appropriate plant to site conditions and planting it properly takes horticultural knowledge, a flair for landscape design and some demanding physical labor.

The first step in the process is determining the basic characteristics of the landscape and their suitability for planting. **CHECK THE SITE.** Use a shovel or soil probe to "pull" samples from the proposed planting sites. Examine the texture to determine its suitability for supporting the growth of various types of trees and shrubs.

Soil testing can determine soil texture more precisely and will identify the pH level and any nutrient deficiencies.

Soil texture will affect both water infiltration rates and drainage. Some plants prefer "wet feet;" others thrive in much drier soils. Many plants can withstand long periods of heavy rain as long as the soil drains sufficiently to avoid puddling around the roots. In the same yard with similar soil properties, low areas will be wetter and high areas drier. To check the drainage of a specific site, dig a hole to the appropriate depth and fill the hole with water. If any water is still standing after 24 hours, additional drainage will be required for all but the moisture-loving plants.

Use the site "basics" to narrow down a range of possible plant choices, then move to the specifics. Will the plant be evergreen or deciduous? What is the preferred mature height and spread? Is a slow, medium or fast-growing plant preferred? What specific features are most important: overall hardiness; seasonal bloom; plant form; leaf size or shape; fruit production; insect and disease resistance; low maintenance; winter color or branching formation; or shading or wind blocking ability? The plant's contribution to the beauty and usability of the overall landscape should also be considered.

Even after this weeding-out process, there can be many plants that would be appropriate. The final decision may be based on personal preferences and availability.

SELECT THE PLANTS. Once the plant variety has been selected, the actual plant must be chosen. Here again, there will be multiple choices depending on the plant variety, desired plant size, region of the country and season of the year.

Some plants are best harvested during the dormant period or when growth is just beginning; some are best planted in the fall; other plants can be harvested and planted nearly any time the soil can be worked. Check with local sources for the preferred timing for specific plant varieties.

Small deciduous trees and shrubs may be available in bare root form for planting in the late winter or early spring. These plants are either dormant or just beginning to grow. There is no soil around the roots, but they may be packed in a moisture-holding material and wrapped or bagged in plastic.

Small to medium-size evergreen and deciduous plants may be available in containers. These plants will be growing actively during their normal growing period and dormant during their normal dormant cycles. Containers can be baskets or pots made of fiber, metal or plastic. Because little root disruption occurs, container-grown plants can be planted successfully anytime except when the ground is frozen or during intense heat.

Medium to large plants may be balled and burlapped (B&B). These plants have been harvested from growing fields and their roots and the surrounding "ball" of soil are wrapped in burlap. The burlap will (continued on page 45)

Husqvarna

Tree care products

PRUNING SAWS & LOPPERS CHAIN SAWS • HAND TOOLS

MIIII 1



Regular maintenance pruning in parks and the city environment is very important. It keeps trees strong, vigorous and beautiful, so that they blend in well with the environment.



When pruning fruit trees it is important that each cut has a definite purpose. If done properly, trees will remain healthy and beautiful, and provide a good harvest for many years to come.



meaning of the second

The aim of stem pruning is to give a higher yield of knot-free timber. You should start when trees reach a diameter of around 4" and prune up to a single log height. However, at least two thirds of the green crown should be left.



Tree care—giving trees a helping hand.

Sensible tree care saves trees, time and money, if it is done correctly. Besides ensuring that trees remain healthy and vigorous you also create a more beautiful tree with an individual character typical of its species. This gives a great deal of pleasure, as well as long-term savings.

Tree care requires an understanding of pruning techniques and how to control shoots and branches, but it also calls for imagination and the ability to visualise the tree as it will look in the future. And of course you need the right tools. This is where Husqvarna comes in, with a full range of quality tools.

Types of pruning

As far as pruning is concerned, there are three phases in the life cycle of a tree that determine the choice of method:

Establishment pruning is carried out when a tree is planted in a new environment. It is designed to adapt the tree to its new surroundings, and includes removing and repairing any damage that has occurred during transport.

Growth pruning is the most important form of pruning. This is done while the tree is growing, between 1 and 10 years. This is when the tree develops the individual character of its species, which gives it a stable and beautiful form when it matures.

Maintenance pruning is carried out on mature trees and is a continuous process of controlling and removing undesirable, damaged or wayward branches, as well as thinning out the crown.

Pruning procedure

The following are general hints and may be adapted to suit your own ideas or plans.

• Study the growth pattern of the tree and the shape of the crown.

- Remove any dead, damaged or diseased branches.
- Choose a leading shoot (straight continuous shoot with a tip).
- · Remove badly positioned branches.
- Remove double stems.
- · Remove stem shoots.
- Prune the stem if necessary.



Give yourself a twentyone feet reach without lifting a foot.

The Husqvarna 250PS is a highly effective hydraulic pruning saw with a powerful two stroke engine. It lets you limb and prune in safety while keeping your feet firmly on the ground. The equipment is light and easy to carry, so you can move quickly from tree to tree. It is carried in a comfortable harness on your back. The weight is spread across your hips and shoulders to give you maximum freedom of movement. The 250PS has vibration damping and is very convenient to work with.

Choose between four different shaft lengths, 2, 3, 4 or 6 meters. All have automatic chain lubrication and are electrically insulated. Always check local regulations and requirements before carrying out any work near current carrying equipment.



When cutting branches it is often necessary to make several cuts to prevent splitting. The cutting head of the 250PS and 235P is jointed so that you can easily adjust it to the desired angle. When you cut a branch close to the trunk it is important to leave the collar. This is a natural defense feature of the tree and helps the wound heal over.





The shaft can be connected to other hydraulic sources, for example on a raised working platform. A special valve unit adjusts the pressure and flow rate from the external source. Flow is controlled manually using a hand control that clips onto the shaft.



With the aid of a special adapter the 250PS can also be combined with shaft-mounted loppers.



The 235P is available with two different cutting heads; scissors or blade. Scissors are best for high precision work. A blade is more suitable for use at full stretch or for thinning dense bushes.





The 235P can cut branches up to 1.5 inches (40 mm) in diameter.

Quick, convenient pruning with minimum effort and expense.

The Husqvarna 235P is a very fast and effective hydraulic lopper. It is easy to use and can be carried comfortably. The harness is easy to put on and spreads the weight evenly over a large area. The powerful engine, which is mounted on steel springs to minimise vibration, is also very fast. It takes only 0.9 seconds to accelerate from idle to finished cut.

Economical and flexible

The system is very fuel efficient because the engine runs at idle speed most of the time. The 235P can be fitted with two different cutting heads and two different lengths of shaft; 2 or 4 meters. The shaft is very light and easy to handle.



On both the 250PS and 235P the throttle control can be positioned anywhere along the shaft. This ensures a comfortable working position and saves you having to move your feet to reach different heights.



When you cut a shoot you should prune it as close to the bud as possible, without damaging it. The same applies when pruning a side branch. Cut as close to the main branch as possible without damaging the collar.

Husqvarna's world-famous chain saws.

Husqvarna chain saws have reaped successes all over the world. Many of our design solutions have set the standard for other manufacturers.

Our comprehensive range of chain saws includes over 20 models. Everything from handy and compact electric saws up to powerful machines for the toughest of environments. At Husqvarna we guarantee you will find a saw that meets your needs.

Perfect for tree care

Because of their lightweight construction and smooth sides you can use our saws in the most restricted of spaces. They have excellent vibration dampening and are very easy to start. Smart Start is one feature that is invaluable when working on a raised platform. Husqvarna saws also have inertiaactivated chain brakes.

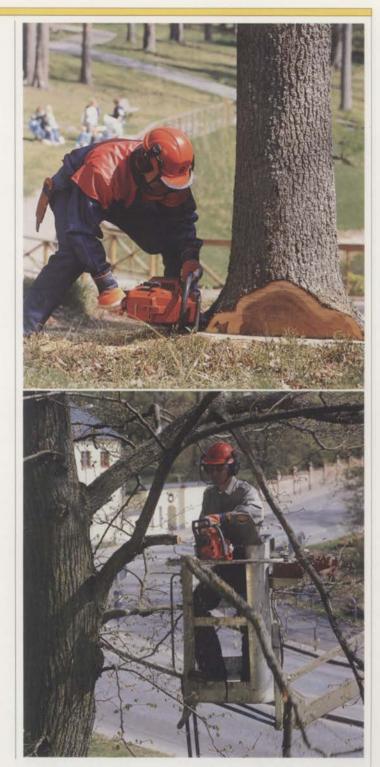
For tree care we would particularly recommend the Husqvarna 42, 257 or 394XP, each equipped with Smart Start.



Smart Start A decompression valve makes our saws extremely easy to start. Gentle fore-

finger pressure reduces the compression, so there is very little resistance when you pull the starter.

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Husqvarna 42

The chain saw with the best power-to-weight ratio in its class. Light in weight, with a slim body. Smart Start and a combined start/choke control ensure quicker, more reliable starting. Air Injection Many models are available with Air Injection, Husqvarna's revolutionary air filtering system.







Our bow saw has an adjustable blade that you can set to the required angle for easy pruning and limbing. The saw is solidly constructed and has a point hardened blade.

The folding pruning saw is very versatile and convenient enough to carry anywhere.



Husqvarna quality in every detail.

Practical and reliable hand tools are just as important for the tree surgeon.

Our hand tools are the result of just as much attention to detail as we lavish on our forest and garden machines. Extensive experience and continuous product development have taught us what it takes to make products of world class quality. You will not be disappointed by a Husqvarna hand saw.



This pole saw with bark knife has a curved blade with a hook at the tip. The hook can be used to attach a line with which to apply greater pressure during cutting. The bark knife is used to cut the bark before you begin sawing, to prevent it flaking off when the branch falls. The blade is impulse hardened. The telescopic shaft can quickly be extended from 8 to 16 feet.

Husqvarna 250PS and 235P are highly effective hydraulic pruners that are very convenient to work with. Both feature Husqvarna's renowned attention to performance, durability, ergonomics and safety.



Quick couplings on hoses ensure rapid connection of the shaft to the engine. A feature that also simplifies transport and gives added flexibility. With the addition of special valve unit the shaft can be connected to an external hydraulic source.



Lightweight harnesses are very easy to put on and spread the weight evenly over a large area. The broad hip belt carries most of the load and allows you to move your arms freely. Engines are well insulated and mounted on a generously padded, ventilated back support to eliminate irritating vibration.

There is a choice of two cutting heads for the 235P (scissors or blade) and two shaft lengths (2 or 4 meters).

> The 250PS is available with a choice of four shaft lengths; 2, 3, 4 or 6 meters. All are lightweight, versatile and convenient to use.

	CYLINDER VOLUME	POWER	MAX. NO LOAD RPM	NOISE POWER/ PRESSURE	VIBRATION RIGHT/LEFT	SHAFT LENGTHS	WORKING PRESSURE	FLOW RATE	ENGINE WEIGHT
250PS	3.0 cu. in. (49 cc)	2.1 kW/2.9 hp	11,000 rpm	106/96 dBA	3.0/3.0 m/s ²	2–6 m	1600 PSI (110 bar)	3.4 GPM (13 l/min)	17.6 lbs 8.0 kg
235P	2.2 cu. in. (36 cc)	1.3 kW/1.8 hp	10,500 rpm	106/92 dBA		2–4 m	1600 PSI (110 bar)	2.0 GPM (7.5 l/min)	16.5 lbs 7.5 kg

All figures obtained from our R & D department. Time-weighted sound levels according to applicable CEN-standards.

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Trees & Shrubs

(continued from page 36)

be secured by pinning nails, staples, twine or any combination of these.

B&B plants may be moved directly from the field to the planting site or placed in a nursery or landscape holding area where the root balls are mulched to protect them from drying out. Larger B&B plants may be placed in wire baskets to simplify their installation.

Some B&B plants, held for later planting, are placed in containers and have their root balls surrounded with a planting mix or mulching material.

During all but the hottest time of the growing season, larger evergreen and deciduous trees may be harvested from the field with a tree spade or other tree-moving machine for transport directly to the site.

B&B and plants dug up with tree spades do undergo some root damage during the harvesting process, but generally can be planted during the same periods as containergrown plants.

The type of plant "packaging"

preferred may also be influenced by cost. Obviously, small bare root plants will be the least expensive, with plant costs rising depending on the size, of the plant, the plant growth rate and market demand.

Whichever type of packaging is chosen, look for a healthy plant. Trees should have straight trunks and even branching. Shrubs should have well-spaced stems that are fairly even in size. Avoid decidumaking a well-balanced "circle" around the perimeter of the plant.

PREPARE FOR PLANTING. All trees and shrubs should be planted at, or slightly above, the level at which they were growing in the field or in the container. By close examination, you'll be able to determine the slight color change that marks that level on the tree trunk or shrub stems.

The type of plant 'packaging' preferred may also be influenced by cost. Obviously, small bare root plants will be the least expensive.

ous and broad-leaved evergreen plants with scarred or scuffed trunks and branches. Avoid needled evergreens with uneven form and broken branches.

Examine the root development of bare root plants. The roots should be flexible, have multiple developing "rootlets" and be evenly formed, The native soil from the planting hole may be amended to form the backfill and a shallow below-plant layer when planting shrubs. Use from 25 to 50 percent sphagnum peat moss to amend the soil for acid-loving plants; the same amount of compost or other organic material for shrubs requiring a more neutral pH. During normal growing conditions, the fibrous roots of shrubs will root through the amended soil into the native soil within six to twelve weeks.

Don't amend the native soil when planting trees. Since the eventual root growth must expand far beyond the original planting hole to support proper tree growth, the roots must begin growing actively in the native soil as quickly as possible.

Forbareroot, B&B and container plants, dig the hole deep enough so the plant will be set at the correct depth. Make the width of the hole between two and three times the spread of the plant roots and keep the sides of the hole perpendicular to the soil surface. If you'll be amending the soil for shrubs, remove a portion of the native soil at the base of the hole and replace it with amended soil. Tamp the soil down well.

The planting hole for trees and shrubs planted with a tree spade is usually dug by the tree spade before the plant is dug. The size of the hole and the size of the root mass are then matched.



FORM FOLLOWS FUNCTION

SET THE STAGE for success by choosing the right plant for the site in the first place. There are two basic methods of approaching plant selection. One is determining the best site for a preselected plant, as when a customer wants a specific plant or even a specific variety of a plant included in the landscape. The other, more typical, method is determining which plant is best suited to fulfill the functions of the design and to fit the site's conditions.

Each tree or shrub in the landscape should have at least one purpose. Other contributions are a bonus. For example, a tall, spreading, deciduous tree might be chosen primarily for its shade. Excellent leaf color in the fall and an interesting branching structure and bark pattern would be bonuses. An evergreen shrub might be selected to screen trash containers, but also would add color to the winter landscape and shelter for birds and other wildlife.

Trees and shrubs are the most permanent components of a site. In today's mobile society, few homeowners stay in one residence for a lifetime; many move every two to five years. Shrubs may live for 10 to 50 years; trees for 20 to over 100 years. The landscape "fit" is critical, especially because these sturdy sentinels can outlast the property's structures and even multiple generations of human inhabitants. A well-placed mature tree makes a statement about the foresight and expertise of the one who planted it.

Keep in mind that tree roots may expand out half again beyond the width of the tree's spread and may eventually cause damage to hard-scape within that circumference.

If the tree must be situated in a location where this is a potential problem, consider using physical or chemical tree root barriers during installation. These barriers force young roots downward or inhibit their growth in outward directions.

Once the main and secondary functions of a plant are determined, the next step is matching the plant to the site conditions. Many elements must be considered, including soil type (sand, clay, or loam); nutrient and pH levels; temperature extremes and patterns; natural moisture patterns; drainage; the amount and intensity of sun and shade; prevailing seasonal winds; existing structures, hardscape features and other plants; and any anticipated changes to the landscape that might alter the site or its microclimate.

Just as with turfgrass, it's best to avoid monoculture. Choose a variety of trees and shrubs to avoid excessive damage to the overall landscape due to extreme weather conditions or a plant-specific insect or disease infestation. Diversity also brings more interest to the setting by allowing plants to accent and complement certain features of other plants with variations in color, texture, form, shape and pattern.

The United States Department of Agriculture has established hardiness zones based on temperature extremes. Plants are listed as hardy within a range of these zones as a good starting point.

Local university horticultural departments, extension services and nurseries can recommend the specific cultivars that perform best under regional conditions and that are less susceptible to the area's pest and disease problems.

Use a shovel or spade to score and rough up the sides of the planting hole. This allows easier entry for newly-developing roots.

With all plants, check the angle of the plant, turning it to create the best effect, and adjusting the hole "level" before planting.

Tree root barriers can be installed at this time. These semirigid plastic strips can be placed along sidewalks or other hardscape, or shaped around the planting hole of young trees. Make sure the placement of the barrier is not too close to constrict the root ball.

PLANT BY 'PACKAGE.' Planting methods will vary somewhat according to the type of "packaging" that is provided for the plants.

On bare root plants, remove the packaging and trim away any dead, damaged or broken roots. Soak the roots of bare root plants for at least an hour (up to 24 hours) before planting. A liquid root stimulator may be added to the water during the soaking period.

Build a relatively wide "cone" of soil that extends upward at the center of the planting hole. Position the plant roots evenly around the cone.

Trees and shrubs play a major, long-term role in the function of a landscape, sometimes living for 50 to 100 years. Credit: Trusty Check the plant height compared to the surrounding ground level by placing a straight board across the hole. Adjust the cone height and width as necessary for positioning.

Hold the plant in place and gently backfill the hole to approximately one-half its depth. Fill the hole with water. Allow the water to soak in, then use a probe or shovel handle to clear away any air pockets the water hasn't already removed.

FILLING THE HOLE. Carefully fill in the rest of the hole, making sure the plant remains at the proper level. Probe the soil again to remove air pockets. Water thoroughly and after the water soaks in, probe again for air pockets.

In heavy soils and chronically wet areas, the top "finish" of the hole may be rounded above the soil level, sloping gradually away from the plant back to the soil line. But, even this final soil level should be at — or slightly below — the previous soil level.

In sandy soils or chronically dry areas, form a slightly depressed "basin" around the plant, leaving a higher soil ridge around the perimeter of the basin.

This basin will catch natural rainfall and trap the irrigation water to ensure adequate moisture during those critical early weeks of establishment. If rainfall becomes excessive, simply cut an opening through the trench to allow water to escape.

For container plants and B&B plants, the base of the planting hole should be flat or slightly raised in the center to ensure that the plant "sets" properly. Water these plants (continued on page 48)





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Trees & Shrubs

(continued from page 46)

well the day before planting to ensure cohesion within the soil mass.

Always remove plants from plastic and metal containers. If you're not sure whether baskets or fiber containers have been treated with a preservative, or if fiber containers have an inner layer of preservative material, it's safest to remove them. Small plants can be "tapped out" of containers.

For larger plants, cut through the container in at least two places and lift the plant out. If the plant is heavy, set it in the planting hole to make the cuts. On untreated baskets and fiber pots, cut away the base and the top half of the container.

Probe gently into the top portion of the container plant. Some B&B plants placed in containers still have twine and burlap intact. If you encounter this, proceed as with B&B plantings.

Remove the wire baskets from B&B plants. Again, if plants are heavy, position them in the hole before removing the basket. Cut away and remove any wrapping twine from around the trunk or stems of the plant. Remove all treated burlap from the root ball.

If you're sure the burlap is a natural, untreated fiber, it can be pulled back from the top half of the

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root ball and draped around the lower portion. The natural material will soon deteriorate.

Check root development at the outer edges of the container and B&B soil masses. Tender roots should be developing evenly across the soil surface. If root tips have dried out, cut them back to good tissue.

If roots circle around the soil mass, either unwrap them, cut them off or score the soil ball to a one inch depth in at least four places evenly spaced around the root mass.

Proceed with the backfilling and watering processes as described for bare root plants.

ESTABLISH GROWTH. As the trees and shrubs become established and continue their growth, roots will extend into the native soil. With shrubs, and even mature trees, at least 90 percent of all feeder roots are in the upper eight to 18 inches of soil. Active feeder roots will extend from just inside the "drip line" outward.

On mature trees, the root spread may reach out to half again the width of the tree's spread - for

> Studies have shown that mulch layers deeper than three inches can be detrimental to plants.

example, to 45 feet on a tree with a 30-foot branch spread. The majority of the plant's water and nutrients will be absorbed by these roots.

Water newly planted trees and shrubs to augment inadequate rainfall. Even with no natural moisture, watering thoroughly once every week to two weeks will be sufficient.

Only extremely weak or crooked trees and shrubs should be staked. Many researchers have reported that staked plants can develop a dependency on the stake support, failing to develop trunks as broad and sturdy as unstaked trees. When trees must be staked initially, the stakes should be removed within a year of planting.

Mulching within, and slightly beyond, the drip line of trees and shrubs creates an attractive effect, keeps the soil cooler and provides a safety barrier against mowers and string trimmers.

The effectiveness of mulching for weed protection and moisture retention has shown mixed results in some recent tests. Studies have shown that mulch layers deeper than three inches can be detrimental to plants.

Also, mulch should never be placed directly against the trunks of trees. Trapped moisture along the trunk can invite insects and disease organisms during the growing season and hide hungry rodents who nibble on the bark during the winter months.

Young, smooth-barked trees can be wrapped from the soil level up to the lowest branches to (continued on page 50) Pin Point Sprayer Accuracy Compatible With Technical Materials No Chlorides & Low Salt Index Root & Foliar Absorbed Total Control - Down To The Micron

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Trees & Shrubs

(continued from page 48)

protect the trunks from sunscald. Apply this wrapping in the late fall and remove it when growth resumes in the spring.

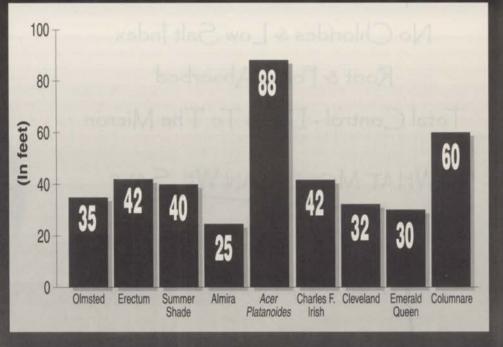
FERTILIZE CAREFULLY. Although trees and shrubs require a steady supply of N, P and K, along with a broad assortment of micronutrients, newly planted trees and shrubs need little fertilizing initially.

Nursery-grown trees and shrubs generally have been supplied with adequate nutrients during the production period. Often, slow-release fertilizer tablets, packets or granules have been incorporated into the growing media.

Adding a root stimulator to the water in the initial "settling in" process can be beneficial. The hormones contained in many of these products have shown success in speeding root development.

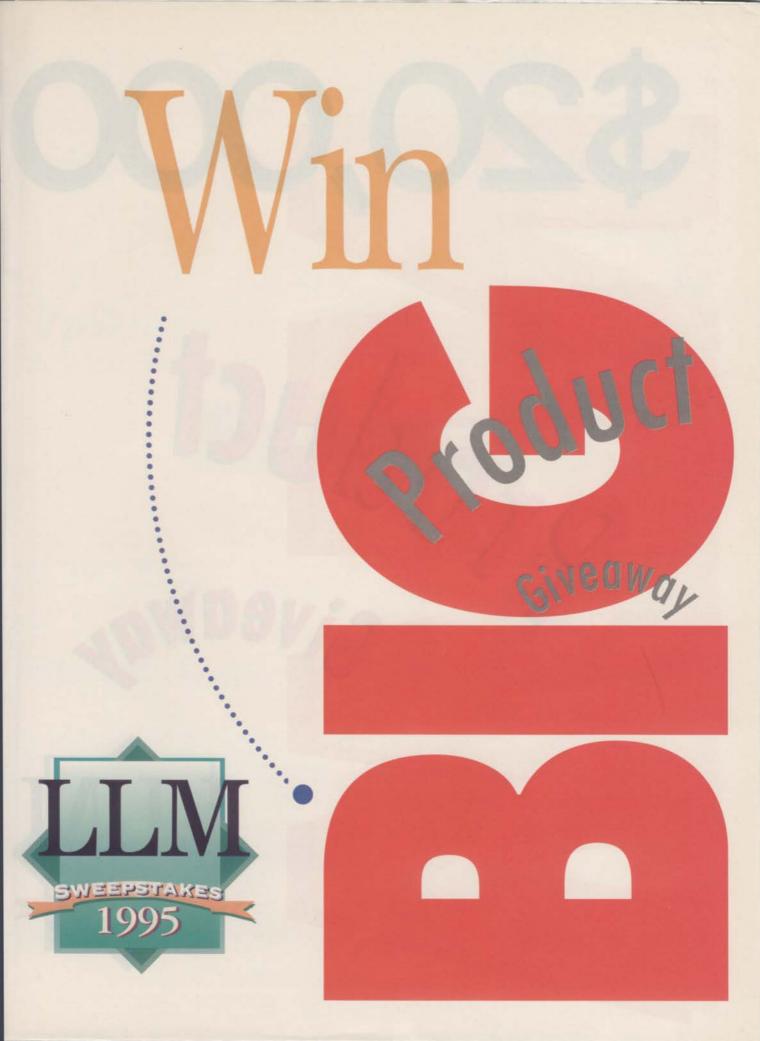
Some growers suggest that slowrelease tablets or packets be placed in the planting hole of container or (continued on page 54)

MATURE SIZE OF ACER PLATANOIDES CULTIVARS



This chart illustrates how different cultivars can vary widely in dimensions and their impact on a landscape.







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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 alternate winner being selected.

8. Void wherever prohibited or restricted by law.

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

Trees & Shrubs

(continued from page 50)

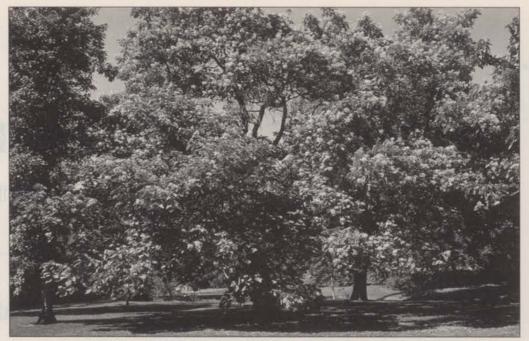
B&B trees and shrubs. Avoid direct contact with plant roots at first.

Unless soil tests have indicated a deficiency or an inappropriate pH level, fertilization usually can wait until the plants are well settled and are showing active growth.

Some pH levels may inhibit the uptake of certain nutrients from the soil, even when soil tests indicate adequate nutrient levels. If this condition is prevalent in an area, local experts will be able to provide instructions to alter pH levels during, or prior to, planting,

They may also caution against choosing specific plants that react poorly to deficiencies of those nutrients.

LATE BLOOMERS. Many newly planted trees and some shrub varieties may show little growth during the first year or two. They tend to make themselves at home first, developing a sturdy underground network of roots before channeling much energy to top growth.



Large trees that may take several years to mature need time to establish themselves in a landscape. Once established, they may outlast surrounding buildings or multiple generations of people. Photo credit: S. Trusty

Plants that look healthy, but don't do much, should be observed closely. Probably, they are just following their own timetables. After all, they're going to be around for a long time, adding beauty and enjoyment to the landscape in a number of ways. The authors are partners in Trusty & Associates, Council Bluffs, Iowa, and are consultants to the horticulture trade.

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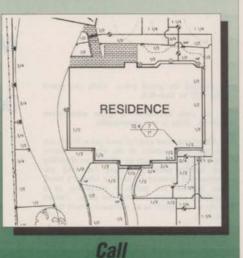
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RENOVATION STRATEGIES

Erosion Control Gets Complicated

A growing concern about erosion and its effects on groundwater contamination has made erosion control even more complex than it used to be. Several landscape contractors have responded by combining biological and technical innovations.

By Barbara G. Howell



Several swales in this erosion project divert water, including one that catches highway runoff. Photo credit: Weyerhaeuser

BIOENGINEERING, mitigation, restoration. Landscape contractors doing erosion control are using a whole new vocabulary. They are also discovering even more reasons why those methods play an increasingly important role in managing our natural resources.

On a global scale, 60 to 80 percent of all erosion can be attributed to agriculture, according to Ben Northcutt, executive director of the International Erosion Control Association. However, heestimated that wellmanaged farm land loses between three and 10 tons of soil per acre. Erosion rates on urban construction sites may be 10 to 20 times higher. In addition, urban development

In addition, urban development creates large, impermeable areas such as roads and parking lots which increase storm waterrunoff and raise the level of contamination found in the runoff. With the higher rates of soil loss in urban erosion and the higher levels of contamination comes a greater environmental concern. Due largely to these three factors, the importance and methods of erosion control are changing. BIOENGINEERING BASICS. "Bioengineering is an approach which combines biology, ecology and engineering to establish a functioning, self-maintaining vegetative system that stabilizes land, improves water quality, enhances the habitat for fish and wildlife and can adapt to changing conditions," explained (continued on page 58)



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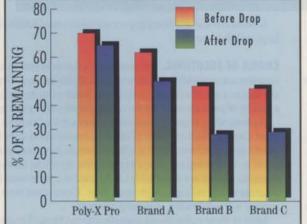
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USE READER SERVICE #70

Erosion Control

(continued from page 56)

Wendi Goldsmith, project manager at Bestman Green Systems Inc., Salem, Mass. The company is a bioengineering firm that also markets specialized products and maintains a wetlands nursery.

Bioengineering considers stabilization of the land for erosion control, and also establishing and sustaining a vegetation cover that not only thrives, but allows a natural ecosystem to develop.

"It's freshmanecology 101," said David Tibbets, owner of New England Land Design, Westport, Mass., a design/build and construction firm that installed material for a stream bank stabilization project on the North River in central Massachusetts.

"The bioenegineering approach considers more than just soil stabilization," he said. "People using this method first consider the hydrological cycle and the amount of evaporation and rainfall. They look at how much water is going to be in the stream at different times. They consider the native plant cover for the area, as well as the fish and wildlife which should be present. They look at the soil types and the methods of manipulation that can be used to keep the soil in place.

"It's more than just covering up the soil so it doesn't wash away," Tibbets added. "This is an almost structural approach."

TEST PROJECT. The East Branch of the North River near Colrain, Mass., drains about 50 square miles of forested and agricultural land.



Erosion had occurred at a moderate to extreme rate since 1985. Floods in 1987 caused a major channel migration on one part of the river.

According to Goldsmith, this caused "approximately 50 feet of bank retreat in that year alone. The steepened and unvegetated bank continued to retreat at a rate of about four to five feet a year."

In 1989 and 1990, several conservation and resource protection agencies joined together on a pilot project to demonstrate bioengineering stream bank protection and erosion control measures.

Bestmann Green prepared a proposal to treat about 500 feet of the stream bank using a variety of bioengineering methods. New England Land Design installed the bioengineering materials in June 1993.

Tibbets explained that three different methods were used along the North River stream bank to determine effectiveness, cost efficiency and environmental benefits over a five-year period. Along one section of the bank, a vegetated single coconut geotextile module was placed against the waterline. "It acted like a big sponge," Tibbets noted.

Herbaceous plants were put into the roll to take root and grow. Eventually, they would grow through the coconut fiber roll and into the river bank. Gradually, the roll will biodegrade.

At a higher impact area, a double roll of vegetated coconut fiber was placed at the waterline. At a third point, a brush mattress of wattle bundles of non-leafed willow branches — was used to stabilize the riverbank and to produce woody vegetation.

For this project, the rolls had a density of nine pounds per cubic foot to retain fill and to filter sediment. They were made with a strong mesh to hold the fiber together to withstand strong flows and the impact of ice.

According to the Bestmann Green design, the roll acts as a

Fiber rolls have been installed on the Mystic River to stabilize the bank and stop erosion. Photo credit: Bestmann Green

"strong, flexible module to secure the streambank and stabilize the site for revegetation. The living plants receive structural support from the coconut fiber material, which degrades after a period of about 10 years and allows the plants to be the performing component of the system."

Throughout the site, a layer of rock was used to protect the waterline and below. The upper part was regraded to a more gradual slope when seeded.

"When revegetation is successful, plant roots bind the soil and sediment together. Leaves and stems slow currents and absorb the energy of the waves, reducing erosion caused by moving water. Grasslike plants along the river lie flat when flooded by high water, covering the ground and shielding it from erosion without obstructing the passage of water. The vegetation,"Goldsmith explained, "is able to regenerate and adapt to changes such as sedimentation.

"A healthy streamside community of plants and microbes help to retain the nutrients and reduce the contaminants present in rural stormwater runoff by promoting plant uptake and microbial activity," she suggested.

With the bioengineering approach, planners hope to restore and increase the variety of natural wildlife and fish along the river.

"It was amazing," Tibbets ex-(continued on page 60)

INNOVATIVE SOLUTIONS SOLVE EROSION PROBLEMS

MANY LANDSCAPE contractors move into erosion control work after their first few seeding projects. As they learn to use the many erosion control products on the market and develop an expertise, they are ready to accept the challenge of more complex erosion problems.

Erosion occurs in a variety of forms and must be handled in a manner suited to the specific landscape. The United States Soil Conservation Service defines several types of erosion ranging from mild to severe:

1. Splash erosion is caused when raindrops break the soil's surface and splash it a short distance.

Sheet erosion occurs when heavy rains fall faster than soil can absorb it, spreading particles in a wider area.

Rill erosion develops when enough water forms paths, or eroding channels that detach soil to cause more erosion downstream.

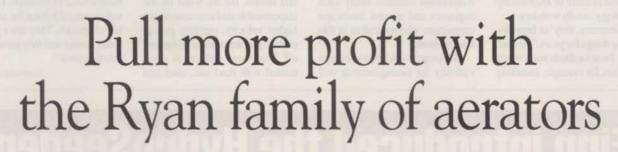
When water collects in channels and moves in a larger mass, it can cause concentrated-flow erosion, which causes more damage.

A more severe type of erosion is gully erosion, where water moves quickly through a gully, pulling large amounts of soil with it. 6. Mass erosion and slumping occurs on saturated hillsides, causing large soil slides or creep.

CHOICE OF SOLUTIONS. The contractor's first concerns in any erosion situation are to establish vegetation and stabilize the area. Depending on site factors such as soil type, percolation, water velocity and slope height, a variety of products can help the contractor establish grass quickly.

Hydroseeding is one method contractors use for fast grass establishment. Organic blankets made of straw, excelsior wood sewn between plastic netting, coconut fiber or other materials, have been used to stabilize an area and encourage germination. Synthetic blankets and grid materials that are not degradable can be used as a permanent installation on areas with persistently high water flow. Contractors have also found success with silt fencing, straw and compost.

Most of these materials are versatile and can be used in applications from ditches to ponds to steep slopes. The installation methods are the same but may vary by product, so get assistance from the manufacturer.



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Erosion Control

(continued from page 58)

claimed. "Six months later, you could see where the plant material was — and it was all growing."

The real test of the demonstration project came with winter and spring discharges in 1993 and 1994.

"During the months of November, December and January, mean daily discharges reached record highs. The overall stability at the site remained intact, with vegetation showing vigorous growth and no recorded bank retreat," Goldsmith reported.

While his company also gets involved in more traditional erosion control measures like hydroseeding on slopes, Tibbets sees a place for bioengineering. For areas where simpler, less comprehensive erosion control measures are inadequate, especially along streambanks, the mixture of engineering and ecology can do wonders.

"In Germany, they've been doing these things for years," he said. "I think these methods work much better than, for example, installing materials like riprap. The problem with those materials is that they work at the site of the original installation and provide an impermeable surface. When the water passes by those impermeable areas, it speeds up," he said.

This can cause more erosion problems downstream. "The faster the water goes, the more damage it will do downstream where there is no riprap. That's what we saw two years ago with the Mississippi River. Installing materials that don't slow down the water flow or maintain the stability of the soil just passes the problem downstream."

Tibbets observed that while bioengineering techniques are generally reserved for those areas where more traditional approaches to erosion control are inadequate, plenty of opportunities exist for practicing bioengineering. The directory for The International Erosion Control Association contains many such engineers and several landscape contractors who specialize in this kind of work.

One project which promises high visibility for bioengineering will

begin soon in Massachusetts. Tibbets said he declined to bid on the job because it was too large, but believes it will be very worthwhile.

The shoreline area around Plymouth Rock, where the Pilgrims first landed in America, has deteriorated and officials are contracting to restore the shoreline to its natural, uneroded state, through use of bioengineering.

MITIGATION METHODS. As urban construction continues to spread expansive amounts of impermeable surfaces, officials are becoming concerned about the increased amounts of storm water runoff draining from these asphalt and concrete areas.

The water running off has two additional detriments. Not only does urban construction reduce the amount of land which can naturally soak up the water from rain and storms, but the water on the impermeable surfaces runs off at a higher velocity, creating greater erosion problems. Finally, the runoff from these surfaces is often tainted with road salt, sand and

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petroleum-based pollutants.

To prevent these erosion and pollution problems, many laws now require holding the runoff in retention basins to slow down and control its flow into streams, rivers and lakes. The retention basins also help to filter pollutants from the water. This process is called "mitigation."

"Almost all construction sites in the Northeast require mitigation," said Walter Montgomery, northeast representative for R.A. McClure Inc., Rockport, Mass., a wetlands contractor.

According to Montgomery, construction now operates under a "zero net loss policy." This policy dictates that no construction project will result in loss of wetlands and, if it does, the contractor must mitigate, create a substitute or take measures to protect the wetlands.

"In the last 10 years," said Montgomery, "we have begun to realize the true value of wetlands. They provide a natural habitat for any number of species. They are a groundwater source and they provide pollution control."

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distance

(continued on page 65)



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TURF & PRAMENTA DISEASE ANAGEMEN

Controlling disease in turfgrass and ornamental plants will probably always require the attention and expertise of lawn and landscape maintenance professionals. Systemic disease control products allow professionals to take preventive measures against many of the most problematic pathogens, saving time and money and increasing customer satisfaction.

THE SYSTEMIC APPROACH

Treating Disease From Within

urf and ornamental diseases take a major toll on the American landscape every year. Keeping plants healthy and diseasefree is one of the great challenges for the lawn and landscape professional.

Many contact fungicides are effective in treating turf and ornamental diseases on a short-term basis, but they do have their limitations. To completely treat the disease, a contact product must cover the entire

surface area of the plant. Then, even if full coverage is achieved, its effectiveness only lasts as long as it resides on the surface of the plant, which under ideal conditions is about seven to 10 days.

Without residual control, putting turf and ornamental disease maintenance on a scheduled service program becomes a burden — the applicator's strategy is simply "apply at the maximum rate and hope it lasts until the next treatment." If it doesn't work, customer callbacks become a problem — worse yet, if a customer doesn't call,



Banner provides systemic control of disease, including leafspot on red-tip photinia.

expensive turf and ornamental plants are put at risk.

Today, lawn and landscape maintenance professionals can get effective, long-term disease control with Banner[®], a broad-spectrum, systemic fungicide from Ciba Turf and Ornamental Products.

Banner has long been a mainstay for golf course superintendents in the treatment of a wide range of turf fungi. Now, Banner is available for use on residential and commercial turf and ornamental applica-

tions. Banner provides long-term control of a wide range of damaging diseases on several of America's most favored landscape plants and turfgrasses.

As a systemic, Banner is absorbed into the plant's "system" where, unaffected by weather it can continue to control disease for a longer period of time. In addition, Banner is labeled for different treatment levels, depending on the time of year and duration of control desired. For example, dogwood anthracnose can be controlled for up to 14 days with a 2- to 4-ounce per 100 gallon solution of

HOW BANNER WORKS

B anner contains the active ingredient propiconazole classified by scientists as a sterol inhibitor. Sterols are the group of chemicals that make up the principle components of the structure of fungal cell walls. When Banner encounters a fungus, it literally breaks down the sterol formulation in the cell walls and causes them to weaken and eventually explode, destroying the disease.

As a systemic, Banner is actually absorbed into the plant upon application. Through movement within the plant, called acropetal translocation, Banner is spread into every area of the plant, including new growth. This means that missed spots during the application don't pose the problem that can occur with contact fungicides.

When a fungus attempts to invade a plant, Banner's sterol inhibiting properties destroy the pathogen before it can establish itself and damage the plant. And, Banner continues to work within the plant to ensure long-lasting residual control.

CONQUERING DISEASE

he beauty of flowering crabapple, dogwood, crape myrtle and red-tip photinia have made them extremely popular in many regions of the United States — which also makes the diseases that destroy them among the most dreaded. Controlling powdery mildew, leafspot, scab, rust and dogwood anthracnose poses significant maintenance and labor problems for professionals who provide disease control on a program.

Banner has been proven effec-

tive in the control of these diseases, and provides the additional advantage of flexibility in application rate and concentration.

Listed below are the label specifications for using Banner to control disease on these ornamentals:

SPECIES	DISEASE	RECOMMENDED RATES AND TIMING
Crabapple	Scab(Venturia inaequalis) Begin at green tip.	Apply 2 fluid ounces per 100 gallons every 14 days.
Crabapple	Rust (Gymnosporangium. juniperi-virginianae)	Apply 2 fluid ounces per 100 gallons every 7 days. Make three applications beginning at green tip.
Crabapple	Powdery Mildew	Apply 6-8 fluid ounces per 100 gallons every 14 days.
Crape Myrtle	Powdery Mildew (Erysiphe lagerstroemia)	Apply 16 fluid ounces per 100 gallons every 21 days.
Dogwood	Anthracnose (Discula spp.)	Apply 2-4 fluid ounces per 100 gallons every 14 days, or 8 ounces per 100 gallons every 28 days.
Red Tip Photinia	Leafspot (Fabraea maculata syn. Entomosporium maculatum)	Apply 12-20 fluid ounces per 100 gallons every 7-14 days.

Banner, or up to 28 days with an 8-ounce solution.

Banner's systemic control is also proven on a variety of turf ailments, including brown patch, gray leafspot on St. augustinegrass, dollar spot, powdery mildew, rust, anthracnose, red thread, stripe smut, snowmold and zoysia patch. Consult label for recommended rates.

TANK MIXING

B anner can be incorporated into a landscape maintenance program, because of its compatibility with many turf and ornamental treatment products on the market today. In times of high disease pressure, Banner may be tank-mixed with a contact fungicide, providing maximum protection. Time and labor savings can be realized with Banner, creating a better bottom line and more satisfied customers. The applicator fills a tank halfway with water, adds the required number of packets, agitates the tank and adds the rest of the water, avoiding the time and exposure potential of measuring chemicals. In addition, there are no empty containers to rinse and dispose.

Ciba's turfPak™ System is a returnable/refillable microbulk unit that virtually eliminates exposure to

CLOSED SYSTEM FORMULATIONS. Professionals are always concerned about exposure to pesti-

cides. Studies have shown that 80 percent of all personal contact with pesticides, and a high percentage of environmental exposure, occurs with technicians during mixing. To aid professionals in the handling of Banner, two closed-system formulations have been created for the professional contractor.

Banner GL is a gel-based formulation contained in a water-soluble bag, with enough product to treat a half-acre of turf.



Banner GL gel-based formulation.

Banner. The system's hardware features the DryLock™ quick-coupling system that allows users to connect the unit

directly onto the spray tank and a high-speed pumping system that controls the amount of Banner dispensed into the spray tank to within 1 percent while dispensing up to 4 gallons per minute.

The turfPak[™] System also includes an electronic keypad that records the amount of product used. The keypad provides additional security by requiring the user to enter a password to activate the unit.

KEEPING DISEASE IN CHECK

MAKING ORNAMENTAL PROGRAMS WORK.

For Beauty Lawn Inc., a lawn maintenance firm based in Memphis, Tenn., disease control is a year-round proposition. The spring and fall usually bring plenty of moisture, while the winter is highly unpredictable — sometimes mild, sometimes cold. It's terrific for the average turfgrass or ornamental disease, but a lawn maintenance manager's nightmare.

About two years ago, high customer demand pushed Beauty Lawn to add a shrub bed disease program to its menu of residential services. Tim O'Guin, the shrub program manager, estimates that the growing new program accounts for 10 percent of total residential sales.

This high interest in Beauty Lawn's shrub program isn't surprising in Tennesee, where popular red-tip photinia, crape myrtle and dogwood are highly affected by disease, along with other trees and shrubs. Residential lawns can take a beating too, with brown patch. rust, zoysia patch and spring dead spot on bermudagrass. To handle multiple diseases on a scheduled program, O'Guin relies on tank mixing Banner with other chemicals.

The shrub program Beauty Lawn created includes six regular visits to the site. The minimum charge is \$30, and is calculated based on the amount of plant material in the landscape. The first two treatments are springtime preemergent herbicide applications, containing Banner and the recommended rate of a contact fungicide.

The next three applications also combine Banner with

the contact fungicide, but

may also contain insecti-

cides that address other

problems within the

plant. The final visit in-

cludes a preventive ap-

plication of Banner to

carry control through the

Banner is added to a fer-

On turf problems,

winter.



Banner keeps landscapes looking healthy. Photo: Andrew Sparks

tilizer tank mix, usually along with a contact fungicide. Banner's flexibility in the tank mix helps O'Guin save time and money by combining needed treatments into one application.

KEEPING LANDSCAPE TREES HEALTHY.

For many years, various fungi have been a major problem for some of the South's most renowned landscape trees. Matt Webb, product manager for Metro National Corp., an in-house landscape mainte-



Powdery mildew on crape myrtle can be controlled by applying 16 ounces of Banner per 100 gallons of water every 21 days.

nance division of a property management firm in Houston, Texas, is on the front line of the disease control effort. Two of the bigger headaches areleafspot on red-tip photinia and powdery mildew, which plagues the hawthornes, crape myrtle, azaleas and rose bushes on the properties he manages each spring.

Two years ago Metro National tested Banner with good results — as Webb put it, "It's really been the only thing that has worked successfully on leafspot on photinia." Powdery mildew is nothing new, but Webb has found that Banner provides long-term control of that fungus as well.

Weather really dictates when treatments are made, Webb said. In Texas, the cool, wet days of March and early April tend to spur the first outbreaks. At the first signs of problems, Webb will spray apply Banner at a rate of 14 to 16 ounces per 100 gallons of water. About two weeks later, another application at the same dilution is made to the infected trees. "It usually takes two applications early in the year to wipe out the leafspot," Webb said.

Thereafter, when hot, dry weather reduces disease potential, Banner holds its effectiveness for four weeks or more. Webb will generally have to apply a 10- to 12-ounce per 100 gallon dilution to trees twice through the late spring, summer and fall, until the dampness and cool temperatures return in late October and November.

The late fall brings with it more moisture and a greater risk of disease. Webb treats the trees preventively with a final 10- to 12-ounce per 100 gallon application of Banner.

It's excellent residual has been a money saver for Metro, Webb noted. "I think it has saved money and labor time — we definitely don't have to come back as often," he said.



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Erosion Control

(continued from page 60)

Even if a construction project is not near a designated wetlands, chances are it will impact such an area with runoff. Whether it is a new road, a new commercial area or a housing development, the impact will be significant.

Montgomery explained, "Even small-scale projects require some type of retention basin to gather the water from a construction site and let it run off at a controlled rate into the wetlands. A normal hardtop parking lot at a discount store could dump one million gallons of water during a one-inch rain.

"Such runoff doesn't just increase the volume, but it increases the velocity of the runoff, the amount of sediment in the runoff and the pollution in the runoff. You may need one permanent retention basin for a project, or you may need several," he said.

A retention basin collects the water from the urban construction site and releases it at a regulated rate back into the normal water channels. First, the type of soil under a retention basin allows the water to percolate down to groundwater. A spillway arrangement may release water into a stream. Even just holding the water in the basin and allowing it to evaporate into the atmosphere is a means of control.

"Before, no thought was given to drainage beyond the immediate area," Montgomery observed. "Now, even some housing developments with two or three houses may be required to have a retention basin."

In some cases, the wetlands project may be even more extensive and a wetlands restoration may be required. As public sensitivity increases, more government projects will require wetlands restoration when construction destroys a native area.

Whether the project is a retention basin or a wetlands restoration, it has the obvious erosion control benefits, plus a less obvious pollution control impact.

Basins and restoration projects act like large filter areas. They keep the pollution from getting into the groundwater supply or other bodies of water. Putting runoff water into these areas prevents incidents like fish kills, which can happen when polluted storm water runs into larger bodies of water.

Many of the compounds, like organophosphate chemicals, have relatively short life spans and will break down in one or two weeks, Montgomery noted. There is also microbial action, especially in wetlands, that helps break down polluting elements.

The biggest wetlands restoration project Montgomery has worked on was 35 to 40 acres. He has done approximately 85 restorations in the last 12 years. Even though money seems to be getting tighter, he noted that the "public's awareness of the value of wetlands is going to stay around as we start trying to be more creative in ways to fund projects and devise new products."

CREATIVE APPROACH. Even traditional erosion control products are becoming more inno-

vative. Mark Olson, a landscape designer at Salmon Falls Nursery, a full-service design and _construction firm in Berwick, Maine, said that many erosion control products are biodegradable like jute and excelsior. He is particularly excited about a bonded fiber matrix product from Weyerhauser.

The company's technical bulletin explains that the material is an hydraulically applied product said to match or exceed the performance of erosion control blankets. Operators can apply it along with the seed, fertilizer, water and mulch from a hydroseeder for erosion control on slopes.

Even long-standing erosion control product

suppliers like Akzo Nobel, which makes a variety of products to control erosion and stabilize the soil, are considering other environmental problems such as radon gas infiltration, protecting landfill liners and controlling sound pollution.

Contractors will continue to have more options to control erosion in the future through the development of new, versatile products and the availability of bioengineering and mitigation techniques.

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



LAWN & LANDSCAPE MAINTENANCE • MAY 1995

PLANT HEALTH MANAGEMENT

Managing Diseases

In Turf and Ornamentals

Plant diseases are harder to control than pest or weed infestations. They can be managed, however, with good cultural practices and the use of specialty fungicides.





FEW THINGS in life can be controlled. You cannot control the weather, your employees and what plants are growing in existing landscapes. And you cannot control plant diseases! You can influence the health of plants and change plants in the landscape, but you will be hard pressed to completely control plant diseases. They can be managed, but not totally controlled.

Managing landscape diseases is a challenging and complex process, even for the best landscape manager. Part of the difficulty is that plant diseases are compared to insect and weed problems, which usually can be seen with the naked eye and frequently are outside of the plant. Because it is easier to identify the insect or weed, it is easier to assess "control."

Since diseases are caused by microscopic organisms — pathogens — and are usually inside the plant, identification of the problem and assessing "control" is difficult.

PLANTS AREN'T HUMAN. One mistake many people make is comparing the control of human diseases to plant diseases, when the

By Joe Rimelspach

approaches are really quite different. Doctors try to cure or save every human with a disease. However, each individual plant is not as important as the total population.

An example of this would be leaf spot on turfgrass. If a few plants die in the lawn, it is no big deal as long as the majority of the plants survive and the lawn has an acceptable appearance. For tree disease problems, the individual plant has a much greater value. In plant health management, little can be done to cure or save the plant when it becomes severely infected. In many cases, the diseased plant is removed or allowed to die. The key to disease management is prevention.

Various strategies can minimize plant disease problems in the landscape. They are: taking advantage of the plants' genetic potential and resistance to diseases; using plant health maintenance practices; making correct diagnoses of problems; and applying disease management techniques.

GENETIC POTENTIAL. Just as each of us has a weakness to certain diseases which are passed on to us by our parents, so do plants. A plant will never be more resistant to a specific disease than its inherited genes dictate.

Plant selection and breeding is a complex science. New cultivars are becoming available constantly for turf and landscape plants. They are selected for characteristics such as color, density, drought tolerance, flower and fruit qualities, growth habit and disease resistance.

This becomes important if there is a particularly devastating disease common to the plant. Examples of this would be the many resistant varieties of Kentucky bluegrass to leafspot, crabapple to scab and roses to blackspot.

With turf and ornamental plants, growth characteristics and horticulture fractures are often the key elements studied by plant breeders. Disease resistance is more of a secondary factor. Since there are so many potential diseases, only the most devastating ones are studied.

A new plant cultivar may seem to have great disease resistance during the test trials but when planted in the landscape, may develop a disease. This occurred when Merian Kentucky bluegrass was introduced. It was resistant to leafspot/ melting out, which until that point was a very devastating disease. As more and more Merian was planted, "new" disease such as stripe smut and patch diseases prevailed.

Plant communities are very dynamic systems and can change over time by interacting with various disease pathogens.

NO PERFECT CULTIVAR. Do not wait for the perfect cultivar to be introduced. Why? Because it will neverhappen. There will always be the need for improvements. Plant communities are diverse and there is always the need for new plant introductions with improved genetic material.

Remember, too, that disease pathogen (fungi, bacteria, virus, etc.) don't stay the same, but also change over time. New types can appear and cause great problems.

How do you get information on disease resistance for landscape plants? The land grant universities and your state's extension service have a wealth of information. Seed companies and plant producers are



another resource. The National Turfgrass Evaluation Program can be helpful. Contact Kevin Morris at Beltsville Agricultural Research Center-West, Building 002, Room 13, Beltsville, MD 20705.

Adapt the information you receive to your location. Tests done in various parts of the country may not reflect how the plants will perform in the landscapes you manage.

ENGINEERING PLANTS. New developments in genetic engineering are occurring daily. With new technology, scientists can identify genes in plants that control or influence different functions and use these to change and improve the plants.

One example of this is the Turfgrass Biotechnology Consortium at The Ohio State University. This group is taking the gene(s) that determine drought tolerance of plants and placing them into turfgrass. The process is very complex and high tech.

Another new technology is the implanting of the genetic material into plants that make them resistant to the affects of glyphosate (RoundupTM). When the seed is available with this genetic makeup, a farmer could spray over a crop with glyphosate and all the weeds would be killed except the crop with the resistant gene(s) present.

PLANT HEALTH MAINTENANCE.

Understanding how to maintain plants in a healthy condition is the key to preventing most plant diseases. They are caused by pathogenic organisms that are opportunistic — they prey on weak or stressed plants. By keeping plants growing well, disease problems can usually be reduced or prevented.

The degree of disease prevention will depend on how weak the plant becomes, how the environment affects the disease-causing organism, the plant's genetics and its susceptibility to disease.

Planthealth maintenance can be separated into two parts: planting and installation, and caring for established plants.

A HEALTHY START. The old saying, "An ounce of prevention is worth a pound of cure," has never been more true. Getting a lawn and landscape off to the right start will Fungus diseases like cedar apple rust gall shown on a juniper are more prevalent in warm, wet springs. Management strategies may include pruning galls and thinning out plants. Photo credit: J. Rimelspach

really pay off in reduced disease problems.

The key to success is the soil. The challenge is to improve the soil and correct problems such as compaction, poor drainage, low organic matter, nutrient imbalance, pH, buried debris and improper grading.

Healthy plants need improved levels of organic matter and soil nutrients. Incorporating compost can have a tremendous impact on improving soil. Remember, all sources of organic matter are not equal. Find a supplier who has quality, well composted material that will serve you well in managing healthy plants and landscapes.

A good quality topsoil can be incorporated to the existing soil. Again, have a high confidence level in the quality of soil you are getting and be aware of weeds, herbicides and other undesirable elements that can be brought in on soil.

Plant selection is the next step. Match the plant to the site and select plants with documented disease resistance to the major disease problems in the landscape.

Select healthy plants and sod. Look for obvious signs of insects or diseases. Avoid sod with a thick layer of thatch or the kind that has been grown on a soil of a dramatically different soil structure (such as sod grown on a peat soil to install on a heavy clay). Avoid trees and shrubs with wounded trunks, cankers, small root balls or plants that have not been cared for properly.

Use care when planting. Finally, water and maintain the plants until they become established at the new site. This may take anywhere from six months to several years.

INHERITED PROBLEMS. Existing landscapes are where many maintenance contractors inherit plant and site problems that can affect plant health. The genetics of the plants cannot be changed and often, only minor changes can be made with the soil and site, so very real expectations should be established with the customer as to what can be done to "control" disease problems. A weak or stressed plant may not be diseased today, but will be prone to problems tomorrow.

The following are some guidelines to maintaining existing landscapes for greater plant health:

• Prune trees and shrubs to prevent crowding and provide better air circulation. The leaves will dry faster, which reduces disease problems on foliage. Remove crowded plants to allow adequate space for root development. Crowded plants compete for nutrients, water and light and are more sickly.

• Follow the golden rules of mowing to have the greatest impact on turf health. Mow with sharp blades at the recommended height and frequency.

Improper mowing stresses turf and can result in brown grass and disease problems. Some of the most common problems are scalping, mowing turf that is wilted or under moisture stress, mowing in the same pattern and allowing the grass to grow too tall. These practices contribute to serious problems with leaf spot and patch disease problems.

 Fertilization is a tremendous tool to maintain healthy plants in a low quality of soil. Many new turfgrass cultivars have vigorous growth and need adequate fertilization to achieve their growth potential. Fertilization levels for lawns will vary, but often two to six pounds of N per 1,000 square feet per year is recommended. Soil testing determines the right ratio of P and K.

Trees, shrubs and flowers also require fertilization to be healthy. The type of soil required by these plants and the nutrients available at the site will influence the amount and frequency of fertilization. There have been great improvements in the fertilizer industry with many new slow-release and poly-coated products available. As with turf, use soil tests to know how much P and K to apply.

 Watering is essential for all plant growth. The trick is to have the right amount. Too much or too little will stress plants and may lead to disease problems. For example, root rot can develop from overwatering and poor drainage.

There is no secret to proper watering other than to have uniform soil moisture in the root zone of the plant. It sounds so simple, yet as we all know, it can be challenging to achieve. Many diseases can be dramatically increased if plants are subjected to widely fluctuating soil moisture levels (dry to flooded). These include: pythium, phytophthoro and verticillium wilt.

· Soil compaction is the common term, but the real problem is the lack of adequate oxygen in the root zone. Plant roots require air to breathe just like we do. In many cases, if soil oxygen levels are increased, plant health greatly improves. Aerate low oxygen soil for turf, trees and shrubs. This alone has improved tree growth equal to or greater than fertilization where grown in heavy clay soils. In the case of flowers, plant them in an improved soil mix in the flower bed.

• The benefits of mulching have

been documented, including its ability to reduce plant competition, reduce weed problems, conserve soil moisture, improve soil, protect plants from mowers and more.

But don't overdo a good thing. Mulch that is too deep can create problems such as keeping the soil too wet, making the trunks of plants wet and causing crown rot. Italsois difficult to get water through deep mulch after prolonged dry periods.

DIAGNOSING DISEASES. The first step in managing a plant disease is to accurately identify the specific problem. Diagnosis is a process. It is both a science and an art. The landscape manager should start by learning to identify all plants in the landscape.

Next, learn what each plant needs to grow (soil type, light, water, care, etc.) and what healthy plants look like in all seasons. Dig up the plants and learn what the roots look like when they're healthy.

Remember that diagnosis is a process unique to every person. One (continued on page 70)

	A DESCRIPTION OF TAXABLE PARTY AND A DESCRIPTION OF TAXABLE PARTY.	GRASS DISEASES	5
DISEASE NAME (Pathogen name)	SUSCEPTIBLE GRASS	TEMPERATURE/MOISTURE (that encourage disease)	*MANAGEMENT STRATEGIES
Brown Patch/Rhizoctonia Blight	TALL FESCUE	Hot/wet	1. Avoid excessive nitrogen fertilization.
(Rhizoctonia solani)	Ryegrass		2. Avoid excessive watering and poor drainage.
	Kentucky bluegrass Fine Fescue		3. Remove surrounding vegetation; increase sunlight.
Dollar Spot	BLUEGRASS	Moderate/wet leaves	1. Avoid nitrogen deficiency.
(Sclerotinia homeocarpo)	BENTGRASS	and dry soil	2. Choose resistant grass varieties.
	Fescues Ryegrass		3. Water to increase growth.
Leafspot/Melting Out	(Leafspot: spring and fall)	Leafspot — cool/wet	1. Raise cutting height.
(Drechsler & Bipolaris spp.)	(Melting Out: summer)	Melting Out — hot/dry	2. Mow frequently to avoid stressing turf.
	KENTUCKY BLUEGRASS		3. Avoid excessive nitrogen.
	FINE FESCUE Ryegrass		4. Avoid light, frequent watering and prolonged wet grass.
Necrotic Ring Spot	Tall fescue KENTUCKY BLUEGRASS	Warm/extremes in soil moisture	1. Avoid low mowing heights.
(Leptosphaeria korrae)	Ryegrass	(fluctuating from wet to dry soils)	2. Reduce excessive thatch.
	nyograss anonomiologia anoni	(nuclearing norm wer to dry sons)	 Use Kentucky bluegrass and perennial mixtures.
			4. Avoid excessive watering or drought stress.
			5. Use very slow release fertilizer.
Powdery Mildew	KENTUCKY BLUEGRASS	Moderate/high humidity	1. Reduce shade.
(Erysiphe graminis)	Fine fescue	assession of the second s	 Increase air circulation by removing surroundin vegetation.
			3. Use resistant Kentucky bluegrass varieties.
Pythium Blight	PERENNIAL RYEGRASS	Very hot/wet	1. Improve soil drainage.
(Pythium spp.)	BENTGRASS Kentucky bluegrass	spansed by patho- cally diffen s But an opportu- as sod grow	 Increase air circulation by removing surroundin vegetation.
	(Seeding Grass)		3. Avoid excess watering.
	wounded trunks, can- wi		4. Avoid high rates of nitrogen.
Red Thread	PERENNIAL RYEGRASS	Moderate/wet foliage	1. Follow balanced fertilization program.
(Laestisaria fusiformis)	FINE FESCUE		2. Promote growth by aeration, watering, etc.
	Kentucky bluegrass		3. Use resistant varieties.
-or others will blue admin. e.e.o. T	Tall Fescue	a so how weak the	ferent functions and use these to
Rust	PERENNIAL RYEGRASS	Cool/wet foliage, dry soil	1. Avoid nitrogen deficiency.
(Puccini spp.)	KENTUCKY BLUEGRASS		2. Use resistant varieties of Kentucky bluegrass perennial ryegrass.
Ourse Datab	KENTUOKY BUUEOBAOO	Manufactures in call	3. Water if dry, promote growth.
Summer Patch	KENTUCKY BLUEGRASS	Warm/extremes in soil	1. Avoid low mowing thatch buildup.
(Magnaporthe poae)	Fine fescue	moisture (fluctuating from wet to dry soils)	 Maintain soil pH between 6 and 7. Frequent watering during dry periods to avoid heat stress.
			 Use slow-release nitrogen. Use Kentucky bluegrass and perennial ryegras mix.

*For fungicide recommendations check with county cooperative extension office and the state land grant university in your area.

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What We Did At The Bottom Makes This Edger Tops.

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Managing Diseases

(continued from page 68)

useful method follows:

1. Gather information on the plant. How does it grow? What is needed for healthy plant growth? What are the overall weather patterns? Review information on soils, horticulture, entomology, agronomy and plant pathology.

2. Observe the problem. What

do you see? What is the condition of the plants and landscapes in your community? What is the condition of native plants compared to those planted by man?

3. Observe the landscape site.

Check the areas where the problem exists. Identify the plant. Use a soil probe to check soil. Note maintenance practices.

4. Examine close up. Look at the (continued on page 72)

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LANDSCAPE MANAGEMENT FUNGICIDES¹

PCNB⁵

ProStar* Rubigan*

Sentinel* Touche5* Terraguard*

GROUP I: FOR ROOT ROTS, PYTHIUMS, PHYTOPHTHORA AND OOMYCETE DISEASES

Materials ²	Turfgrass	Trees and Shrubs	Flowers
Banol*	X	X	Х
Banrot*		X	X
Chipco Aliette*	Х	X	X
Koban*	Х		
Subdue*	Х	X	Х
Terrazole*	X	X	Х
Truban*		X	Х

GROUP II: GENERAL CONTACT/PROTECTANT FUNGICIDES

Materials ²	Turfgrass	Trees and Shrubs	Flowers
Captan	X	X	Х
Chlorothalonil ³	Х	- X	Х
Dithane*	X	X	Х
Fore*	X	X	X
Mancozeb	Х	X	X
Ornalin		X	X
Thiram	X		-

(Note: Systemic movement is only upward and the degree of systemic movement will vary with different products) Materials² Turfgrass **Trees and Shrubs** Flowers Banner' XXXXXXXX Bayleton* X Chipco 260195* ××××× XXXXXXXXXXXXX Cleary's 3336" Curalan5* Duosan* Fungo* Eagle

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GROUP III: BROAD SPECTRUM SYSTEMIC FUNGICIDES

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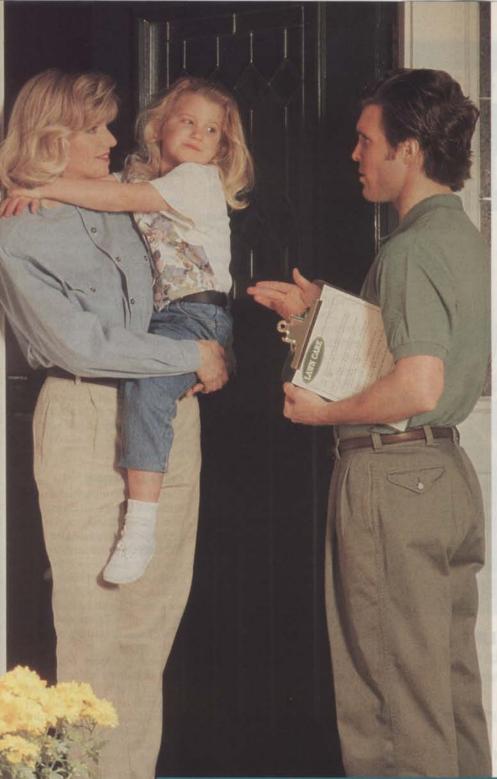
Trade names are used. This is a list of some materials for use. No product endorsement is implied, nor is discrimination intended against any materials. There are several trade name materials such as Daconil 2787, Echo and Thalonil.

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Managing Diseases

(continued from page 70)

leaves, stems, roots and crowns of affected plants.

5. Examine microscopically. Identify insects or disease organisms.

6. Gather information and ask as many questions as possible: When did the problem start? How did it develop? Any problems in the past?

7. Pinpoint the problem. Narrow down to a specific problem. Is it a disease, insect, site condition, environmental factor or a combination of these? Take your time. You may need additional help or lab verification.

8. Develop a plan to address the problem. Some environmental problems can be modified. Correct and/or change the maintenance practices. Use resistant plants if possible. Consider fungicides or other disease management products and develop a preventive program.

We may never know why some plant problems develop. Some problems are easy to diagnose and some are difficult. Don't be too proud to get help or ask for a second opinion.

MANAGEMENT STRATEGIES.

Disease management strategies take two methods: preventive or reactive/curative. A preventive approach is often the best for a plant disease since once it is in the plant, the disease-causing organism can often be destructive and impossible to eliminate. An example of this would be verticillium wilt.

Inherited problems in an existing landscape require reactive/curative strategies.

Remove plants that have achronic problem and replace them with resistant varieties. This is expensive, but if you compare it to the cost of a preventive chemical program, it will often be cheaper in the long run. Examples of this would be crab-apple with apple scab, lawns with patch disease problems or roses with black spot. If you cannot afford to replace the plant, remove it and change the landscape by mulching the area or replacing plants with turf.

Crop rotation is another alternative, although this sounds like something a farmer, rather than a landscape manager, would use. However, there are cases where this can be a useful tool. For example, if a shade tree declines from verticillium wilt, there may be a need for a replacement shade tree in the landscape and a different non-susceptible tree should be installed.

Verticillium wilt is a newly reported disease on impatiens. This has occurred where the flower had been grown repeatedly for years in the same beds. There is no chemical control and little is known of resistant varieties, so consider rotating to other flowers not affected by the pathogen.

Removing diseased parts of plants may not cure the disease, but the plant will look better and can be maintained for as long as possible. Some examples of this involve diseases that only affect sections of trees, such as fire blight, tip blight of pine and cankers. When this approach is used along with plant health management techniques, many years can be obtained from a plant.

Modify the environment by pruning to increase light, changing the amount of water an area receives, installing drainage and taking other steps to improve conditions for healthier plants.

CHEMICAL OPTIONS. We have fewer chemicals to use for diseases, compared to those for controlling pests like weeds and insects in the landscape, and they need to be used differently to manage a disease problem. There are some excellent fungicides, but remember that they only work on fungal-caused diseases and not diseases caused by bacteria or other organisms. There are two types of fungicides: Contact or protectant, and systemic.

Contact/protectant fungicides cover the plant surface and prevent infection. Usually, they are applied at intervals of five to 14 days because the fungicides are degraded or are washed away. Newly developing plant leaves and stems are not protected. Thorough coverage of the plant is critical. Examples of contact/protectant fungicides commonly used include: captan, chlorothalonil, mancozeb and thiram.

Systemic fungicides are absorbed into plant tissue and may provide some curative action. Most systemic fungicides move upward in plant tissue.

Of the currently available systemic fungicides, only fosetyl-Al (Aliette[™]) moves downward significantly. Control by systemic fungicides is often much longer than that offered by (continued on page 76)



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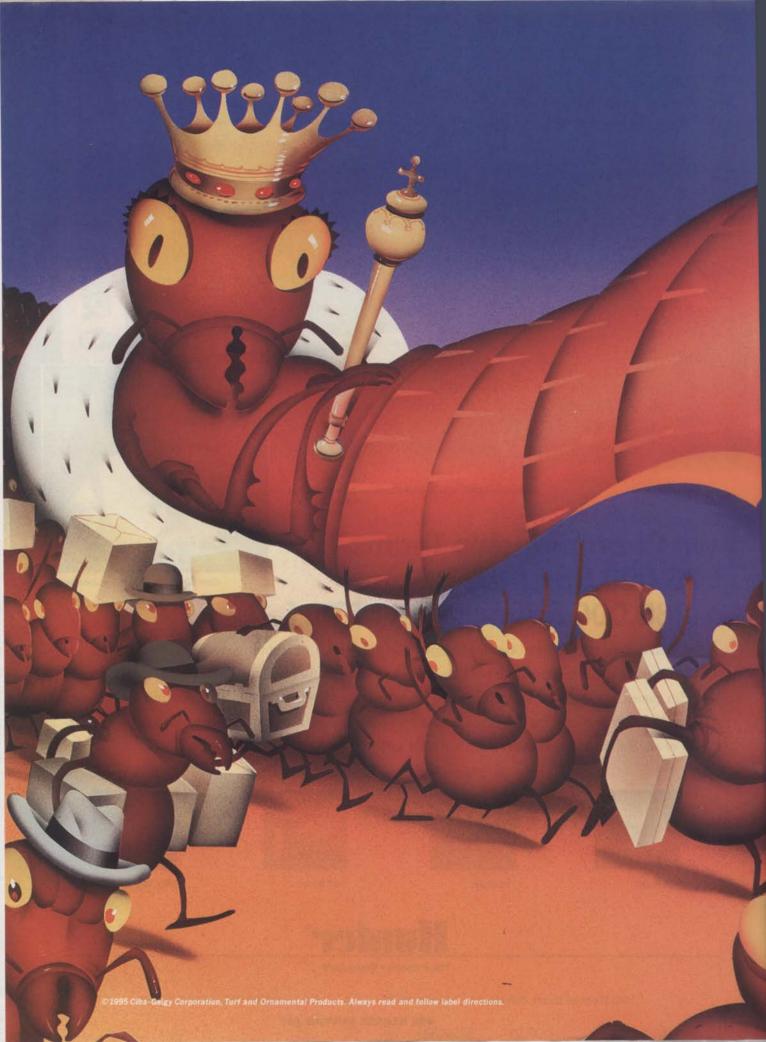
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USE READER SERVICE #101

Managing Diseases

(continued from page 72)

contact fungicides, and some redistribution occurs as the plant grows.

Application intervals vary, but often range from 14 to 21 days and longer. Examples of systemic fungicides for diseases such as pythium blight include fosetyl-Al, metalaxyl, and propamocarb.

Examples of broad-spectrum systemic fungicides include fenarimol, iprodione, propiconazole, thiophanate compounds, triadimefon and vinclozolin.

There are many factors to consider for successful fungicide use. Before implementing a fungicide program, it should be carefully planned and researched.

For 1995, there is a new registered turfgrass fungicide, myclobutanil (Eagle[®]). This is a sterol inhibitor and has good activity on many turf diseases.

Another product, which is still in

the testing stages, is Bmethoxyacrylate (Heritage[™]). This is a new class of chemistry and shows great promise in the turf and ornamental markets.

The author is extension plant pathologist at The Ohio State University, Columbus, Ohio.

DISEASE NAME caused by)	COMMON PLANTS WITH PROBLEM	ENVIRONMENT THAT FAVORS DEVELOPMENT	*MANAGEMENT STRATEGIES
Anthracnose	Maple, ash sycamore,	Cool 50-55 degrees F. Moist	1. Practice tree health care; fertilization,
fungus)	oak, linden, chestnut	in spring, especially after bud	pruning, watering, etc.
	& walnut	break and as new leaves develop.	2. Prune out infected twigs.
	Constanting Line		 Promote drying of foliage by providing light and air circulation.
			4. Replace susceptible trees with resistant plants.
Cankers	Most plants are susceptible	There are many types of cankers	1. Avoid wounding branches or trunk.
fungus)	(poplar, willow, boxelder, Colorado spruce, plum, mountain	in general weather that stress plants or factors that wound	2. Prune out dead infected branches and remove from property.
hit the road.	ash, dogwood, boxwood)	branches to increase the disease.	3. Maintain good health by proper watering, fertilization, etc.
Fire Blight (bacteria)	Plants in the rose family (crabapple, rose, pear, cotoneaster mountain ash, pyracantha, plum, etc.)	Warm, rainy springs or wet periods during the growing season.	 Practice sanitation by removing infected shoots. Prune 12-18 inches below damaged area; sterilize tools.
			2. Avoid heavy amounts of nitrogen fertilizer.
			3. Plant resistant trees or cultivars.
eafspot	Most plants are susceptible to some	Variable, but often wet foliage	1. Maintain vigor of plants; water, fertilization, aeration
	kind of leafspot.	increases the problem.	2. Remove fallen infected leaves.
environmental & virus)			3. Replace problem plants with more desirable types.
Powdery Mildew (fungus)	Maple, buckeye, serviceberry, euonymus, sycamore, cherry, oak,	relative humidity. Water on leaves	1. Design landscape for good air circulation and light penetration.
	azalea, rose lilac, viburnum, crape	is NOT needed.	2. Prune and thin dense plantings.
	myrtle, tulip tree and many others.		3. Water early in day to shorten the time of high humidity
Root Rots	Most planta grown in wat sites can	Mat acile Marm wat conditions are	4. Select plants with resistance for problem sites.
fungus)	Most plants grown in wet sites can develop this problem. Sensitive	Wet soils. Warm, wet conditions are especially bad.	 Divert water away from area. Install drainage systems.
iuligus)	plants include: taxus, azalea, roses,	especially bau.	3. Improve "heavy" soils before planting.
	pine, dogwood, rhododendron.		4. Modify irrigation if too wet.
			 5. On weakened plants, prune top to bring in balance with weakened roots. Fertilize moderately.
			6. Select plants more tolerant for wet sites.
Rust	Birch, juniper, crabapple,	Warm, moist conditions. There are	1. Plant resistant varieties.
(fungus)	hawthorn, hemlock, eastern red cedar.	many rust diseases. Timing and weather may be different for each.	2. Do not crowd plants, thin to increase light and air circulation.
			 Improve plant vigor; fertilize, proper watering, mulching, etc.
			4. Prune and remove galls.
Scab	Crabapple	Warm, wet springs.	1. Select resistant varieties.
(fungus)			2. Sanitation; rake and dispose of leaves.
E. Dr.L.			3. Fertilize trees to maintain good vigor and growth.
Tip Blight of branches (fungus)	Juniper, pine, Russian olive	Varies depending on specific disease. Frequent rain often increases diseases.	 Prune out affected areas. Improve vigor of plants with fertilization, watering, mulching, etc.
			3. Use plants without this problem as replacements.
/erticillium Wilt	Maple (esp. Japanese, Norway	Fungus is in the soil.	1. Water plants during drought stress.
	& sugar) Jananoso harborny	Excessively wet or dry	2. Fertilize plants to maintain health and vigor.
fungus)	& sugar), Japanese barberry,		
(fungus)	catalpa, redbud, smoke tree, Russian olive, magnolia, sumac,	periods over several years cause root injury and weaken	 Remove infected plants and replace with resistant tree or shrub.

*For chemical recommendations check with county cooperative extension office and the state land grant university in your area.

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MOWING MANAGEMENT

Mowing Decks Become Versatile

ROGER GIFFORD, service manager at Haueter's Lawn & Sport Center, Chardon, Ohio, believes ruggedness of design is still the main thing mowing contractors look for in a mowing deck. His company is a dealer of Cub Cadet, Honda, Toro, and other commercial mowers. Popular models include 36-,48- and 52-inch walkbehind styles.

Gifford doesn't sell many riding mowers to commercial operators. "We sell those mostly to homeowners," he commented.

The main concern among the contractors he meets is how well the deck is balanced. Although a full floating deck is easier to change over, Gifford sells far more of the fixed, rigid deck styles. Most commercial customers prefer to set their cutting height at 3 or 3 1/2 inches and just keep working, he explained.

VACUUM IS IMPORTANT.

Good vacuuming ability also is vital in a commercial mowing deck, according to the contractors Gifford knows.

"It's got to draw the grass up straight for that clean, flat-surface finish, like a flattop haircut. More

and more straight-discharge decks now create a good vacuum, bringing up a high-lift blade that draws the grass up for an even chop," Gifford noted.

Another important feature in commercial mowers is the deck's

Dealers, contractors and manufacturers agree that mulching ability, drive design and handling are key elements in the choice of a mowing deck.

With the state with

by Bob Gitlin

capability for mulching grass.

"Honda put mulching kits into their commercial models," he explained, adding that in its second year, Cub Cadet is getting into mulching conversion kits in the commercial end. "The only mower designed as a mulch mower from the ground up is a Honda model a residential 21-inch style," he said.

Mower drive selection includes gear, variable speed, and hydrostatic. "I think hydrostatic is the only way to go because it's a pump system," Gifford said. "All you do is pump oil into the forward and the reverse positions. At neutral, it's a zero-pressure pump."

He believes that contractors buying gear drives tend to be budget-conscious, while those purchasing hydrostatic drives are more willing to make a long-term investment in equipment.

DESIGNED FOR WORK.

Zero-turning radius is a main concern for commercial use, Gifford explained. "It helps mowers lay a cut with less concern for overlap. The lines fall clean and look clean. The better you make the lawn look, the happier the client will be and the more likely he'll stay with you."

The long-term economics of a zero-turn mowing deck also play into the purchasing equation, Gifford added. "Hydrostatic drive's going to give a contractor less downtime, and they cost \$400 or \$500 more. But over a 10 or 15-year period, a hydrostatic zeroturn radius mower more than pays for itself."

Gifford pointed out that these figures are important in the highly competitive commercial landscaping market.

An investment over the long haul can still help a contractor remain competitive against new companies with little overhead. "On average, local contractors should get \$50 a cut. But a kid with a hand (continued on page 80) AMERICAN CYANAMID SAVINGS TIME

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USE READER SERVICE #65

Mowing Decks

(continued from page 78)

mower can come in and do the work for \$25."

The quality of the mowing cut available from the new commercial decks also helps contractors remain competitive, he added, pointing out that the clean lines of a hydrostatic mower are the way to distinguish work from the casual workers using a consumer-oriented product.

MAINTENANCE COUNTS. Maintenance issues also are important in the buying decision, Gifford said. "When you're waiting for parts, you're not making money. The contractor waiting to replace a belt or doing an exposed brake repair on a gear unit is not cutting any grass — someone else is getting that opportunity."

According to Gifford, the new hydrostatic drive models are less maintenance-intensive, but when they do break, they require more sophisticated mechanical diagnostics.

The biggest maintenance issue relates to indrive units. He believes gear drives are hard to maintain and keep up. "There's a lot of work with that design. Hydrostatics are pretty much maintenance free — you just go. They are a low repair design and you don't need an overqualified operator" (to keep them going).

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He also has an opinion on that: "Air is fine. Water is OK if you're letting the engine sit and idle, but if you want to make money, what good is letting the engine sit idle?"

Balance is an overriding maintenance issue for decks among budget and utility-conscious commercial buyers.

"Commercial users come in and push down on the handle bars to see how lightly the deck comes back," Gifford explained. "Some contractors say one machine is a little heavier than another, and some models tilt back to be easier to load on the pickup. The mowers are all pretty universal in getting the blades off the exposed part of the deck."

Gifford said that mowing decks are getting more and more versatile. "They used to be square-shaped in design. Now one company offers a round, curved edge on its decks that allow the blade tip to come within a quarter inch of a curve. Operators can walk up along the base of trees without having to trim afterwards."

The additions of mulch conversion kits are making commercial decks better and better at

'Mowers are more versatile now. Hydraulic drive means an operator doesn't have to manhandle the machine. It's easy to manuever with the touch of the levers.'

recycling clippings onto turf, he pointed out. "Now, with the commercial mower, you can discharge, mulch or bag. You can give the same quality of cut to a commercial property as you can for a residential lawn."

MULCHING ABILITY. Landscape contractors believe that current and future improvements in mulching ability are key to their operations and purchasing decisions.

Randy Palmatier, operations manager at Eastern Land Management, Shelton, Conn., said mulching is his big interest when examining a deck. He currently uses a deck with a special blade set to mulch the grass when it cuts. "A cover goes over the chute; when the grass hits the cover, it sends it back through." While this system works sufficiently, he continues to search for new developments.

What level of functionality would he like to see in a deck?

"Even mulching decks give too much clumping," said Palmatier. "We're letting turf grow higher these days. We have to go back and collect the clippings or disperse them with backpack blowers."

Like many supervisors, he has his own way of (continued on page 82)



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New riding mowers may offer zero-turn radius design and floating decks for better handling. Photo credit: Excel

Mowing Decks

(continued from page 80)

equipping his mowing crews. He prefers 61-inch riders, 52- and 36-inch walk-behind models and 21-inch trim mowers. "Those are the only sizes I use — no 48-inch styles, no in-betweens," he explained.

Palmatier overhauled his mowing fleet a few years ago, just before the influx of hydrostatic drive models. As he replaces mowers, he'll be converting to the new designs.

"There's less maintenance involved with hydrostatic drives," he said. "But if something does go wrong, chances are you're going to need a real mechanic to fix it, not just an operator on a crew. When a belt goes off on the job, a crew member can put it back; with a hydrostatic drive, it comes back to the garage."

Pat Enstrom, landscape maintenance supervisor at Teufel Nursery, Portland, Ore., said he scrutinizes mowing decks for their ability to mulch. His firm mows a lot of perennial ryes. "Usually, we bag or mulch clippings. If we can mulch, we're more efficient. Unfortunately, rain thwarts those efforts at times."

Most of mowers his company uses are 36-inch walk-behind models. "People here have landscapes with lots of slopes and berms. The narrower mower accommodates the contours. Just this year, we're buying some zero-turn radius styles with 48-inch decks."

Enstrom said he's tested a new mower with an intriguing new deck design. "Rather than using a mulching blade, it has chains on the spindles, above the blade."

The 48-inch zero-turn rider represents a small machine. "We have several accounts over six or seven acres of turf, but those contours force us to use small decks, even in a rider," he explained.

Enstrom intends to switch his fleet over to - hydraulic-drive or hydrostatic drive mowers. "We (continued on page 84)

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Mowing Decks

(continued from page 82)

will buy no more belt-driven walkbehind styles. Our mechanic said the actual cost of maintenance on hydraulics will match that of belt drives, but the frequency of repairs will be far less."

SEARCH FOR IMPROVEMENTS.

The efforts of manufacturers to produce mulching capability in the commercial market is admirable, Enstrom said, but there's that nagging problem of moisture that's endemic to Oregon and Washington.

"The way mulching mowers are being designed is frustrating for us. I wonder if they'll ever come up with a mulcher that could do tall, wet grass. The way they've been made, we can use them for only a third of the season. Maybe the new mulch machine we're testing will help," he said.

A final problem, Enstrom added,

is that most mulch mowers are not convertible or require removing parts that, subsequently, don't fit back on because of the normal abuse a typical mower takes.

Pete Delaney, vice president at Tar-Heel Natural Turf, Charlotte, N.C., decides deck size by job size, and uses 48- and 52-inch walk-behind mowers as his workhorses. "We use the 36-inch model in a smaller, tighter situation. We also employ 61and 72-inch riders for large turf areas."

He has used mulch conversion kits and been dissatisfied with them. "We have one job where safety is a consideration and we use a mulching deck simply so there's no discharge."

Walk-behind mowers are preferred at Greathouse Landscape, Nashville, Tenn. "We use two sizes: 36- and 52-inch walk-behind mowers," explained Dean Haynes, maintenance supervisor. "We also have 20-inch push mowers. Each crew usually has one 52-inch model, two 36-inch styles, and one push mower."

He has phased out riding mowers, joining a growing number of other contractors. Most of his contracts are tight areas with a lot of trees and landscaped areas needing precision cutting.

Thus, he said, "Riders have trouble getting in and out of the areas. Our operators are conscious of the way a cut looks afterwards. They want good, straight lines. We checkerboard a lot of areas. We can't really do that with riding mowers."

FLOATING DECKS. Haynes explained that perfect cutting of the area's endemic fescues involves knowing how to avoid scalping. It's a problem he sees frequently in the area's often lumpy, undulating terrain.

"That's why we like floating decks that let us adjust the height of cut. With all those adjustments, the decks adapt better. If an operator is in a dip, the deck floats up. Our 36- and 48-inch mowers generally are floating decks."



Some contractors use mowers with a variety of widths to accommodate different mowing needs. Credit: Encore

Floating decks offer advantages, said Dick Tegtmeier, owner of Encore Mfg., a contract mower manufacturer in Beatrice, Neb.

"More mowers are offered with floating decks," he explained. "We have a rider coming out with a floating deck. But it's not applicable everywhere. For instance, in Florida, they want to manicure the front yard and whip it off rough in the back yard."

This variation requires quick height adjustment — which is harder to do with a floating deck, he pointed out. "We plan to have a special unit on our floating decks so operators can lower and raise it with a lever. Otherwise, they'd have to move spacers and casters to make the change."

EASY OPERATION. Jerry Bailey, vice president and general manager, Scag Power Equipment, Mayville, Wis., noticed increased reliance on 36and 48-inch walk-behind mowers in the market, as well as the trend to larger deck sizes in walkbehind styles.

Walk-behind mowers with hydraulic-drive systems have partially supplanted riding mowers. Hydrostatic drives and zero-turn radius designs make it easier to push big mowers, he noted. "Mowers are more versatile now. Hydraulic drive means an operator doesn't have to manhandle the machine. It's easy to maneuver, to go forward and reverse with a touch of the lever."

This could make it easier for the contractor to find people with enough "muscle" to do the mowing work. Previously, the job required an operator the size of a football tackle to move the mower across a tilted expanse. "Now, you can have small operators and women handling a 61inch walk-behind mower," said Bailey.

Functions are important, but ruggedness is still job one, he added. "We try to build all our machines with the understanding that it's a tough (continued on page 86)



TURFOD

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The Other Stationer (S. 7.8 March

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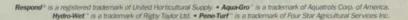
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Mowing Decks

(continued from page 84)

industry, and fairly abusive. The machines are used day-in and dayout. They need to get over curbs to get back on the trailer. We build a heavy-duty machine."

Mulching improvements are high on the blackboard of engineering priorities, Bailey said.

"Our deck works as well as any on the market," he said. "But every manufacturer continues to do a lot of research and development to try and improve their mulching capabilities."

OVERREACHING CLAIMS? The main thing mowing contractors ask about in decks is mulching, echoed Tegtmeier. "More manufacturers offer conversion kits now. Some have decks dedicated to mulching."

Some designs try to bite off more than they can chew, he noted. "I've seen a lot of claims, and some of these guys are in trouble if they try to do everything they advertise."

Mowers touted to work well at seven mph do not, he believes. "Some people go too fast. They try to mow too much off for mulching."

Are there any new engineering designs coming in decks?

"We do contract work for four of the competitors," he said, "and those companies say no big new innovation is happening. The the grass hasn't changed."

Tegtmeier elaborated on minor changes to come: "As far as the mowers, we'll see a lot of horsepower for mulching. The designs will also try to keep the deck deep and have high-lift blades."

Many operators need to learn Mulching 101, said Kurt Schaefer, regional sales manager for Cub Cadet, Cleveland, Ohio. That needs to be done to get better mulching performance. "We need to instruct the commercial operator how to cut, when to cut and when not to cut. The biggest problem with mulching is cutting too much grass, not only in the height of grass, but the width of cut of the machine."

DESIGN FAVORITES. Hydrostatic drives and zero-turn radius models are hot now, Tegtmeier said. "We came out with that style a year ago, and in 103 days, we shipped \$1.6 million worth of them."

He pointed out that the new technology eliminates slippage problems associated with past mower designs. "Iteliminates some belts to the wheels. During the mowing season in the Midwest, there is lush grass in the morning with heavy dew. Belts extending down to the wheels gather clippings and water. The hydrostatic drive eliminates those belts. It allows the operator to get going on a dry afternoon or wet morning. The only slippage will be between the tire and the grass."

Schaefer believes much of the purchasing decision relating to deck sizes relates to region. In Colorado, for instance, a profusion of fences, gates and other obstructions means that landscape contractors buy many of the 30- and 32-inch decks.

The smaller models also have simpler controls. "With the new designs," said Schaefer, "anyone can operate the mower in 15 seconds — this is forward, this is left, this is right, this is reverse — and within 10 minutes of operating it, be proficient."

The author is Contributing Editor for Lawn & Landscape Maintenance magazine.



New decks add a variety of features to improve productivity and handling in rider or walk-behind styles. Photo credit: Kubota

USE READER SERVICE #12

Tough Jobs Demand Tough Equipment.

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36" Gear



48" Hydro

Introducing The New Line Of Snapper Commercial Lawn and Turf Equipment.

52" Hydro

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Commercial Products Division

PESTICIDE STRATEGIES

New Chemistry Impacts the Industry



FEW EVENTS have impacted the way we live and work as man's first step on the moon and the development of the information superhighway. Last year, an event occurred which will have a major impact on the way lawn and landscape professionals control pests.

A new class of insecticide chemistry entered the turf and ornamental markets and its arrival signals a Imidacloprid offers high performance, low use rates and low toxicity.

By Jim Dotson

More than 100 field trials showed that imidacloprid could control grubs on turf at low use rates.

new era in pesticide technology.

The majority of insecticides used on turf and ornamentals in the past two decades have been members of three chemical classes: organophosphates, carbamates and synthetic pyrethroids. Now, a completely new chemical class has been be added to the list: the chloronicotinyls. With the 1994 registration of imidacloprid (a chloronicotinyl) came the first new significant chemistry to be introduced into the lawn and landscape industry in more than a decade.

Theproduct, commercially known as Merit® insecticide, represents not only unique chemistry, but also a way to address customers' demands for reduced pesticide use and reduced risks to humans, pets, wildlife and the environment.

The lawn service contractor who uses this chemistry has the opportunity to make a variety of changes in the way he or she markets and sells lawn services.

RAPID REGISTRATION. The development of imidacloprid is an example of the response that manufacturers have made to the needs and concerns of customers and the general public.

In 1985, chemists at Bayer Corporation (formerly Miles Inc.) synthesized approximately 23,000 potential plant protection products in its laboratories and greenhouses worldwide.

Imidacloprid, which was synthesized at Nihon Bayer Agrochem in Japan, showed unique properties in the early biological screening process. The compound was first evaluated on turf in the United States in 1988. Intensive evaluations from 1990 through 1993 resulted in an extremely large database with approximately 125 turf field trials for white grubs alone.

At the same time, the accompanying toxicology, environmental fate, ecological effects and other necessary studies were progressing at an accelerated pace. The federal registration package for imidacloprid as a turf and ornamental product was submitted in April, 1992, after several preregistration meetings with the Environmental Protection Agency. These meetings laid the groundwork for an accelerated review.

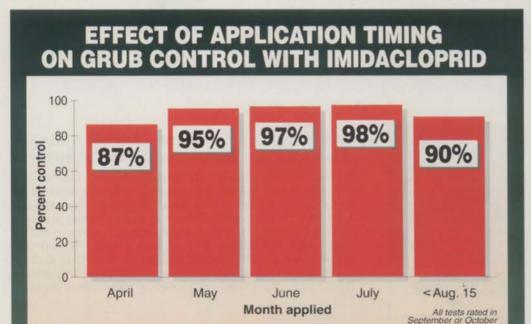
The review of the registration package was completed in under two years, compared to an industry average of 30 to 36 months. Imidacloprid received registration in March, 1994, for use on turf, landscape ornamentals and interior plantscapes.

MODE OF ACTION. Imidacloprid is characterized by several unique properties not commonly found in turf insecticides. Its mode of action is distinctly different than that of other classes of insecticides, which act by either inhibiting the enzyme acetylcholinesterase or by blocking open ion channels along the nerve body. In either case, it results in overstimulation of the insect nervous system.

Imidacloprid acts by binding to receptor sites at the nerve synapse, disrupting normal nerve function. It has no effect on acetylcholine sterase.

It also causes dramatic behavioral effects in insects, even at sublethal doses. The action of imidacloprid at low doses causes insects to become disoriented; they usually stop feeding and reproduction is limited.

(continued on page 90)





As a lawn maintenance pro, you can't afford to see it from the smallest trimmer to the largest chain saw, is built

Most people see grass. You see taxes, the rent, and next week's payroll.

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USE READER SERVICE #20

that are more productive. Equipment that costs less to own. And a business that's better able to deal with little things like taxes and payroll. So when you're ready to take a break from looking at grass, go see the fastest-growing line of professional equipment in the industry. Visit your local Shindaiwa dealer.

What's it all mean to you? Crews



New Chemistry

(continued from page 88)

The compound is systemic, and therefore controls insects by ingestion as well as contact activity.

While soil systemic activity is not

uncommon, especially in ornamental insecticides, the stability of imidacloprid allows for longer residual control than most products. An additional benefit is effective control of ornamental pests (see below).

Extensive research efforts con-

firm that imidacloprid can be applied as early as April for grub control that lasts throughout the season. In fact, unlike most soil insecticides used in turf, the product works best if applied prior to or during the hatch period of insect pests such as white grubs, billbugs, annual bluegrass weevil and mole crickets.

APPLICATION STRATEGIES. The wide application window with (continued on page 92)

ORNAMENTALS REQUIRE SPECIAL ATTENTION

IMIDACLOPRID, although expected to be widely used on turf, is also a unique tool for use on ornamental plants. The active ingredient is highly systemic, especially when soil-applied.

The residual control provided by soil applications, when used according to label directions, is long enough that a single application can provide months of insect control, according to the manufacturer.

A 75WP formulation is labeled for foliar spray application and will provide knockdown and limited residual control of labeled insect pests. However, the foliar half-life of imidacloprid is limited due to photodegradation and other weather-related effects.

The use patterns that truly benefit from this product's residual characteristics are soil injections and soil drenches. By placing the active ingredient into the ornamental root zone, a single application can do the job.

The label requires that soil injections or drenches to trees and shrubs be applied on an individual plant basis and not broadcast over an entire planting. Label rates for trees are based on trunk diameter. Rates for shrubs are based on shrub height. The ornamental portion of the label includes broadcast instructions for flowers and groundcovers only. These broadcast dosage rates will provide residual insect control only on nonwoody plant material such as annual flowers.

Imidacloprid controls ornamental insect pests such as adelgids, aphids, elm leaf beetle, Japanese beetle, lacebugs, leafhoppers, leafminers, mealybugs, scale insects, whiteflies and white grubs.

One factor that must be considered when using imidacloprid for soil application to ornamentals is its slow translocation speed. Unlike other soil-applied systemic products that are translocated relatively quickly, imidacloprid is much slower.

For this reason, soil treatments should be applied prior to the establishment of heavy pest populations.

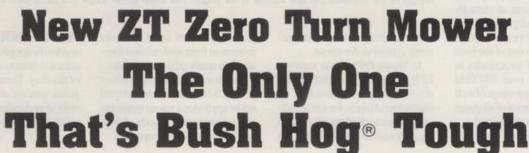
Early spring applications are acceptable for most shrubs and small trees. However, trees greater than six inches in diameter should be treated in the fall, especially when insect pests typically infest the trees during the spring months.

Imidacloprid best fits into landscape maintenance programs as a planned treatment on plants which have a history of annual insect problems. Some contractors plan to use the product in combination with liquid fertilizer in deep-root fertilization programs applied to specimen trees in the fall.

Since imidacloprid is totally new chemistry, it provides control of insects that may exhibit certain levels of resistance to other insecticides. And it provides another tool in the lawn and landscape contractor's IPM arsenal.







The new Bush Hog® ZT 1800 and ZT 2200 are the only zero turn mowers qualified to wear the Bush Hog® brand. That's because they are the only mowers that meet Bush Hog's farm-tough specifications for performance and durability. And, because they are the only zero turn mowers that deliver all the features you need for commercial mowing.

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New Chemistry

(continued from page 90)

imidacloprid is a significant advantage in a number of ways. In terms of flexibility and efficiency, the application can be made whenever it fits into the management practices of the contractor. This is especially critical for companies with several hundred accounts to service.

This flexibility and residual activity helps reduce pesticide use by decreasing the number of applications. For example, if the product is applied in the spring for the control of black turfgrass ataenius, it doesn't have to be applied a second time in the fall to control grubs.

WIDELY TESTED. As a result of extensive evaluations at virtually every major university and by Bayer during the past five years, the product has emerged as one of the most widely tested turf insecticides in recent history. In over 100 field trials, it provided an average of well over 90 percent control of all major species of white grubs on turf.

Billbug control has averaged

ACUTE TOXICITY OF IMIDACLOPRID

Formu- lation	Species	Oral LD ₅₀ mg/kg	Dermal LD ₅₀ mg/kg	Inhalation LC ₅₀ (mg/l) (Aerosol/ 4 Hr.)	EPA Toxicity Category	EPA Signal Word
75WP	Rat (male) Rat (female)	2591 1858	>2000 >2000	2.65 2.75	, M	CAUTION
0.5G	Rat (male) Rat (female) Rabbit (male) Rabbit (Female)	>4820 >4820	>2000 >2000	(Dust/4 Hr.) >5.09 >5.09	Ш	CAUTION

NOTE: LD_{50} and LC_{50} are the accepted abbreviations for median lethal dose and median lethal concentration, respectively. They indicate the amount of toxicant necessary to effect a 50 percent kill of the test population. LD_{50} is expressed in weight of the chemical per unit of body weight (mg/kg). LC_{50} is expressed in weight of the chemical per unit of the more toxic the chemical.

about 85 percent when used according to label directions.

In March 1995, Bayer received EPA acceptance of a label amendment adding mole crickets to imidacloprid labels. Research indicates when applied prior to or during peak egg hatch in the spring, the product provides equal or better protection from mole cricket damage than many other insecticides.

However, with all these insect pests, it is critical that imidacloprid not be applied as a rescue treatment against large instar insects. Application timing is very important. **REDUCED RATES.** As any lawn and landscape professional knows, effective insect control is only part of the story. Because of increasing public concern about the potential risks of pesticides to humans, pets, wildlife and the environment, con-(continued on page 94)



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USE READER SERVICE #77

MAY 1995 • LAWN & LANDSCAPE MAINTENANCE



NOW THERE'S NO PLACE FOR PESTS TO HIDE.

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AVID provides extended residual control which can mean fewer applications and lower costs.

NO UNSIGHTLY RESIDUES

AVID is a liquid that leaves no powdery deposits or residues to detract from the beauty of your plants.

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AVID is unrelated to other miticides or insecticides so it can control mites and leafminers that have developed resistance to other products.

So, when it comes to unsurpassed pest control for nursery, landscape and greenhouse growers . . . the choice is clear. AVID leaves target pests with no place to hide.

AVID



BEAUTIFUL RESULTS FROM EVERY BOTTLE

Merck AgVet Division, Merck & Co., Inc., P.O. Box 2000, Rahway, NJ 07065-0912. AVID* is a registered trademark of Merck & Co., Inc. @ 1995 Merck & Co., Inc. All rights reserved. AVD-5-1053-AJA Always read and follow label directions carefully.

New Chemistry

(continued from page 92)

tractors today are looking for products that provide effective insect control with lower toxicity. Early in the developmental stage, imidacloprid was recognized as a compound possessing such traits.

The product can be used for grub control at a rate of 0.3 pound of active ingredient per acre, compared to two to eight pounds of active ingredient per acre for other soil insecticides used in turf. This represents a reduction of 85 to 96 percent in active ingredient per acre. This low-use rate, coupled with fewer repeat applications, can result in a significant reduction in insecticide use over the course of a year.

Imidacloprid is also characterized by low mammalian toxicity, resulting in reduced risks to applicators, pets, wildlife and bystanders. The active ingredient is characterized by lower toxicity to birds and fish than many other soil insecticides used in turf.

TALKING TO CUSTOMERS. Because the regulatory community and the public increasingly require new products having the combination of effective performance and low toxicity, it is unlikely that any new turf and ornamental insecticide that does not exhibit these characteristics will make it through the development and registration process in the future.

The key to marketing these new products is an intensive effort to educate customers as to their mode of action, their performance and their environmental advantages.

So how does a lawn or landscape contractor communicate these benefits to his or her customers? Let customers know that on the average, only one in 20,000 compounds tested make it from the synthesis lab through the studies required for EPA registration, and then to the market. This process may take nine to 10 years and cost \$30 to \$50 million. To qualify for registration, a pesticide manufacturer may need to submit the results from more than 120 different tests.

Dave Murphy, president of Green Valley Co., Merriam, Kan., was one of the first lawn service firms to try imidacloprid. Through newspaper advertorials, direct mail, quarterly newsletters and customer education during the estimating process, Green Valley informed its customers about the new insecticide. The firm performs approximately \$60,000 worth of grub control business each year. Its tree and shrub care pest control business accounts for \$35,000 per year.

"You have to take the time to inform and educate," he said. Last year, where it was used, there was not one single grub problem among the company's customers.

Murphy is no stranger to trying new methods and products. For nearly 25 years, he has kept his company on the cutting edge of ecologically sound practices. In the 1970s, he advised customers to compost yard waste, long before it became the responsible thing to do.

HIGH EXPECTATIONS. When a Green Valley representative does an estimate, the customer receives a list of recommended services. Next to each service is a description of what will be done and its price. For

early summer, grub control with imidacloprid is listed. No other product is mentioned on the list of recommended services.

"It's our most expensive application," Murphy explained, "but when we talk to the customer, we point out the price and explain that it's a new product that is low in toxicity yet effective on grubs."

He said customers expect lawn and landscape professionals to use the best product. "They're paying for our expertise and are willing to pay a little extra per treatment once they know this product is effective and we're putting less active ingredient into the environment."

In a direct mail campaign this spring, Green Valley informed existing lawn and tree care customers about its new service using imidacloprid. The product is injected into the ground to control tree insect pests. "It can clear up scale and other tree pest infestations with one application," he noted.

The author is product development manager, turf and ornamental products, Bayer Corp., Kansas City, Mo.



Learning How To Plan For Profit

Adding security and sanity to an otherwise unpredictable business requires thoughtful planning with the bottom line in mind.

By Paul Schrimpf

HEN MOST lawn and landscape contractors open their doors for business, the primary focus is on growing the client base first, and worrying about profits later. This philosophy may work for a while, but sooner or later they'll hit "the wall" — changes in weather, the economy, labor or other business stress that can snuff out the cash-vulnerable business, regardless of work quality or expertise.

For this and other reasons, one of the most important things a young lawn and landscape business needs to develop early on is the discipline of budgeting for profit. And it's not necessarily an easy thing to do. Competition, changing weather and markets and the average lawn and landscape professional's disdain for sitting at a desk and fine-tuning numbers — all these can hinder the implementation of a profit plan.

Consultants and some established industry professionals agree, though, that the collapse of many otherwise outstanding service companies can be traced to overlooking the bottom line.

STACKED DECK. From the outset, most fledgling lawn and landscape contractors are not getting the skills needed for planning and understanding the financial side of the industry. Many new owners come from the rank and file of another firm, where their concerns were centered more around doing the work or managing the labor than watching the books.

"There are a lot of people out doing landscaping, but not too many that are in business," said Jim Wathey, general manager of Northwest Landscape Industries, Tigard, Ore. "I attend educational opportunities sponsored by the Associated Landscape Contractors of America and



I hear participants say that they don't want to deal with all the paperwork — they just want to landscape. That's fine, but they need to have someone as a respected manager or partner that understands the business side or they are going to work very hard and make very little money — or go broke."

Contractors must realize they are providing a valuable service, and should expect to generate a profit. Photo credit: Clean Cut, Inc.

BUSINESS MANAGEMENT: PART 5

Phil Christian, president of pdc Consultants, Alpharetta, Ga., said the early experience of the new business owner often fails to present an understanding of profit.

"Most people start working by the hour at a minimum wage, around eight to nine dollars per hour, where profit can't be identified, and then move into a position where they are earning from \$25 to \$30 per hour, again where profit can't be identified," explained Phil Christian. "When they become business owners, they don't see the need to identify profit — they don't even think about it."

Christian said profits start out meaning little to the small landscape business. As the company grows, however, financial institutions and investors will judge the business almost entirely by its level of profitability.



Careful profit tracking increases control over variables. Photo credit: Mickey J

"Profits start out with zero meaning, but when the business grows enough, it means everything. Once you're out of the mom and pop situation, profit is the way business success is measured. Companies will find that out the first time they go into a bank and ask for a loan, or if they ever try to sell their companies. Investors simply won't buy a company that can't show a profit on the books. Somewhere in the evolution of the lawn and landscape business owner, profit has been left out," said Christian.

A lack of business knowledge can be a dangerous thing. Patrick Norton, president of Barefoot Grass Inc., Worthington, Ohio, thinks new companies too often resort to setting service charges solely based on what the competition is charging, without doing the math.

"Companies must spend more time on the equation and charge a fair value for the services performed," Norton said. "They have to realize that they are performing a valuable service, and should expect a fair return on the work they do."

PROFIT IS GOOD. Being able to track profits provides a number of advantages for the young lawn and landscape business. Profit provides a measure of security against the zones of turmoil that make poorly managed lawn and landscape operations suffer.

Even when a business on the edge survives, there can be consequences. Credit, customer service and labor stability can become difficult to manage. "Without a profit cushion to fall back on, any temporary or indefinite loss in cash flow can result in the destruction of a credit history," noted Christian. "Not being profitable deprives business owners of the opportunity to be loyal to their workers and customers." "Profit is a must if a business is to survive, not an evil that is a by-product of greed," said Wathey. "Your employees need to know this. It is from profits that the company buys the trucks, tools, equipment, computers, etc., that employees need to make their jobs a successful and positive experience.

"If you do not make the profits to buy and replace these things, you have to buy them with invested capital. Then, if you don't make a profit on that investment, you have just destroyed your capital," he explained.

Careful tracking of profit can significantly increase the control a lawn and landscape contractor has over the business. When you understand what services cost to provide vs. what customers pay, you can determine whether the service is a money maker or a profit leach. Then, you can make educated choices about keeping the service, raising the cost of the service or ending the service altogether.

"Don't rely on luck," said Norton. "To increase the probability of success, you need to set a plan to get where you want to go."

JUST DO IT. Reputedly one of the most profitable lawn maintenance companies in the country, Barefoot Grass is a testament to the importance of profit. Today, Barefoot Grass is a publicly-held company, requiring a tight rein on the bottom line.

When it began operating in 1979, however, it was a private company with a solid financial plan. Norton brought with him a background as a certified public accountant, and married his financial skills to the lawn maintenance industry.

Norton said the important thing is to just get started. Without a past history of tracking the num-

bers, it is difficult to be precise — but the only way to create a history is to follow a plan through for the year, examine it, make changes and learn from mistakes.

For the last 16 years, Norton has been developing and tweaking a computer tracking system that considers over 200 variables for each of the company's 120 branch offices. The variables fall under specific categories, including marketing, service revenues and expenses.

On the marketing side, Barefoot Grass' plan changes and evolves from year to year, based on past history and current economic factors. "You need to look at what the money spent on marketing yields in terms of numbers of customers. You also need to break down each type of marketing — direct mail, door hangers, etc. — and know how many sales were generated for each," Norton said.

"The first year, you can make educated guesses, then you need to keep records of marketing performance vs. spending and make changes from year to year. Set your goals, set your budget and measure it. It will make the next year that much easier to predict," he explained.

The second level, the expenses, bring another range of variables into the planning picture. Of course, the largest expenses by far fall under the category of labor. Norton breaks out every line item, including pay, benefits, unemployment and worker's compensation insurance, social security, average leads per day and average production. Unpredictable elements such as inclement weather are also factored in to get the most accurate average labor expense per customer.

Vehicle expenses are the next consideration. This subset of variables includes the lease cost, interest, depreciation, insurance, gas and repairs.

Product costs per customer are figured out in progression. "You have 'x' number of customers that average 'x' thousand square feet of lawn, which gives you the average coverage requirement of a product per customer," Norton explained. "From there, you can determine the average amount of product per customer and arrive at a product cost per customer."

Bringing these average expenses together accurately will tell you what you need to charge to turn the level of profit you want. And once the model is in place, extra services can be plugged in to determine whether they are winners or losers.

"If you have 500 customers, and 10 percent want aeration, what do you charge? How much added expense will there be? Using a model will tell you how much you need to charge and whether it's even worth it to perform the service," Norton noted.

He warned against providing a service to keep up with the Joneses. "Too often people say, 'the other companies are doing it, so I need to do it, too.' Companies need to look longer term, and determine if the service is going to make them money," he said.

PLAN, PLAN, PLAN

Russell Frith, president of Lawn Doctor Inc., Matawan, N.J., knows success. His company presently manages more than 300 offices in 31 states, generating between \$36 and \$38 million a year. Frith said no matter what direction you choose to go with your company, having a plan of action is an absolute necessity.

"It's like trying to win the national championship — you can't get there until you've won enough games to win the division, get to the playoffs and play in the big game," Frith said. "You need to define what your goals are, develop the plan to get there and have the desire to make it all happen."

As you think about your plan, Frith suggested the following points:

• Define your market in real terms. "Is the area affected by economic factors, such as unemployment? What's the marketplace likely to be next year? What degree of risk will you be willing to take? What are the prospects for industrial expansion and growth? Remember, many purchases are made on the perception of the marketplace, as opposed to the realities."

Frith said the four key elements to predicting future success are unemployment levels, market status (growing, steady or declining), who the competition is and the rules of conduct that businesses in the industry need to follow. He suggested that owners:

 Be willing to commit the time to spend in the planning process.

• Leave room for flexibility, especially with labor. When weather conditions don't allow applicators to get out to customers, have some alternative projects ready that at least gets some value from the labor dollars being spent. "Painting, cleaning, record keeping and literature distribution are possibilities. You can have those tasks planned out in advance."

• Understand the unpredictable side of the business. "With advertising, you can predict when the coupon will be mailed, but you can't predict whether it will rain that day. You can predict the time and material per square foot on a given job, but you can't predict when your worker will be able to do it. You can be certain when you seed a lawn but not when it will germinate. You can set a maintenance schedule for a piece of equipment, but have no idea when it will fail."

• Realize there are ups and downs to the industry. "If growth is fast, profits drop. If profits grow, then growth is slow. There will be times when you want to ratchet down and make profits, and you may later decide that you need to improve volume."

BUSINESS MANAGEMENT: PART 5

In terms of a profit level, Norton said that expectations tend to increase the longer a person has been in the business. "Over time, you can certainly set realistic profit targets — getting to 10 percent ought to be a real goal, after paying yourself a reasonable salary and your employees a fair wage," he said.

Norton also recommended using industry groups like the Professional Lawn Care Association of

do you charge? How much

America for advice on profit and business plan- 'If you have 500 customers and ning, rather than using a generic business con- **10 percent want aeration, what** sultant.

THE UN-SECRET. North-west Landscape Industries has been a success- Using a model will tell you how ful landscape contrac-tor in the Pacific North- **much you'll need to charge.** west for over 22 years,

in part due to the attention given to profit, according to Wathey. "In all our years in business, we have had one break-even year - all the rest have been profitable," he said.

He explained that there's nothing mysterious about the success he has had. He has simply made it a point to learn and apply techniques that made the company more profitable.

"The un-secret is that I learned, applied what I learned, followed through with adjustments and learned some more," Wathey said. Much of his training has come through seminars, which he has been doing since 1976, and association literature.

One of the most important factors in developing a profit plan is to create a chart of accounts that breaks out all costs and revenues. Northwest uses one similar to those presented in ALCA seminars, Wathey said. Using a format like ALCA's makes it easy to compare company numbers to industry numbers.

"It gives enough detail to identify where your costs are going, and is not too lengthy or complicated as to be impractical. This format, accurate statements and a job cost will really tell you what your profit is, or isn't," he noted.

Every aspect of the business is assigned a four-digit code. The first digit of the code indicates a broad category, such as "assets" or "earned revenue." The second digit indicates a narrower subcategory that fits under the main heading. For example, under "assets," the model lists the subheads "current assets," "fixed assets" and "other assets."

The third and fourth digits allow the contractor to fill in line items that fall into the subcategory. Under "current assets," for instance, the model lists "cash on hand," "cash in banks," "investments" and several others. The objective is to make every aspect of the business trackable and accountable, so accurate assessments can be made about the health of the company, including the profit margin.

To help Northwest employees buy into the profit scheme, every manager puts together the operating budgets for each department. "The employees work with their supervisors on the projections so that the budget becomes their budget and not something handed down from the owners. They become committed to meeting their budget. This approach is also an excellent method of teaching them about the way businesses work," Wathey said.

To track progress, Northwest uses a monthly fi-

nancial statement and a basic costing by job. "The job outcome gives your gross margin, tells you if you're estimating correctly and reveals any production problems," he said. "I recommend a basic budget by month or quarter. This

quickly tells you how much overhead you can afford at a given sales and gross margin level."

Employees will occasionally be the beneficiaries of sharing excess profit, but Wathey doesn't advocate a profit-sharing plan that boosts a substandard wage. "Our philosophy is to pay above-average wages and benefits that accurately reflect the value each employee contributes each day. Profit sharing should be used to share excess profits with hardworking and dedicated employees.

"We tell all employees what profit is used for by percentages, such as equipment replacement, facility improvements, expansion money for new work, administrative equipment, return on investment and income taxes. Then, we look at what is left over and that money becomes available for profit sharing. They know that if profits go down, profit sharing by necessity is the first thing to go," he explained.

GETTING HELP. Like Norton, Wathey said that industry associations provide some outstanding information for contractors incorporating a more comprehensive business plan. Consultants may be very helpful, too, but he suggested some caution.

"Major metropolitan areas have good financial consultants. I would be careful, though, to pick one with at least a lot of experience in the construction or service industries. Stay away from generic consultants and check references," he said.

Wathey also suggested that every company should have a banker and an accountant, but warned against taking their advice on business operations. "It's not what their training or background is all about.'

"I think good financial advice is readily available," he concluded. "It is very important that you know what you want, because they are expensive by the day. The return on investing \$1,000 to \$2,000 a year can come back to you many times over."

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

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Composting

Calendar

JUNE 4 New Jersey Certified Tree Expert Educational Seminar, Millstone, N.J. Contact: Gary Lovallo, 908/591-1113.

JUNE 27-29 Practical Approaches for Effective Erosion and Sediment Control, Toronto, Ontario, Canada. Contact: International Erosion Control Association, 800/455-4322.

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 16-19 Canadian Urban Forests Conference, Windsor, Ontario. Contact: Canadian Forestry Association, 519/255-6270.

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 24 Midwest Regional Turf Field Day, West Lafayette, Ind. Contact: Midwest Regional Turf Foundation, 317/494-8039. **JULY 25-27** Penn Allied Nursery Trade Show, Fort Washington Expo Center, Fort Washington, Pa. Contact: Pennsylvania Nurserymen's Association, 717/238-1673.

JULY 26 University of Georgia Turfgrass Field Day, Georgia Experiment Station, Griffin. Contact: Gil Landry, Extension Crop & Soil Sciences; 404/228-7300.

JULY 26-28 Florida Nurserymen and Growers Association and the Associated Landscape Contractors of America Conference, Hyatt Orlando, Orlando, Fla. Contact: Lynne Rue, FNGA, 407/345-8137.

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.

JULY 30 - AUG. 1 International Lawn, Garden & Power Equipment Expo, Kentucky Exposition Center, Louisville. Contact: EXPO 95, 6100 Dutchmans Lane, Sixth Floor, Louisville, KY 40205; 800/558-8767.

AUG. 4-6 Southern Nurserymen's Association Trade Show, Georgia World Congress Center, Atlanta. Contact: SNA, 404/973-9026. **AUG 18-20** TAN-MISSLARK Nursery and Garden Supply Show, Dallas Convention Center. Contact: Texas Association of Nurserymen, 512/280-5182.

AUG. 18-21 Nursery Management Institute, Michigan State University, Lansing, Mich. Contact: American Association of Nurserymen, 202/789-2900.

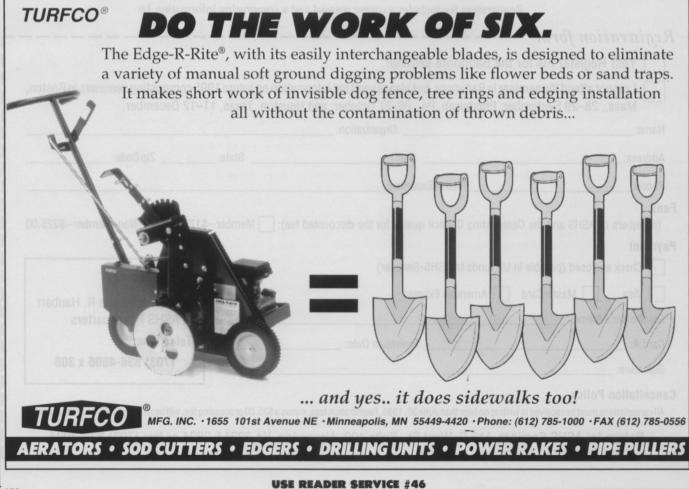
AUG. 26-28 Farwest Show, Oregon Convention Center, Portland, Ore. Contact: Farwest Show, 800/342-6401.

AUG. 31 - SEP. 1 Pacific Hort Expo, Ornamental Research Conference and California Association of Nurserymen Convention, Sacramento, Calif. Contact: Margo Jonsson, 916/ 567-1133.

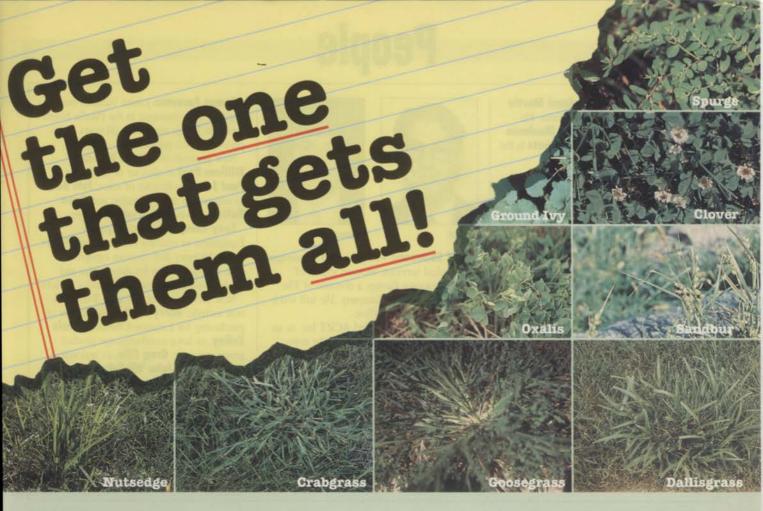
SEP. 7-10 Responsible Industry for a Sound Environment Conference, Ritz-Carlton Pentagon City, Arlington, Va. Contact: RISE, 202/ 872-3860.

To ensure that your meeting date is published, send an announcement at least 10 to 12 weeks in advance to LLM, 4012 Bridge Ave., Cleveland, OH 44113, or call 216/961-4130.

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Michael S. Sullivan, GCS HAWTHORNE HILLS COUNTRY CLUB Lima, OH

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People

PBI/GORDON appointed Richard Martin president and chief executive officer. He joined the firm in 1982. Everett Mealman will continue as chairman. John Coats is the newly appointed treasurer.

Sandoz Agro named Gary Clayton business manager, turf and ornamental products, for its specialty business unit.

New regional sales and service representatives for Hunter Industries are: Jeffrey Bower, Florida; Steve Emerson, northern California and northern Nevada; John George, north Texas, Oklahoma and northern New Mexico; Mark McKernan, central California and southern Nevada; Bruce Morgan, central Plains; Don Neely, south Texas; and Todd VanDyne, New England and eastern Canada.

Valley Crest Landscape named Jeffrey **Colton** operations manager for its northern California office. He is a third-generation employee with 12 years of experience at the company, following his father and grandfather into the business.

Seed Research of Oregon appointed Pat Searight as area manager in its Dallas, Texas, operation. He will handle sales of cooland warm-season seed in central Texas.





Thomas

Paul Sacamano was promoted to manager of technical services, western region of Davey Resource Group, a division of The Davey Tree Expert Company. He will work in the Irvine, Calif., office.

Michael Thomas joined ACRT Inc. as an urban forester and economist in the company's Finger Lakes, N.Y., regional office. He will create an urban forestry research computer model program to quantify environmental and economic benefits of maintaining large trees.

New sales staffers for the turf, ornamental and pest control products group at American Cyanamid are: Matt Bottone, Midwest; Elda Elizondo, south central region; and Dave Rowlands, Florida.

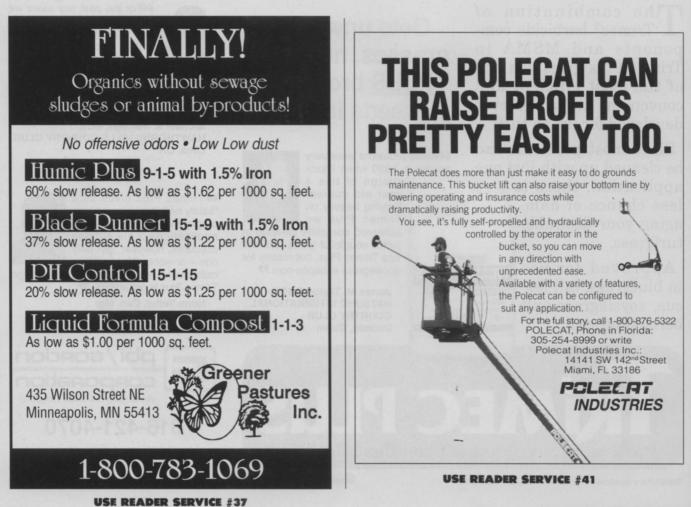
James Foreman joined Weather-matic as regional sales manager in the Pacific Northwest. He brings more than 20 years of experience to the position.

New promotions at Echo include: William Peel as director of marketing; Paul Scholl as director of sales; Jeff Bohr as east region sales manager; and Dave Dalton as west region sales manager.

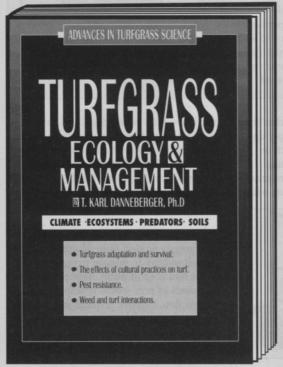
Tony Campbell joined Highway Equipment as national sales manager for its Groundskeeper leaf vacuum equipment, with responsibilities for direct sales and establishing distribution and service outlets.

New promotions at Lebanon Turf Products include: Harry Mathis, as director of purchasing for Lebanon Chemical; Chris Zelley, as lawn care/landscape product group manager; Greg Ellis, as regional sales manager; John Wiblishauser, as territory account manager for turf accounts in the Northeast; and Robert Birdsall, as territory account manager for turf accounts in Michigan, Ohio and West Virginia.

Jim Turner was promoted to national accounts manager for Aquatrols. He takes the place of Jerry Curtice, who recently retired, but will continue as a consultant.



TWO ESSENTIAL REFERENCES FOR LANDSCAPE PROFESSIONALS



Turfgrass Ecology & Management, by Dr. Karl Danneberger, is an advanced turfgrass management book for the landscape professional which goes beyond the introductory level. This management book is devoted to advanced environmental ecology.

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104

PRODUCT SPOTLIGHT

Year-round use and flexibility on the job are options with **Grotech's** Model MPS-125 multi-purpose spreader. Durable thermoplastic hopper will not rust and is connected to a remote joystick level that controls the stainless steel flow gate for precise metering.

Spreader is powered by an enclosed 12-volt high-torque motor. A variable-speed spinner



spreads materials in widths from 4 to 40 feet. The spreader can be mounted on a tractor, truck, utility vehicle or front mower for added flexibility. Hopper and flow gate are designed to handle seed, granular chemicals, fertilizer and even ice melting materials. **Circle 125 on reader service card**

TRAILER-MOUNTED power mulcher from **Reinco** allows a crew of three to apply up to five tons of hay, recycled fiber mulch or straw to distances of 70 feet. Operating features include a beater chamber designed for steady mulch output, blower chute with



single-handle bar control for a 360-degree horizontal swing, 35-hp engine, vernier type throttle with weatherproof boot and twopiece load tray that extends for operator convenience.

Circle 126 on reader service card

Dynadiggr motorized shovel from **Bristo** has a two-stroke engine that drives a piston rod attached to an 18-inch detachable blade. The rod moves 3/8 inch up and down like a jackhammer for clean slices into the ground to dig trees or shrubs out within a minute. Other uses include digging a footing trench or ditch and packing or excavating soil. Shovel weighs 43 pounds and measures 32 inches long. **Circle 127 on reader service card**

Thompson stainless steel filters from **Miller** Leaman come in 2 and 3-inch sizes to re-

move sediment from well and city water used in irrigation systems. Both models are said to operate with approximately 1-psi pressure loss at



maximum flow (when clean) and have a conical shaped filter element, which causes debris to move down to the filter reservoir in the bottom. Band clamp lid assembly allows easy maintenance. Filters handle flow rates from 5 to 2,000 gpm or more.

Circle 128 on reader service card

Landscape contractors can use Profile ceramic aggregate product from **Aimcor** as a natural soil additive to manage oxygen and water in the root zone of plants. Tiny particles have thousands of pore spaces to help prevent compaction, improve drainage and promote increased microbial activity in soils without washing away or dissolving. Till it into existing soil at a rate of 15 percent by volume. **Circle 129 on reader service card**

Combination service/dump body truck from **TruckCraft** offers versatility in an 8-foot steel design. The bed measures 100 inches



and provides a hauling volume of 3 cubic yards. Another 50 cubic feet of storage compartments are built for secure storage. Model TC-310 is suited for 1-ton trucks and includes a 6-ton electro-hydraulic hoist, double-acting tailgate with lock pins, 18inch removable rear corner standards to support side boards, steel floor, sealed joints and cadmium-plated hardware for long wear. **Circle 130 on reader service card**

Ciba Turf & Ornamental Products introduced reduced-rate Sprint® 330 chelated iron micronutrient supplement in 50-pound (continued on page 108)

Lawn & Landscape_ MAINTENANCE

Name			
Title			
Company			
Address			
City	State	Zip	
Phone#			
1. Do you wish to receive Lawn & Landscape Mainte DYES DNO Signature (required)			
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2.	What	is	your	primary	
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CONTRACTOR or SERVICES:

Landscape Contractor
(maintenance & installation)
Chemical Lawn Care Company
(excluding mowing maintenance service)
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- Company, Library copy only
- □ Other (please specify)

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4. Based on overall dollar volume. estimate what percentage of your business is derived from:

- % Mowing
- % Tree Care
- % Fertilizer % Seed
 - % Pesticide Applications
- % Irrigation Installation
 - % Irrigation Maintenance

5. How many people does your business employ (including vourself??

Year-round Seasonal

6. What is your annual purchasing budget for:

Pesticides
Equipment

7. In peak season, how many crews do you operate in the field for:

_ Installation
Maintenance
_ Pesticide Application

8. What is your approximate annual sales volume? \$



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Products

(continued from page 104)

drums. The new rate for general turf foliar application is 2 to 4 ounces per 1,000 square feet; the previous rate was 16 ounces per 1,000 square feet. The formulation has 10 percent chelated iron to enhance root development, improve turf health and encourage green-up. The 50-pound fiber drum holds the material inside a large plastic bag. **Circle 131 on reader service card**



Handy worker decontamination kit from **Compliance Safety** comes with its own carrying case for easy transport to and from job sites. The kit includes two 32-ounce bottles of sterile buffered isotonic eyewash, a 4-ounce bottle of soap, a disposable coverall,

four extra-large single-use towels and three 1-gallon potable water containers. The carrying case is weather resistant.

Circle 132 on reader service card

Landscape spades made to commercial specifications by **Sure-Loc** use heat-treated alloy steel for handle shafts and blades to provide maximum prying strength and durability. Both D-handle and long-handle shafts are guaranteed for 5 years. Blades have a mill-sharpened cutting edge, choice of 12 or 15-inch sizes and straight or diamond-point configuration.

Circle 133 on reader service card

Hustler 640 Hillsider mower from **Excel** offers six-wheel drive for traction and stability on steep slopes, rough terrain and hilly road-



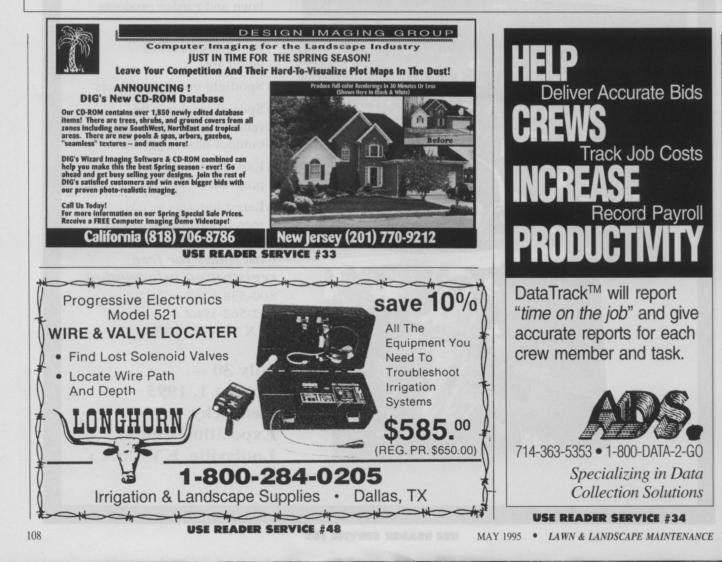
sides. Self-leveler automatically tilts to keep the operator's station level, as well as the engine for proper lubrication. Weight distribution remains constant over the drive wheels. Other features include dual hydrostatic drive, power-assist wheel lift for zero-turning radius and one-hand steering for total control of speed and turns without using foot pedals. **Circle 134 on reader service card**

ProGrind 900 tub grinder from **Toro Recycling Equipment** converts grass clippings, leaves, brush, limbs and other organic materials into fine or coarsely ground landscape materials. It can be towed with a 3/4-ton truck and set up in 5 minutes to produce materials for compost or mulch applications, depending on the site. **Circle 135 on reader**

service card

Treegator[®] irrigation units from **Spectrum Products** are said to shorten drip-time range to between 2 and 16 hours per tree. The portable plastic units provide temporary drip irrigation and help to minimize tree





loss in areas without irrigation. They are also said to improve water absorption, minimize evaporation and reduce runoff.

Circle 136 on reader service card

Terra[™]introduced Aliette T & O fungicide to control downy mildew, fire blight and bacterial blight in ornamentals and bedding plants. It can also be used as a systemic fungicide for Pythium diseases like root rot, blight and yellow tuft on common turfgrasses. Five-pound containers and 11-pound bags are available.

Circle 137 on reader service card

Badger portable power earth augers from Feldmann can be used by one person and come in sizes from 2 to 12 inches. Carbidetipped points, 2-hp engine, positive thumb-actuated throttle linkage and widestance contour handles

simplify drilling tasks in all types of soil. Gearbox has sealed ball bearings and steel gears. Augers are portable and lightweight. Circle 138 on reader service card

Hundreds of parts, commercial blades, belts and products for landscape contractors are highlighted in the 1995 Silver Streak catalog from Frederick Mfg. Kevlar-wrapped belts, engine parts and mower blades are among the featured items. A comprehensive cross reference of parts, application charts and technical information are included. **Circle 139 on reader service card**

A new concept in treestaking devices introduced by Vitech Industries is Bio-Tie[®]. which holds a tree upright while allowing it freedom and mobility. Only one stake is needed, which reduces costs and installation time. Reusable devices are tamperproof and adjustable, giving the



tree room to sway in the wind and build trunk strength as it grows. Circle 140 on reader service card

Crew dispatch system from Royal Services uses software to schedule services, track

technicians, record client services and gen-

erate reports. Contractors can compare actual job receipt reports with job estimates, track additional sales by technicians, group client information on one screen, print daily work schedules for crews, print labels and perform a variety of other functions from the PCbased program.

Circle 141 on reader service card

Model 246 chain saw from Husqvarna Forest & Garden incorporates a decompression valve to provide a broad power range with good torque even at low revs, which makes it easier to use. Other design features include a two-stage air filtration system, vibration



damping, slim body for good control and an inertia-activated chain brake that releases in all working positions.

Circle 142 on reader service card

Mowing techniques video from Progress Products offers 40 minutes of common-sense





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training for English or Spanish-speaking employees. The video covers operation of intermediate mowers, trimmers and edgers; mowing in wet or high-grass conditions; special mowing problems and situations and professional techniques of finishing up the job. A handout tests employee's understanding for instant feedback.

Circle 143 on reader service card

Scag's SSZ zero-turn riding mower offers dual hydrostatic transmissions and comes in 48-, 52- and 61-inch cutting widths. The



floating cutter deck can adjust to different cutting heights from controls near the operator's seat. Engine options include a 16- or 20-hp

Briggs Vanguard or 18-, 20- or 22-hp Kohler Command styles. Electric blade-engagement clutch, tapered roller-bearing spindles and a 5-gallon gas tank are standard. **Circle 144 on reader service card**

Pond Kleen bioremediation product from **Soil Technologies** consists of enzymes and natural bacteria cultures that help to manage unwanted aquatic growth in decorative ponds and lakes. The formulation uses a bioaugmentation process that breaks the cycle of stagnant water and algae infestation by digesting organic matter and nutrients on the water and at the bottom. It is safe for humans, plants and animals, as well as pumps, valves or nozzles. **Circle 145 on reader service card**

Convert existing underground sprinkler systems to drip watering with **Raindrip's** adjustable bubbler components. Connect the



bubbler directly to an underground sprinkler manifold with a 1/2-inch riser adaptor or mount on a stake and riser assembly. Operators only need to turn the 8-position cap to adjust the flow rate from zero to 10 gallons per hour. It waters from 8 separate stream outlets, with pressures from 15 to 40 psi. **Circle 146 on reader service card**

Payroll management software from **Armor Systems** is designed to track labor costs and prepare necessary payroll forms. System handles both large and small company operations, including direct deposits of checks, calculating worker's compensation and employee benefits, promotion and work review data and other management tasks. **Circle 147 on reader service card**

Thomas Equipment introduced the T172HL S series high-lift loader with an operator cab redesigned for safety and easier operation. Integrated controls safety system protects the operator on entry or leaving the cab. Operating features include a high-output electrical system with 45-amp alternator, four-point lifting lug system, redesigned control panel and operation at less than 85 decibels. **Circle 148 on reader service card**

(continued on page 113)

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News

(continued from page 16)

Pennington Seed Gains Victory Over USDA

The U.S. Department of Agriculture was ordered to pay Pennington Seed, Madison, Ga., a \$250,000 settlement for damages resulting from a bad shipment of seed from Argentina in 1988.

The U.S. Federal Court of Appeals decided that the USDA's plant protection quarantine officers acted improperly when they allowed shipments of tall fescue seed that contained the noxious weed Serrated Tussock to be shipped to Pennington, along with six other seed companies.

Pennington was unaware of the problem and used the shipments to blend in with its other seed as a labeled component of the mixture, which was shipped to more than 1,600 stores throughout the U.S. Pennington was later ordered by the USDA to destroy the seed and recall all shipments, taking an out-of-pocket toll of over \$222,000.

HELP WANTED IN BERMUDA

Bermuda's leading complete landscape firm is seeking working foremen in their maintenance and construction divisions. Potential candidates must have five years plus experience. We are looking for ambitious, detail-oriented candidates to assist us in exceeding our clients' expectations. Knowledge of subtropical plants and warm-season grasses would be a distinct advantage. Please fax your resume to 809/238-1797 or mail to: Sousa's Lawn Care & Design, P.O. Box PG 130, Paget, PGBX, Bermuda.

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INSTRUCTIONAL VIDEO



COMING NEXT MONTH...

The June issue of *Lawn & Landscape Maintenance* magazine will focus on seed research and development. Upcoming articles include:

• Seed Research and Development. This annual review will explore ongoing and future developments that will affect turfgrass growth and establishment.

• Trends in Chippers and Shredders. Landscape contractors are finding many uses for these versatile products. This story will review the basic features and special designs available.

• *The Benefits of Landscape Lighting.* Many contractors are finding that landscape lighting can enhance a design/build project in both aesthetic and profitable ways.

• *Municipal Mowing*. As the privatization trend grows, more maintenance contractors are discovering new sources for business.

• Business Management Series Part 6: Customer Service. Good customer service can make the difference in building a long-term client base. Getting employees to "buy into" the concept can be one of the biggest challenges.

Products

(continued from page 110)

Drain-Edge black vinyl landscape edging from **Oly-Ola Sales** has a built-in drainage system to eliminate standing water along hardscape or bedding areas. A double row of 1/4-inch holes lets water escape from areas with poor drainage. Rigid vinyl is simple to cut, measures 4 1/2-inches high and comes in 10-foot pieces or 100-foot rolls. Anchoring stakes hold it in the ground and allow edging to accommodate irregular bed shapes. **Circle 149 on reader service card**

Rubber-tire trencher Model V-8550 from **Vermeer** uses a two-speed system with a creep mode for precise trenching and plowing, in addition to a variable-speed automatic mode for backfilling and transporting materials. Redesigned axle, multiple wetdisc brakes, hydraulic swivel operator's seat with controls that rotate with the operator, two hydraulic sliding offset trenchers and small turning radius are some of this machine's design features. It's powered by a



four-cylinder 85-hp Cummins engine. Circle 150 on reader service (ard

The Eagle S-36 trailer-mounted aerial lift from **AmeriQuip** has a telescopic design that extends to a 36-foot working height. Side reach is 26 feet. Positive bucket leveling, 360-degree continuous rotation, proportional control valves, quick-adjust outriggers and an 8-hp gas engine are standard features. A neutral position interlock element on the valves allows simultaneous two-function operation and feathering capability. A 24-volt electric power feature is optional. **Circle 151 on reader service card**

LAWN & LANDSCAPE MAINTENANCE • MAY 1995

Cover Story

(continued from page 34)

and ask the right questions. I have to take the time, not only with the external customer, but with our internal customers. I think I can influence our customer service and the future of this business more by spending time with employees."

He relies on the management team and its variety for a shared form of leadership. "The managers are all different, but they're all feeton-the-ground types of people. They came up through the ranks and started in the field. They have a production orientation."

His greatest challenge is to balance the team and allow each one to do his job. It's not something you learn easily, he pointed out.

"This team is made up of strong people with different ideas, and allowing them to express their autonomy without compromising my beliefs is a challenge. I have to keep my mind open and also keep them excited, motivated and innovative."

His years at Ruppert's helm have given him an appreciation for sharing power and responsibility. "I've learned that you need to trust and to give others authority and autonomy."

CHANGING INDUSTRY. In a recent interview, Craig Ruppert reflected on the growth of the landscape contracting industry:

Q. What changes have you seen that affect the way landscape contractors do business?

A. There are obvious and dramatic changes in our customers' awareness, appreciation for and expectations of beautiful landscapes. This awareness has grown and that's caused the industry to grow. I'd say that in the last 30 years, landscape budgets have probably quadrupled.

This has set new standards for professionalism and it has become a barrier to entry. It's also more difficult to enter because of the increased government regulations and higher expectations of quality. Only serious, hardworking companies will succeed in the long run.

Q. How does this situation affect companies' profitability?

A. Successful companies have learned to deliver a better product, which means that their costs have gone down. It also means their prices have gone down.

We can reduce our costs because we have better chemicals to use, more efficient equipment, economies of scale and better ways of doing things. These factors have driven prices down, relative to the prices of years ago.

The customer is getting a higher value per dollar for his landscape services, but not spending more.

Q. Are these factors making it harder to compete?

A. Yes. Productivity, economic conditions and shrinking markets are making it harder to compete. But it seems like every company is getting better at what they do. The prices are tighter, but profit margins aren't necessarily lower.

Q. What areas of growth do you see in Ruppert's future?

A. An example of the opportunity and change going on in our work is the environmental division. Seven years ago, we had the opportunity to bid on a large-scale wetlands reclamation planting. We won the job, which was the largest on the East Coast at the time, to create a wetland area as mitigation for the construction of a tunnel in Baltimore's harbor. We learned a lot by doing that project.

Q. Everyone must ask you this, but what makes you so successful? **A.** I think it's not the big things, but a series of little things that make the difference. We don't do "big" better than other companies, but we do little things better. Those things make the difference in the end.

Our success has very little to do with me and a lot to do with people who work harder than I do, and have for a long time. They put a lot of their lives into the company and they deserve the credit.

Sustaining growth and profitability is harder over the long term than achieving it at first. We can never sit back and become complacent and satisfied. We've never experienced that feeling.

Ruppert Landscape Company is located at 17701 New Hampshire Avenue, Ashton, MD 20861. Telephone is 301/774-0400.

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

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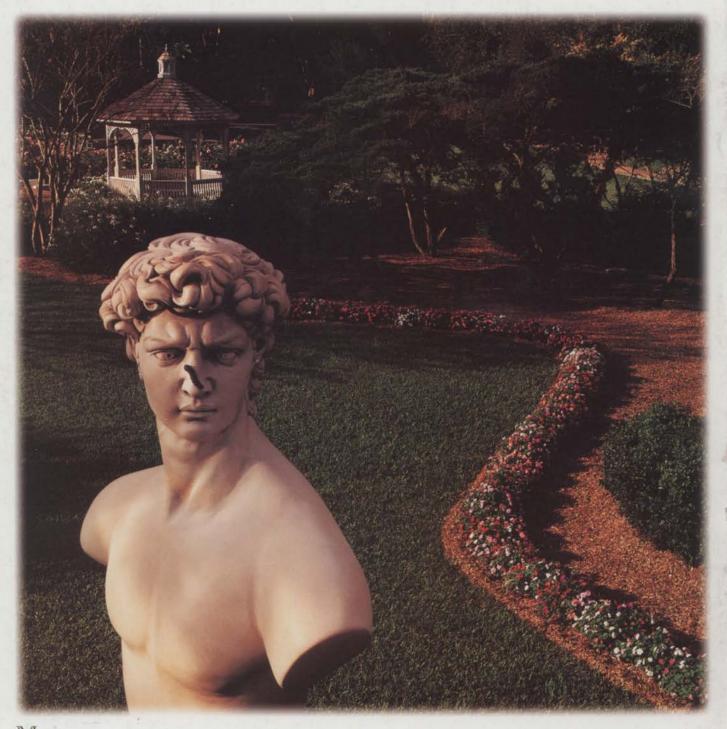
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