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In this issue:

Safe Pesticide Handling
Employee Recognition
Utility Vehicles
Soil Enhancers

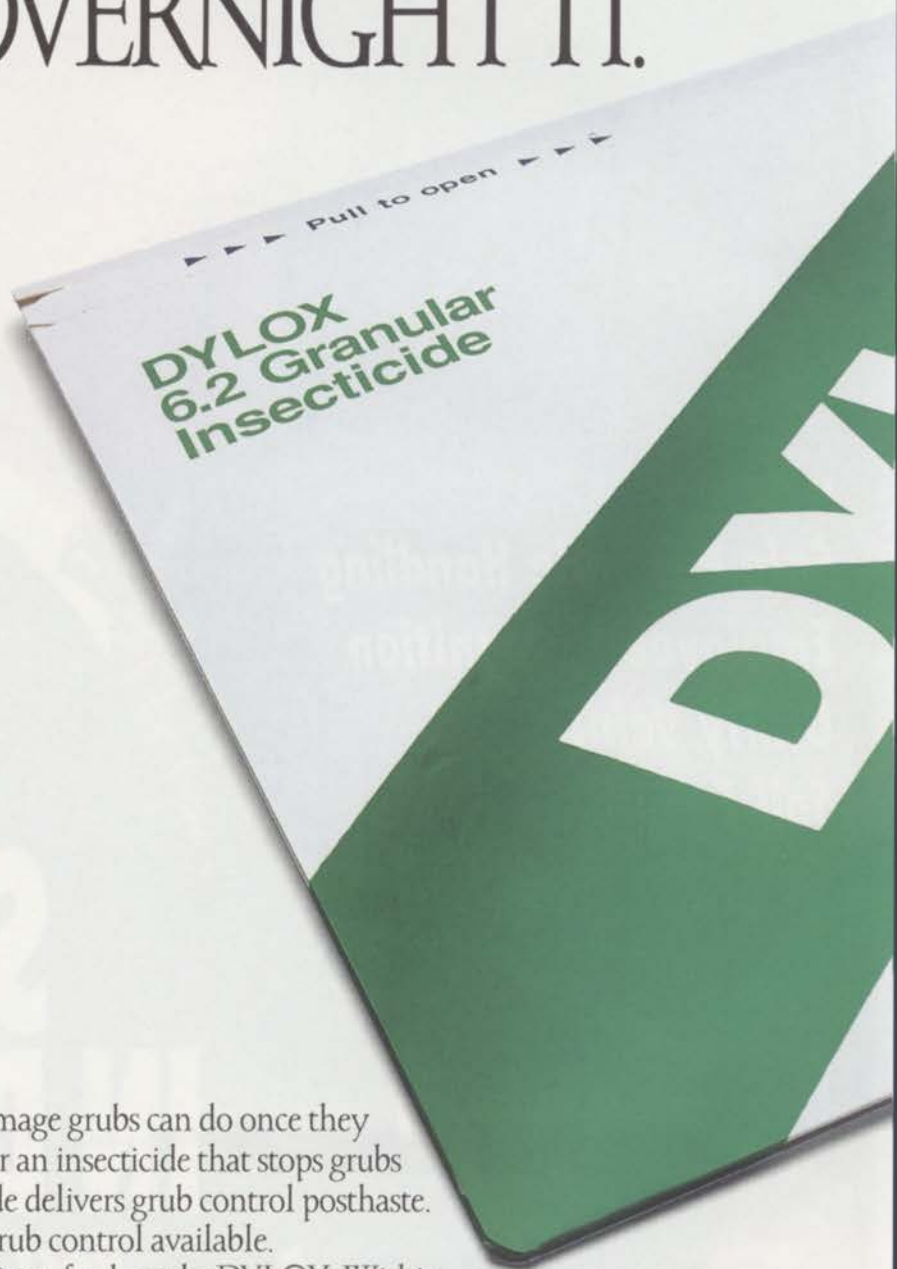
STRENGTH IN DIVERSITY

**Pest control giant Couhig
Environmental moves into
the green industry.**

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Lawn & Landscape MAINTENANCE

VOLUME 16, NUMBER 8

AUGUST 1995

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Baton Rouge, La.

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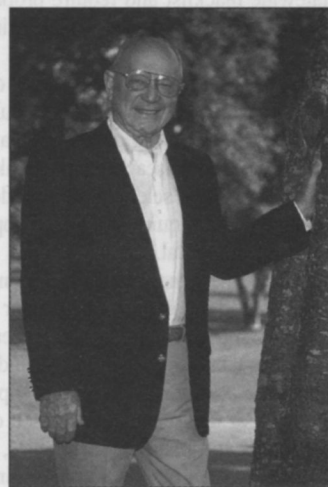
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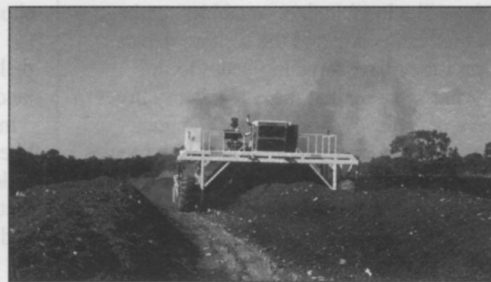
Several contractors believe that employee recognition programs make the difference between keeping and losing their best employees.



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Editor's Focus

MAKING THE LIST. *Item 1:* Debate heats up in Naples, Fla., concerning the possible ban of "exotic invasive" plants. A proposal would ban the sale of plants appearing on a statewide blacklist and require property owners to remove them over a set time period.

Item 2: Zoning ordinances under development in some Chicago suburbs would mandate the use of certain plants, regulate their placement on landscape elements like buffer strips, limit plant selection to a predetermined list and require at least 40 copies of plans for submittal.

Item 3: The American Association of Nurserymen and a coalition of 17 other industry groups respond in writing and in person to President Clinton's 1994 memorandum on landscape practices. The groups support selection of landscape plants based on site conditions and plant characteristics, rather than solely on a plant's native origin.

Maybe I've been hanging around too much with my Libertarian friends, but I have to wonder just why the federal government feels compelled to regulate the business of land-scaping. I naively thought that governments were much too busy with things like local budget squabbles, garbage and tax collection and the welfare debate. Don't they have anything better to do?

What a shame that these regulatory urges have developed. I understand the point some groups make about non-native species having the potential to take over, but many plants on their blacklists are only there because they are non-native. As several green industry experts point out, some areas, especially large cities, have not housed "native" plants for generations. Other "non-native" species flourish in urban areas without any tendency to invade the landscape. Some lists just show plants that "might" take over and that plays on peoples' fears. It doesn't sound very fair or even scientific.

It seems to me that most government regulation, from the federal level down to local city councils, is driven by "the squeaky wheel." Some citizens' group complains loud enough for long enough, and eventually gets a hearing by a government representative. If the group persists, it may get a response in the form of an ordinance or law, which in turn helps the representative get re-elected.

So what could have compelled the events listed above?

In Item 1, the possible economic consequences of eradicating invasive plant species drives the debate. And it is full of many variables, such as: Which species are truly invasive and which are only potentially invasive; do native species really require less care and watering than others; what are the



economic consequences for the growers and property owners forced to replace plants? This debate will stay with us for a while until the biological, ethical and economic questions have clear answers.

In Item 2, the regulatory impetus appears to come from some frightfully bad landscape choices. Possibly, they were so offensive to the citizenry that local bureaucrats felt compelled to micromanage every possible landscape variable.

In Item 3, let's just say that "native" plants, like many other things in our society, are suddenly "politically correct." Never mind that the biological world is full of diversity and that plants show amazing adaptivity. It's PC now and technocrats are making up the lists of "acceptable" plants.

The "native" plant debate aside, I still don't see a point in a federal guideline. I suspect that any such guideline on landscape design will not save money (what federal program does?), will not improve landscapes or landscape design (how can a government program mandate aesthetics?) and will only result in dreary sameness (like the inside of many federal office buildings).

If this is the start of a trend, it's not good for the industry. In each case, someone who is *not* an expert in plant growth characteristics, landscape design or biology is making the decisions. It's a politician or career bureaucrat who sees some sort of benefit in controlling these decisions.

Possibly, bureaucrats who can't tell the difference between a maple and an oak have already made lists of "good" and "bad" plants or decided where those plants should be placed on a plot of ground. They haven't gotten the message that there is a whole industry full of experienced, professional people capable of making smart landscape decisions on their own. — Sue Gibson ■

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Business Watch

COMPUTER INVESTMENTS PAY OFF IN VERSATILITY

LAWN AND landscape contractors who use computers have found a variety of tasks beyond number crunching, according to an independent survey conducted by Research USA, Chicago. The survey asked a sample of our 48,000 readers how they used computers. Of the respondents, 82.9 percent used computers.

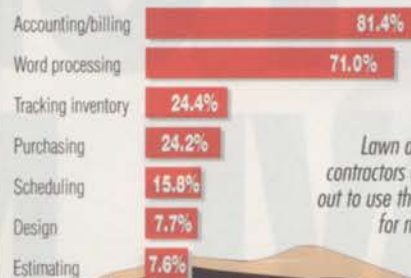
As expected, a vast majority (81.4 percent) assigned accounting and billing tasks to their systems, which is no surprise, since many general accounting function programs are available and adaptable to this industry. Another majority of 71 percent used their computers for word processing.

Smaller groups used the kind of specialized programs written for specific functions or markets: 24.4 percent used computers for tracking inventory; 24.2 percent used them for purchasing and 15.8 percent relied on computers for scheduling and routing tasks.

Currently, smaller numbers of contractors use computers for very industry specific tasks: 7.7 percent use computers for design and 6.7 percent for estimating. Those numbers will undoubtedly grow as more programs are developed.

When asked if they wished to receive information electronically, 26.3 percent responded positively. Of those, 67.8 percent prefer

HOW WE USE COMPUTERS



Lawn and landscape contractors are branching out to use their computers for more than just accounting.

computer disks and 66.2 percent requested fax messages. Large numbers of contractors "surfing the net" appears to be far in the future, as only 21.5 percent of those wishing to receive electronic information use on-line services and only 16.2 percent rely on electronic bulletin boards.

WHY REMAIN A LONG-TERM INVESTOR?

Part 2

LAST MONTH, we discussed the strategy of long-term investing and questions you should consider for your investment strategy. We described a study showing how equity investors who move in and out of investments on a short-term basis tend to underperform those who stick with a long-term strategy. Here's another example:

The chart below illustrates the dollar value of your portfolio if you invested \$100 every month from October 1984 through June 1994.

These returns include the 1987 market decline and the 1990 bear market.

Even during this volatile 10-year period, you can see that you would have been well served to remain invested. The equity markets have returned an average 9.8 percent annually since 1926.

In summary, take some time to review your financial objectives with financial services professionals. They will work with you to evaluate your portfolio's current performance and to reassess your investment strategy, if needed.

Remember, most important to investment success is a disciplined approach to investing that you are committed to follow.

—John Houlihan, Dean Witter Reynolds Inc., Melville, N.Y.

BE SAFE WHEN LIGHTNING STRIKES

HUMID SUMMER weather and thunderstorms have a natural affinity, especially late in the day when many storms form. Landscape crews rushing to finish a job before an oncoming storm arrives may be making a mistake by ignoring lightning flashes or rumbles of thunder. Lightning kills many people each year and causes still more injuries. It can even appear in blue sky on rare occasions.

We think of lightning as a bolt, but can only see the return stroke or strokes (some flashes are too complex to be spotted with the human eye). By the time we see them, lightning has already struck.

Don't take lightning for granted. The following safety steps can save your employees from possible injuries:

- If there is less than 15 seconds between lightning's flash and the sound of thunder, take cover. The storm is less than three miles away and lightning can extend far beyond a storm's edge.
- If hair stands on end or skin tingles, quickly crouch down into a ball to avoid being a target — lightning is imminent.
- If lightning is spotted, get away from on-site trailers, machinery, open water, small structures or metal fences.
- Avoid being a target and don't shelter under trees or other tall objects. At the job site, get into an enclosed vehicle (not an open pickup truck).

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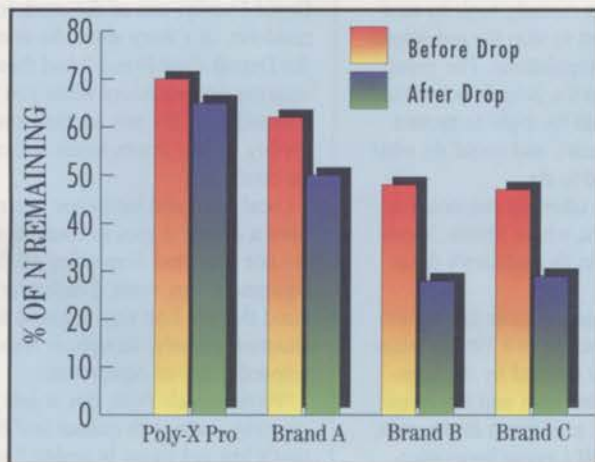
Then we held the leading poly-SCU products up to the same standards. An independent university study showed that only Poly-X PRO can survive everyday blending, bagging, spreading — and our drop test — with minimal fragmentation. That's important to the nitrogen release patterns. And crucial to the overall quality of your turf.

We're So Sure of Our Poly-X PRO Technology We'll Guarantee It.

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For more information on Poly-X PRO, contact your local Lebanon distributor or call 1-800-233-0628.

Environmental Forum

GRASS ROOTS EFFORT. Getting yard waste generators to understand and practice grasscycling and composting is easy to talk about, but hard to execute. The powers that be in Maryland's Montgomery County, however, are not only spreading the message, they are creating measurable results.

The county initiated a promotional effort aimed at encouraging grasscycling last year. An extensive advertising campaign has included cable television, radio, print, rail and bus transit and movie theaters. In addition, the county held poster illustration contests within the school system, demonstrations and workshops by program specialist Joe Keyser, cooperative promotions with retailers and the business community, a media publicity campaign and volunteer efforts.

To date, the campaign has kept 27,000 tons of grass clippings on the lots or compost piles of residents and out of the County's facility, saving the government about \$2.5 million.

The most recent addition to the campaign was a 17-minute video detailing the benefits and demonstrating the process of grasscycling as a lawn care practice. Along with grasscycling techniques, the video teaches methods of fertilizing, watering and aerating through lawn demonstrations and graphic illustrations of the lawn and soil. It places a special emphasis on the time and cost savings, and overall ease of grasscycling, as well as the many environmental benefits the practice provides.

This fall, the county will expand its efforts further into the area of composting education, using many of the same avenues of promotion and advertising as it did for the grasscycling campaign.

NO CONTROL. What if the United States government lifted all pesticide restrictions, leaving the responsibility of regulation to municipalities? Lawn and landscape maintenance contractors in the province of Quebec don't have to wonder — they live it each day.

Despite the pleadings of green industry professionals, the province has repeatedly refused to put formal regulations in place to create a level playing field for the area's contractors. Instead, local governments are calling the shots.

The provincial government's preoccupation with the potential secession of Quebec from the rest of Canada, as well as the lack of funding it would take to establish regulations and enforcement procedures, have been the foremost reasons for its failure to set guidelines, said Ray Sharits, president of Green-space Services in Montreal.



Sharits also heads up an organization called the Association of Ornamental Horticulture Service Companies of Quebec, a group of biologists, horticulturists, golf superintendents and landscape contractors who are lobbying to prevent the more than 1,400 municipalities from having the legal power to regulate pesticide use.

Municipalities have taken the freedom and run with it, creating regulations based on whim as much as scientific fact. Depending on the city, lawn and landscape contractors could be limited or restricted from pesticide use based on wind speed, atmospheric temperature or even the advance approval of the neighbors. One small farming town, Hudson, banned pesticide use entirely.

The regulations are confusing and often contradictory from town to town. "Literally, you could be on one side of the street and be able to apply whatever you want, but across the street you would not be able to do anything," said Sharits.

The industry group recently took its case to the Supreme Court to stop the municipalities from imposing regulations. The group lost, however. It was the judge's belief that the municipalities had the right to protect their own environments, and could do what they felt they needed to do.

The case has been taken up one notch to the Court of Appeals, where Sharits hopes the courts will rule in the industry's favor.

POSSIBLE BAN. If negotiations fail regarding New York Assembly Bill 3968, certain "toxic chemicals" as defined by the legislation that are used by lawn and landscape contractors could be prohibited in the state, according to the Golf Course Superintendents of America.

The legislative findings of the bill state

that "the use of toxic chemicals for the purely aesthetic purpose of lawn and grounds maintenance confers no public health or environmental benefit, yet exposes people, often without their knowledge or consent, to many chemicals with serious, deleterious effects on human health and the environment."

A range of carcinogenic and restricted-use pesticides would be covered by the prohibition, and a companion bill in the Senate is in the works. Responsible Industry for a Sound Environment is a major player in the negotiation process.

NOISE BACKLASH. Once again, irresponsible use of power equipment has cost contractors the freedom to use equipment when and where they want. In the city of Huntington Woods,

Mich., near Detroit, where an estimated 50 percent of the 2,500 homes receive lawn care services, gas-powered equipment now faces major restrictions.

Crews may only operate equipment between 8 a.m. and 7 p.m. on weekdays and Saturdays, not at all on Sundays and may only operate two pieces of equipment on any one job at a given time. Robin Pendergrast, industry consultant with International Marketing Exchange Inc., McHenry, Ill., said the restrictions were put in place after residents complained that landscape contractors were using the equipment very early in the morning and late in the evening.

Not unlike many communities that have succeeded in passing equipment bans or restrictions, the charge was lead primarily by a handful of disgruntled citizens who felt victimized by the noise.

"Rather than the 'woosh-woosh' of brooms you have to hear this racket," said David Darsky, one of the most vocal residents, in a story about the restrictions in the *Detroit Free Press*. "And those guys are wearing ear protectors while you can't hear yourself talk. It's just another lowering of civility — like boom boxes and car radios," he continued.

Local lawn and landscape contractors may have a case if it goes to court, as residents are not restricted from using all the equipment they want. Pendergrast emphasized that the best way to avoid this situation entirely, though, is responsible, respectful use of equipment.

"Professionals think this is just going to go away, even with quieter leaf blowers, but that's just not living in reality," warned Pendergrast. "People are becoming more and more sensitive to it." ■

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NEWS DIGEST

RISE Nominates New Governing Board Members

The Nominating Committee of Responsible Industry for a Sound Environment named candidates for 3-year terms on its Governing Board. The terms will take effect in September 1995. The candidates are: Jim Champion of Riverdale Chemical, formulator; Janet Giesselman of Rohm and Haas, basic manufacturer; and Allen Haws, Bayer Corp., basic manufacturer.

Nibco Rescues Pepco From Bankruptcy

Nibco Inc., Elkhart, Ind., recently purchased the assets of Pepco Water Conservation Products Inc., Fresno, Calif. Pepco filed for Chapter 11 protection on February 11, 1995. It once was one of the 500 fastest growing companies in the country.

Nibco will add Pepco's line of low-flow irrigation products for landscape applications to its current lines of valves, plumbing components and fittings.

Heavy Snow Fallout Continues into 1995

The aftermath of 1994's snowy winter continued to affect business in a positive way into 1995, reported the Outdoor Power Equipment Institute, Alexandria, Va. Anticipation of a snowy winter in 1995 drove 12-month shipments of snow thrower products in the United States through the roof, with an increase of 128 percent over 1994 figures. Total shipments from March 1994 to March 1995 were estimated at over one million units, a mark topped only twice before in 1979 and 1980.

Mycogen Starts Production of Biopesticides at Plant

A \$10-million investment in manufacturing facilities by Mycogen Corp. has resulted in the production of microbial biopesticides using the company's proprietary CellCap® process. The Beloit, Wis., facility will provide fermentation, recovery and formulation of products using protein biotoxin-producing genes from *Bacillus thuringiensis* (Bt). Products in development include a Bt-based material to control soil grubs in turf and microbial herbicides.

Gempler's Acquires Pest Management Supply

Gempler's Inc. of Mount Horeb, Wis., has acquired Pest Management Supply of Hadley, Mass. The move makes Pest Management's line of specialty IPM products for the horticulture industry part of Gempler's product mix.

Continued Demand, Production Drop Keeps Fertilizer Prices High

SUPPLIES OF UREA as a base material for fertilizer used to be so plentiful that some producers practically sold it for cost. Things have changed dramatically in the last year as demand for urea has jumped and supplies have dropped. This has resulted in price increases for fertilizer manufacturers as high as 50 percent from 1994 prices.

Urea is a key material used for fertilizer, but it also has many uses in construction and manufacturing. United States urea producers have experienced new export demand from China, South America and other developing areas. Some plants in eastern Europe, which formerly produced urea for export, have shut as local supplies of natural gas (used to power the manufacturing process) are now being diverted for heating. Add to these circumstances the fact that many urea producing plants have not been modernized and another major production plant blew up in the last few years.



Higher fertilizer prices may continue if worldwide demand for urea stays strong.

One expert estimated that worldwide production of urea has dropped from a high of 21 million tons to only 17 million tons last year. The result is a growing shortage of urea and dramatic increases in prices for fertilizer manufacturers — prices that are being passed along to end users in our industry.

The price jumps, which started in mid- to late 1994, translate to a jump of approximately \$10 to \$30 per ton (a 7 to 15 percent increase in product cost) for processed fertilizers. Although prices dropped modestly this spring, they remain much higher than they were in the summer of 1994.

Many fertilizer manufacturers have not passed along the full price jumps to customers because they already had adequate stocks of urea on hand. Some are hoping that prices will drop by this fall.

Any movement in prices this fall will indicate where the market is headed for next year, and industry insiders are keeping a close watch on economic indicators to see if a booming economy and subsequent boost in construction and manufacturing will continue the already strong demand for a material in short supply.

In the meantime, lawn service contractors may have to live with the price increases, due to the importance of nitrogen fertilization programs for lawns. One expert suggested that contractors offset the price increases by making more efficient use of labor, selling new services and evaluating areas where they can "do a better job." This may involve more efficient use of fertilizer products, use of more diagnostic and followup techniques and educating customers on the uses of fertilizer and price changes due to market fluctuations.

PLCAA Names Gaffney Technical Resource Head

Michael Gaffney has been appointed technical resource coordinator for the Professional Lawn Care Association of America, Marietta, Ga. His new duties will include helping members solve turf-related problems, updating PLCAA's educational programs and services, coordinating conferences and regional workshops and fielding questions about lawn care.

"We're distributing more technical and consumer information than ever before through our Benefits of Turf campaign and year-round educational events," explained Ann McClure, executive vice president. "This is resulting in higher visibility for the industry and more demands on the association.

Michael will help us meet those demands and add depth to our professional staff."

Composters to Study Perceptions of Odor

In an effort to head off a growing NIMBY (Not in my backyard) movement that has begun to plague the composting industry, the Composting Council's sixth annual conference will focus on perceptions and realities of good air quality. In the past few years, several composters have come under fire from nearby residents for real or perceived bad odors. This has led to questions of possible health violations and has embroiled some composters in local controversies.

The conference, which will be held October 11 through 13 in Beltsville, Md., will bring

together odor experts from industry, government and universities to discuss formation and measurement of odors, control techniques, dealing with public perceptions and technical solutions. For more information on this conference, contact the Composting Council at 703/739-2401.

Millions Purchase Sod For Home Lawns

A survey conducted as part of the National Gardening Association's annual study of American households showed that more than 4.3 million households purchased at least \$240 million worth of turfgrass sod in 1994. Homeowners chose to install the sod themselves by a margin of five to one.

The survey noted that approximately 700,000 households spent an average of over \$205 each to have sod professionally installed, a value of \$148 million for 1994. Those using professional installation services were equally divided between males and females, education group and age. Most were married, without children and either business professionals or retired people. Sod purchases for professional installation were higher for residents in the East and South.

Those planning to hire a professional to

install sod in 1995 totaled approximately 300,000 households.

Ames Lawn & Garden Doubles Molding Capacity

The acquisition of Southeastern Plastics Inc., Byesville, Ohio, has given Ames Lawn & Garden Tools, Parkersburg, W.Va., twice as much injection molding capacity to manufacture hose reels, lawn carts and related landscape products. Ames will expand the Byesville facility in addition to its current two-year multi-plant expansion program, geared at increasing production in a number of areas.

OTF Breaks New Ground

The Ohio Turfgrass Foundation broke ground in May for its new Turfgrass Research Facility on the campus of The Ohio State University, Columbus, Ohio. The 8,000-square-foot building will house research in agronomy, plant pathology and entomology.

The building is funded mostly

by OTF, a nonprofit foundation representing more than 1,200 members in the turfgrass industry. Completion date for the new facility is October of 1995.

International Seeds to Remain Part of Cebeco

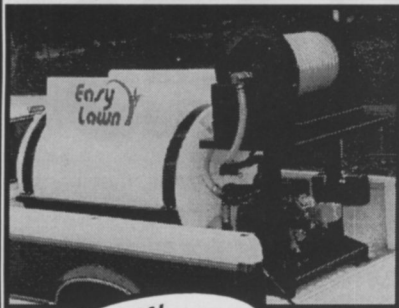
Cebeco Agricultural Seeds Group, a subsidiary of Cebeco-Handelsraad, a Dutch cooperative, has withdrawn the sale of



From left: Doug Halterman, Bobby Moser, Luther Waters and Fred Bosch break ground for the Turfgrass Research Facility in Columbus, Ohio.

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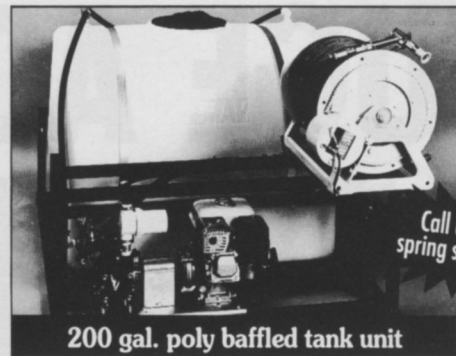
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International Seeds Inc., Halsey, Ore. Cebeco cited good financial performance in 1994 and rosy prospects for 1995 as reasons to continue its shareholding in International and continue to use it as the firm's grass seed outlet in North America.

Turf Producers Donate Research Funds

The International Turf Producers Foundation awarded \$20,000 worth of research grants to four university bodies. Studies will explore white grub control, genetic resistance to turf disease, annual bluegrass control and control of necrotic ring spot. ITPF is the new name for the Ben Warren Memorial Foundation.

Vermeer Expands Plant Capacity in Iowa

Plant 7 is a 200,000-square foot addition to the manufacturing capabilities of Vermeer Manufacturing Co., Pella, Iowa. The plant will house production of rubber tire trenchers and directional boring equipment in the company's rapidly growing Underground Division, which employs nearly one-fourth of the firm's 2,000 workers.

The new facility includes a \$1.2-million

laser cutting system, a self-supporting hoist system, and a series of tunnels connecting it to other company plants, bringing total space to about 1.4 million square feet.

Ingersoll-Rand Buys Melroe Product Lines

The sale of Melroe Company and other units owned by Clark Equipment Company by Ingersoll-Rand brought approximately \$1.5 billion to the table. The deal moves Melroe's lines of spraying vehicles and Bobcat skid-steer loaders, as well as Club Car golf cars and utility vehicles, into Ingersoll's product lines.



Vermeer's manufacturing campus in Pella, Iowa.

CORRECTION

We incorrectly reported the name of Ronald Moore in the article starting on page 52 in our June issue. The correct name is Donald Moore.

GreenCycle Renovates Public Transfer Station

An unusual public-private agreement between GreenCycle of the Northeast and West Hartford, Conn., takes the financial burden off the city and allows GreenCycle to renovate and use an abandoned solid waste

transfer station. The station once burned solid waste before its use as a transfer site. It closed in 1991.

The lease allows GreenCycle to use the site for compost production from yard waste and saves the city's taxpayers thousands of dollars in upkeep and personnel expenses. ■

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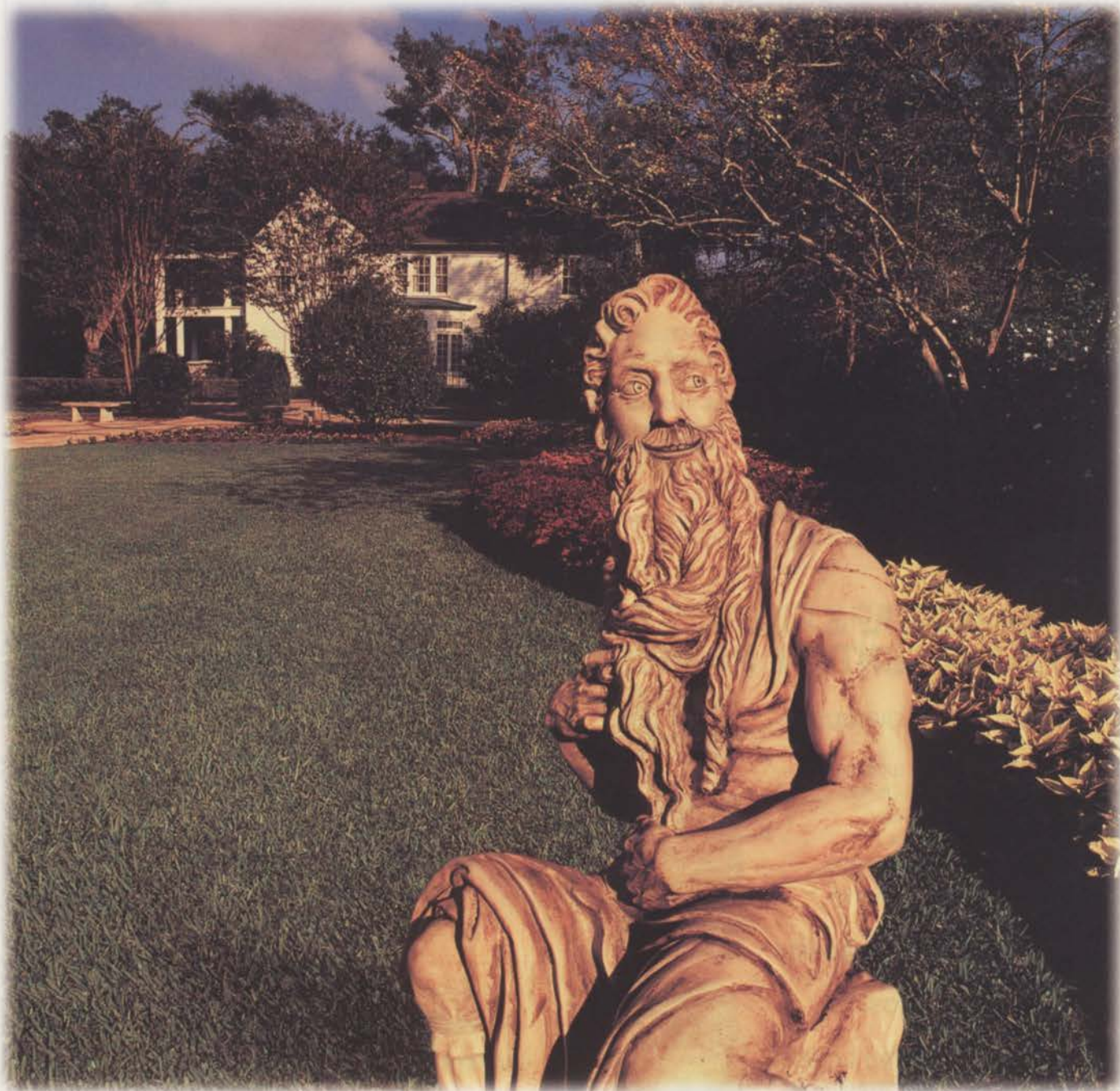
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Association News

The Professional Lawn Care Association of America is offering several new educational opportunities to the industry. The PLCAA Management Conference will make its debut Jan. 12-14, 1996 at the Embassy Suites Camelhead in Phoenix. Speakers will include Larry Helms, Western Training Systems; Bob Jacques, American Honda Motor Co.; and Patrick Norton, Barefoot Grass Inc. Marketing, management and sales-oriented sessions are tailored to small, as well as large lawn and landscape company owners and managers. PLCAA plans to hold the conference each winter, with the board of directors meeting to immediately follow the conference.

PLCAA will also present a series of regional workshops on customer service and risk communication. The schedule is as follows: Aug. 30 in Des Moines, Iowa; Sept. 20 in Portland, Ore.; and Sep. 27 in Columbia, S.C.

Future directions of Congress will be the subject of note at the **American Association of Nurserymen's** upcoming Legis-

For more information...



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ASLA

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CC

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lative Leadership Conference, to be held September 11 and 12 in Washington. The program, which will provide insights into the workings of this Congress, will present several insiders serving on a variety of House and Senate committees. A major portion of the schedule will be devoted to personal visits to Senators, Representatives and their staffs to present issues that are important to the industry.

The Associated Landscape Contractors of America will be offering contractors the chance to take certification exams during its fall conferences. Both the Certified Landscape Professional, exterior and interior, and the Certified Landscape Technician, interior only, will be offered during the conferences.

In related news, ALCA announced that

(continued on page 20)

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Association News

(continued from page 18)

test modules were to be finalized at the summer meeting of the National Landscape Technician Council in Colorado earlier this month. This group is developing tests for states that are currently licensed by ALCA. The Utah Nursery & Landscape Association recently voted to become a licensee of the program, bringing the total to 10 states and Canadian provinces involved in the program. Several others are reviewing it.

Renewing American cities, visions of "the good life," and a presentation by five distinguished landscape architects are part of the program for the annual meeting of the **American Society of Landscape Architects**. It will be held October 7 through 9 in Cleveland, Ohio.

Five "Greats of Landscape Architecture" will form a panel to discuss their visions of the profession's future. They are: Charles Fountain, M. Paul Friedberg, Ian McHarg, John Ormsbee Simonds and Edward Stone Jr. Keynote speaker will be Daniel Kemmis, mayor of Missoula, Mont., on the role of landscape architecture, urban design and ecosystem management in building "the

good city and the good life." Poet Maya Angelou will also bring a keynote address.

Turf Producers International members are invited to submit comments and suggestions on improving the usefulness and accuracy of its "Guideline Specifications to Turfgrass Sodding." The 20-page booklet, not revised since 1988, will get a total facelift to better meet the needs of sod growers and purchasers.

Modifications so far include the refinement of the five current specification sections, the inclusion of metric measurements and an expanded definition of various turfgrass sod quality standards. Recommendations and comments should be faxed or mailed to TPI as soon as possible for consideration.

The Composting Council and nearly 10 state and regional associations were represented at the first-ever roundtable meeting to discuss issues surrounding relationships between the groups and the Council.

Information exchange was the foremost issue for state leaders, and participants agreed to hold one roundtable per year, keep communication lines open and create E-mail linkage.

The Council agreed to distribute a questionnaire and develop a spreadsheet on existing state associations, and will consider the creation of a Council committee to better represent the interests of state groups.

The Outdoor Power Equipment Institute recently named its 1995 board of directors. New officers are: Kendrick Melrose, president and CEO, The Toro Company, chairman; Warner Frazier, president and CEO, Simplicity Manufacturing Inc., vice chairman; and Patrick Curtiss, general manager, Honda Power Equipment Manufacturing Inc., secretary-treasurer.

Other board members include Michael Ariens, chairman, Ariens Co.; David Campbell, president, MTD Products Inc.; K. O. Dixon, president, Dixon Industries; Jairo Estrada, chairman of the board and CEO, Garden Way Inc.; Jeffrey Mack, vice president, equipment, LESCO Inc.; Mark Rostvold, vice president, lawn and grounds care, John Deere Co.; Richard Shoemaker, vice president and general manager, engine division, Kohler Co.; and L. Edward Shultz, president and CEO, Murray Ohio Manufacturing Co. ■

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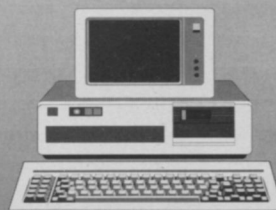
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Design Notebook

DESIGN CHALLENGES: This 52-year old mansion is situated atop a bluff overlooking Lake Michigan in Highland Park, Ill. The residence had deteriorated over the years and required extensive rehabilitation and planning. It had steep fragile slopes both in the front and rear of the house, dictating that all improvements to the property be contained to the small plateau along the ridge line. Over the years, many haphazard additions to the mansion and landscape detracted from it architecturally. These constraints, coupled with the clients' request for additional enter-

DESIGN NOTES

The Project: The Kaufman Residence
Landscape Company: ILT Company Inc., Prairie View, Ill.
 Harry Vignocchi, Chairman
 Harry J. Vignocchi
Designer:
Size of Property: 7 acres
Man-Hours to Construct: 45,000+
Number of plants installed: Approximately 10,000

tainment space, became our "watchwords" as we began what would be a year-long process to restore the stately character to this estate.

The residence was situated across a ravine with the only access by bridge, which had

The pool area was built with stone that matches the mansion and other terraces in this landscape overlooking Lake Michigan.

weight restrictions prohibiting large equipment from entering the site. As a result, all labor was done by hand. Over 200 yards of concrete was mixed and installed on site. In addition, the steep and fragile bluff required careful craftsmanship in installing stone walls and plantings to stabilize the slope.

STEP ONE: We began in the front by removing an asphalt driveway and turnaround. The driveway was realigned to restore the bluff face and an auto court was created with brick pavers and accent strips of blue-stone. A marble fountain in the center became the focal point of the courtyard. Brick garden walls (matching the house) were used to separate the auto court from the

(continued on page 24)



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In fact, Gallery is the only preemergent on the market today that's designed to prevent so many broadleaf weeds, yet is safe over the top of all turfgrasses,

and over 400 different species of ornamentals.

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Design Notebook

(continued from page 22)

lawn area and adjacent raised terrace.

The use of complementary materials for the auto court and terrace allowed the areas to be used as an additional area to entertain large parties. During outdoor parties, a large custom-made granite table takes center stage for display and food serving. A storage space, isolated from the auto court by a brick wall, was transformed into an intimate little bluestone courtyard with the addition of brick walls. An opening cut into the wall provides access, allowing people to move freely from one space to another around the entire house.

SIDE YARD: The side yard with the existing pool lacked sufficient room for entertainment and required the addition of an expanded terrace area. By excavating an area in the northeast corner of the house, a sunken garden was created with terraced planters featuring a spa and providing easy access and a pleasurable walk down to the family room.

The use of bluestone, iowastone, limestone and matching brick became the unifying elements linking the architecture of the house to the landscape. The Kaufmans asked our participation in the design and construction of a

new screened-in terrace. Brick enclosed the base with limestone columns and arches fabricated to complement the architecture of the rear elevation.

Plantings of groundcover, perennial flowers and large-scale ornamental trees were planted to accent and soften the hardsurface areas. Annual flowers in stone planters were used throughout to provide a festive atmosphere and seasonal color. Finally, the walk to the beach was complemented by terraced stone walls and an array of perennial flowers planted along the slope of the bluff. With the planting of the last daylilies, the envisioned stately mansion became a reality.

CLIENT'S WISHES. It is a rare opportunity to work with a client whose interest in nature is so strong. Having traveled the continent, the client has explored many gardens worldwide and developed a love for plants and the English style of landscaping.

With that background, we set out to create a landscape that explored many uses of plant material, as well as outdoor living spaces. This was achieved by creating a series of gardens showcasing plants in their natural habitat linked by terraces, walkways and views.

Only a small flagstone terrace existed on the south side of the house. We built brick walls

to enclose this space, and enlarged and reconstructed the terrace to include both brick planters and a small water feature. This created a private intimate space for entertainment. An arbor links this terrace with yet another terrace and provides a transition to the rear yard. The terrace areas are surrounded by lush plantings of rhododendron, roses and groundcover. With only a few trees on site, many native trees and shrubs were added for seasonal color, shade and/or screening. With little privacy, large spruce were designed and planted to provide screening from the neighbors at the rear of the property. This became the backdrop for expansive English-style perennial gardens.

A water feature, designed and constructed with streams and a waterfall, is the focal point of the garden and provides a peaceful setting. A flagstone stepper pathway leads people through the perennials and allows them to explore the herb, rose, rhododendron and fern gardens. With over 200 species of plants providing color nearly year-round, this residence has become a "botanic garden" used for small private tours by the Chicago Horticultural Society. — *Donna Vignocchi* ■

The author is communications director for ILT Company Inc., Prairie View, Ill.



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Seed Basics

READING A SEED LABEL

BERT'S CUT ABOVE Lawn and Landscape Service is in a very price-competitive market. Lesser quality companies are stealing his customers with the promise of lower installation and maintenance prices. Bert begins looking for ways to reduce his costs and increase profitability. Since he can save "... at least a dime per pound using lesser quality seed," the decision is made in the name of higher margins. In a year, maintenance costs have doubled because of weed invasion and poor germination and establishment of the turfgrass seed.

Larry's Lawn and Garden Service is installing a lawn at the Havcamp residence. Midway through the seeding process, the crew runs out of grass seed. The foreman decides that it is easier to drive down to the local variety store than drive 30 minutes back to the shop. Since "any seed will do," he buys the only seed that is available from the garden center. A month later, the same crew is back to reseed the patches of annual ryegrass, annual bluegrass and broadleaf weeds that "mysteriously appeared" where the substitute seed was used.

For a minute, consider the sod grower's job. Their livelihood depends on a weed-free product that will require a minimum of maintenance to produce and will establish quickly. Since it may take up to a year to produce this quality sod, the seed quality used to plant the field must be the very best.

Many lawn installations are using sod for its quick, green appeal to the consumer. The best quality seed provides the end user with a head start against weed invasion. Therefore, does it make sense for a landscape contractor to plant seed that was less than that of the sod grower's quality?

Because of the rigorous testing and strict specifications for purity and germination, "Sod Quality" seed can be very expensive. Furthermore, many sod fields are chemically followed to kill the previous turf crop or weed seeds that may already be in the soil. Few, if any landscape installations take such extreme weed sanitation measures.

So, in balancing between the need to provide a top quality turf and the need to maintain manageable material costs, a little consumer education will go a very long way. Not only must the landscape professional be able to select turfgrass seeds based on genetic superiority, he or she must understand the significance of seed quality.

Last month, we discussed the importance of Oregon seed certification — the guarantee of genetic purity. However, even before the



Blue seed tags certify genetic purity; white tags list contents of the mix and indicate quality levels. Credit: Skip Lynch

blue tag can be affixed to the bag of seed, federal law requires that a white analysis tag be attached. This tag is to the seed industry what a nutrition label is to a can of soup.

A nutrition label lists the amount of calories, fat, sodium, carbohydrates, protein, vitamins, etc. in a given product. This information is available to educate the consumer to the quality of the food. Although many use these labels to determine the dietary value of a food, not everyone reads the nutritional labels before they consume the contents.

Bags of seed are no different. The white tag on a bag of seed describes the quality of the seed contained therein. It lists the net weight, testing date, state of origin, percentage of components, germination, purity, weed seeds (including noxious weed), other crop seeds and inert matter.

Knowing how these items affect the overall quality of the seed can mean the difference between a profitable job and one that needs constant return visits to satisfy a customer.

TESTING SEED. By law, every bag of seed is required to have a white analysis tag attached to it. In Oregon, the Oregon State University seed laboratory, headed by Rodger Danielson, provides testing for all Oregon certified seeds.

This process includes a physical counting of all off-type seeds (weeds and other crop seeds) to determine purity, and a grow-out to establish germination percentage.

Since there may be variations in the quality of seed from one seed lot sample to another, large samples are collected from each lot, tested and stored for further testing for up to three years.

Following testing, the seed company is given an examination report of the seed lab's

findings. From these test reports, the companies may print white tags. Although the seed lab performs the testing, it is the certification program that determines genetic purity.

READING A WHITE TAG. A typical seed bag tag will show the following:

Kind is the species, or type of seed that was tested by the seed lab.

Lot refers to the specific lot of seed that has been tested. Each crop from each field will have at least one lot number. Lot sizes can vary greatly, depending on the species and seed company policy. However, Oregon law restricts a lot to no more than 55,000 pounds (+/- 5 percent). This number provides a tracking of the specific varieties, the production field and the components in that particular bag.

Pure Seed is the number of seeds, expressed as percentages of the whole, found in that variety or mix. Any number of pure seed components could be listed here depending on specific blending instructions.

In blends and mixes, each varietal component will have an exact percentage (down to 0.00), based on seed test results. Also, if the blend or mix is made of common or unnamed seed components, this will be presented as Variety Not Stated (VNS). Seed Certification does not recognize VNS seed.

Germination refers to the percentage of seed that has germinated during testing. At the Oregon State seed lab, the germination tests take up to 35 days, depending on the species of grass. This number is purely a minimal number. Four tests of 100 seeds per lot are grown out in growth chambers to determine the germination percentage.

Crop Seed is the total number of other crop seeds, expressed as a percentage of the tested sample, that have been found during a physical separation of the sample. If an individual crop seed exceeds 5 percent, it must be listed as a pure seed component.

For example, annual ryegrass in a perennial ryegrass lot would be listed as crop seed if it constitutes less than 3 percent of the lot. If it exceeds 3 percent, the annual ryegrass must be listed as a pure seed component, along with the perennial ryegrass.

On a seed lab "Examination Report," these seeds are identified and expressed as a number of actual seeds per sample weight, as well as an estimated number of these weed seeds per pound of seed.

Inert Matter is the amount that is dust, stems, soil, chaff, etc. It is expressed as a percentage of the total weight of the seed

(continued on page 27)

Regional Outlook

Lawn & Landscape
MAINTENANCE

cover feature

WEST/S.W.

Innovative Irrigators Are Using Graywater

Graywater use is not new or unusual. Thousands of Americans use untreated wastewater from bathtubs, showers, laundry tubs and clothes washers every day. Unfortunately, all of them have been, and many still are, breaking the law.

Plumbing codes throughout the United States require that all drain water, some of which is classified as graywater, be discharged to either a sewer or septic system. Customers that divert drain water from a clothes washer or shower to their fruit trees or ivy may be committing an illegal act, depending on where they live.

The widespread use of graywater did not draw much attention until drought-induced water shortages on the West Coast confronted homeowners with the prospect of shriveling and dying landscapes. Faced with water rationing, homeowners turned to local governments for

advice on safe graywater use.

Although many local officials ignored the request — and the thousands of bootleg systems that sprouted — a few directed health and water officials to determine if and how graywater could be used safely. Graywater use standards were selectively adopted in seven California counties and many cities between 1989 and 1991, and the need for state and regional standards became apparent.

Why Legalize Graywater?

Thousands of bootleg graywater systems already in use motivated public officials to provide guidance and legal avenues for the resource. Naturally, this better protected the public health and fulfilled the legal duties and responsibilities of government.

Additionally, pressures of a growing population and, in most cases, a fixed or shrinking water supply created a need for more efficient use of water.



The use of graywater to maintain landscapes started in the West.

For the landscape industry, adoption of graywater standards can produce economic opportunities for manufacturers, designers and installers.

During the two years it took to legalize graywater, numerous companies have transformed amateur systems into a variety of customized systems designed for individual sites. Graywater use provides great potential for innovative manufacturers, irrigation consultants and professional landscape contractors.

The development of graywater standards began with two assumptions:

• Graywater would not be legalized if a safe way to use it couldn't be found, even during water rationing.

• If a safe way to use graywater was found, then it should be adopted on a broad scale — by state — ideally as a part of the Uniform Plumbing Code used in the western U.S.

Graywater Standards

Modifications were made to the UPC in formulating California graywater standards based on public comment, which entailed about 15 months of data collection and public meetings. To minimize potential risk to human health, there was a general agreement among lawmakers that graywater would not be used for surface irrigation.

Low-risk graywater design, installation and maintenance standards were developed with the help of the Center for Irrigation Technology — California State University, Fresno. Some general California graywater standards include:

• Subsurface landscape irrigation at single family dwellings with no connection to any potable water system.

• The type of system used will be determined by the location, soil type and groundwater level.

• Drawings and specifications might be required, including a plot plan; installation methods, construction and materials; and information on soil forma-

tion and groundwater levels.

• Inspection and testing of the graywater system for permit conformity and quality of materials and installation.

• A procedure for estimating graywater discharge and a procedure for determining the area to be subsurface irrigated.

• Determination of absorption capacity of the soil.

Some additional health and safety provisions include:

• Specific distances from buildings, property lines, water-supply wells, streams and lakes, septic tanks and disposal field, on-site domestic water service line and pressurized public water main.

• Mini-leach field design criteria and subsurface drip design criteria.

The California Department of Water Resources has developed a graywater guide explaining the design, installation and maintenance process. The guide book addresses the procedures for implementing a graywater system, including investigating the permit process, quantifying graywater produced and the irrigated landscape area, system design, system installation, arranging for inspection and system use and maintenance.

Keep Soils Healthy

Irrigation professionals should keep in mind that sodium, potassium and calcium are alkaline chemicals and their presence in

Average Graywater Produced (In Gallons) By An Individual And By A Family Of Four

FIXTURE	GPD	GPY	GPY 4 PEOPLE
Washer	14	5,110	20,440
Shower/bath	16	5,840	23,360
Lavatories	2	730	2,920
TOTAL	32	11,680	46,720

laundry detergent tends to raise the alkalinity of the soil. Slightly alkaline soils will support many landscape plants. Even most acid-loving plants will survive with slightly alkaline soils generously amended with organic material.

The pH of an acid soil is 6.9 or lower while that of an alkaline soil is 7.1 or higher. If a pH test reads greater than 8.0, the pH should be reduced by adding sulfur or an acidifying fertilizer like sodium nitrate.

Sodium buildup in the soil may result in water infiltration problems. A soil test analyzed by a professional soil lab is the only way to verify excess sodium. This condition may be corrected by adding gypsum and/or organic material to the soil.

A sandy, well-drained soil will be less affected by the application of graywater than a poorly drained clay soil. Graywater may degrade a clay soil's structure by making it stickier and less loamy. The soil's physical condition also may be affected by high sodium concentrations.

Crusting, water-logging and poor permeability are indications of high sodium, which can be corrected with the tilling in of organic material. Salts that might build up from the use of graywater will only be a problem if they are not leached away with heavy rains, in which case an occasional leaching with clear water is recommended.

Grow Healthy Plants

Too much and too frequent an application of

any kind of irrigation water results in saturated soils, thus an invitation to plant disease. Generally, plants are healthier when the soil is allowed to dry out between irrigations.

A very small percentage of plants may be damaged by graywater. Too much sodium or chlorine can result in leaf burn, chlorosis and twig die-back. Boron can be toxic to plants at levels only slightly greater than required for good plant growth. Symptoms of boron toxicity include leaf-tip and margin burn, leaf cupping, chlorosis, branch die-back, premature leaf drop and reduced growth. Shade- and acid-loving plants do not like graywater. Their native habitats are forested areas where acid soils predominate.

Make Graywater Work For You

Now is the time to take advantage of this new source of business. If you work in California, the graywater standards are in effect statewide. Check with your city or county building department for regulations affecting your area.

In many cases, homeowners can install their own system, but often an automated subsurface drip system with more sophisticated filters, pumps, controllers, valves and design criteria may send a homeowner in search of an irrigation professional. Be ready to answer the call. — Marsha Prillwitz

The author is the landscape program manager with the California Department of Water Resources' Water Conservation Office in Sacramento.



Graywater systems aren't particularly difficult to build or maintain.

Landscape Work Delayed By Rainfall



California landscape crews were grounded for weeks this spring and early summer as rain fell over the entire state. Northern California experienced a three-week stretch of precipitation that kept soils saturated and increased the threat of landslides in many areas. 1995 is already the fourth wettest year on record in the state, according to the Department of Water Resources.

"When the rain finally stopped, it was hard to get a hold of any landscape contractor because they were all catching up," remarked Marc Gerig, communications director for the California Landscape Contractors Association. The fact that all reservoirs in the state are full is a positive sign for the landscape industry, which has been fraught with periodic drought and a lingering rocky economy.

"We had rain for the first time in 12 years during the CLT (Certified Landscape Technician) test," added David Woldenharer of Contra Costa Landscaping in Martinez, chair of CLCA's certification committee. "Even so, a record 134 applicants showed up to be tested. It shows everyone's dedication and commitment toward reaching a common goal of excellence that proves the sky is the limit."

Landscaping Industry Avoids Service Tax

The California Assembly Revenue and Taxation Committee voted down legislation that would have imposed a tax on landscaping and other services, reported Larry Rohlfes, government affairs director of the California Landscape Contractors Association. CLCA fought the legislation and lobbied to show that landscape contractors in the state have been particularly impacted by the recent recession.

Warren's Turf Nurseries Sells SoCal Farm To West Coast Turf

Warren's Turf Nurseries, one of the first multi-state sod producers in the country, sold its 200-acre farm in Winchester, Calif., to West Coast Turf of Palm Desert, Calif. The farm, located southeast of Los Angeles in Riverside County, has been a major supplier of turf-type tall fescue sod for the Greater Los Angeles and San Diego commercial/residential landscape markets.

West Coast Sod will use the farm to expand into cool-season grasses, zoysiagrass, buffalograss and St. Augustinegrass. Previously, the firm specialized in warm-season turfgrasses and creeping bentgrass for the golf course and sports turf markets. "The new farm enables us to broaden our product line," said Jeff Cole, company spokesman. "We are excited about producing new zoysias being released by the University of California, Riverside."



regional outlook fax survey

LLM is interested in learning more about market conditions in the West/Southwest, so we've incorporated a Fax Survey into the inaugural issue of Regional Outlook. If you would like to assist us in learning more about your market — as well as find out how others are doing in your market area — please fill out the following questionnaire and fax (216/961-0364) or mail a copy to LLM magazine at 4012 Bridge Ave., Cleveland, OH 44113. We'll report the results of the survey in future editions of Regional Outlook. Thanks for your assistance.

1) Is business up, down or about the same as this same time in 1994? Up Down About The Same

2) If your business is "up" or "down" this year, please list the percentage increase? + -

3) Please list any additional news items or market observations that might be of interest to you and our readers.

4) Please rate your company's business performance for each of the following service areas when compared to 1994 (check only one in each category):

Service	Above Average	Below Average	Average	Not Involved In This Market
Mowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aeration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tree Care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscape Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lawn Renovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sodding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscape Installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pesticide Applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Seed Basics

(continued from page 26)

sample. This is neither viable weed nor viable seed. Some crop and weed seed may be classified as inert but the seeds are broken, damaged by insects or infected with ergot. The higher the inert matter percentage, the less of the actual seed the end user is actually purchasing.

Weed Seed is just as it describes. This is the number of weed seeds identified in a given sample, and expressed as a percentage

of the whole sample. Although the specific weeds are not identified on the white tag, the Oregon seed lab's report will list the specific weed seeds found in the sample and how many of each weed's seed was found. This is also expressed as an estimated number of weed seeds per pound.

Noxious Weeds are the weed seeds that have been identified in a sample that are considered noxious by local law. The end user should never purchase seed that has anything other than "None" printed on the tag. *Origin, Net Weight and Tested* are simple.

The origin is important because it lets the consumer know exactly where the seed is produced. If the seed was produced in the United States, a state will appear in this space. For seed produced outside the U.S., the original country will appear. Net weight is the sum of all contents. Tested is simply the month and year when the seed was tested. The older the seed, the less likely it will meet the germination standards. — *Skip Lynch*

The author is technical agronomist at Seed Research of Oregon, Corvallis, Ore.

THE COMPARISON

We compared a bag of Seed Research of Oregon's "Crusader" turfgrass seed mix with a bag of economy lawn seed mix that we purchased from a local retailer. The economy mix advertises that the mix will "germinate quickly and establish a permanent lawn." The Crusader mix touts its endophyte enhancement and turf quality.

Both mixes contain ryegrass and fine fescues. The economy mix also has a Kentucky bluegrass component. Aside from the absence of an Oregon Certified blue tag, the seed quality differences are dramatic.

1. Pure Seed — The economy mix contains annual ryegrass, not perennial ryegrass! This annual ryegrass component (57 percent of the mix) will not be very dark green. As a result, more fertilizer will no doubt be applied in an attempt to darken the stand. Likewise, since the annual ryegrass will be fairly short lived, the lawn will also need

to be reseeded. Furthermore, the Kentucky bluegrass will also require a significant amount of water and fertilizer to establish and maintain a desirable turf. This mix is economical only at the time of purchase. Maintenance will be fairly expensive.

All of the species contained in the economy mix are listed as VNS seed. There is no statement of genetic improvement or quality. The Crusader mix is composed of certified, genetically improved varieties.

2. Other Ingredients — The economy mix has nearly four times as much other crop, five times the inert matter and over 10 times as much weed seed than does the Crusader seed mix. It contains only 93.20 percent pure seed. By contrast, the Crusader mix is 98.56 percent pure seed. The 5-pound bag of economy mix contains over 1,200 *Poa annua* seeds. By contrast, the Crusader mix was found to be *Poa annua* free.

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USE READER SERVICE #33

Strength In Diversity

A pest control industry giant for nearly three decades, Couhig Environmental is establishing itself as a major player in the green industry.

By Paul Schrimpf

AT 79 YEARS OLD, no one would blame Robert Couhig if he sat back and enjoyed the fruits of nearly five decades of labor. But retiring to his plantation home 35 miles outside Baton Rouge, La., is the last thing on his mind nowadays. Or, as he put it himself, "I intend to have them carry me out of here someday."

A leader and self-proclaimed "lover of the deal," Couhig has always looked for opportunities that would help his company grow and increase the level of customer service his company provides. Sometimes, things have come his way that he never expected.

For example, he hadn't planned to throw his hat into the professional lawn and landscape arena. His company, Couhig Environmental, has been a fixture in the southern Louisiana pest control industry since it was founded in 1968, and himself a veteran of the industry since the end of World War II.

But just six years ago, at the ripe age of 73, Couhig jumped at the



chance to break into the green industry by creating a chemical lawn care division.

Today, in addition to full-service lawn care, Couhig Environmental's Lawn Care & Horticulture division is serving a mix of residential, commercial and industrial clients in the areas of tree and shrub care and, most recently, landscape design and construction services, with 14 full-time employees in two offices.

On the day-to-day business side of work, Couhig allows managers a large degree of freedom, guided by the company's overall mission statement, called the "Commitment to Excellence."

The statement defines Couhig's mission as follows: "To design and produce the best possible solution to all of our customers' pest, termite, lawn care and horticultural problems in a manner resulting in the greatest possible satisfaction of our customer's needs."

"I have always believed that the

customer should be given every advantage in the world you can give them," said Couhig. "and I also believe that every time you do something good and positive, it comes back and pays off for you down the road."

Adding this new dimension to the company has proved to be a challenge, and Couhig readily admits that the division is in a "state of flux." Adding so much in so little time can tax financial and personnel resources, but the division is holding its own — sales this year are projected at \$2 million, about 15 percent above 1994's final figure.

For now, though, providing diversity and quality of service, focusing on customers and treating employees with respect are putting Couhig on the map for lawn and landscape services.

GOOD MARRIAGE. The coexistence of pest control with lawn care and landscape services under the same roof is by no means a unique

Robert Couhig is building a successful horticultural services division by focusing on the customer, treating employees respectfully and providing a diverse menu of services.
Credit: Don Kadair, Baton Rouge, La.



COUHIG ENVIRONMENTAL

Locations: Baton Rouge and New Orleans, La.

Founded: In 1968 as a residential and commercial pest control company. In 1989, purchased ChemLawn franchise and began residential and commercial lawn maintenance division, later adding tree and shrub care. In 1994, the company debuted its landscape construction and design/build division.

Owner: Robert Couhig

Primary Services: Pest and termite control; residential and commercial lawn maintenance; tree and shrub care; landscape irrigation, maintenance, design and construction.

Employees (Horticulture division only): 7 full-time workers in Baton Rouge, 7 full-time workers in second office in New Orleans.

1994 Sales: \$1.5 million in the Horticulture division

EXECUTIVE SUMMARY

The Concept: Be the best in all we do, as judged by our customers, employees and suppliers, and to be the envy of our competition.

Projections: \$2 million in 1995

Future Challenges: Growing the horticulture business steadily, with yearly growth in the 10 to 15 percent range.

Principal: Robert Couhig, Age 79. Entomology degree from University of Massachusetts in 1937. After serving in World War II, worked for Orkin Exterminating from 1946 until 1967. Opened Couhig Environmental, a general pest and termite control company in 1968. In 1989, bought ChemLawn franchise and began residential and commercial lawn maintenance, and later added tree and shrub care. In 1994, opened a landscape design and construction division.

arrangement. In fact, evidence of this can be found in a recent study conducted for *Lawn and Landscape Maintenance* magazine by Research USA, an independent research firm based in Chicago. When asked what services these survey participants offered at their location, more than 24 percent of the responding contractors listed pest control as one of those services.

For Couhig, the ratio is still heavily skewed toward the pest control side. About 60 percent of the company's total business comes from the general pest control area. Termite control accounts for another 25, which means that horticultural services make up around 15 percent of Couhig's business.

Having the established pest control side has been a three-fold blessing. First, the Couhig name asso-

ciation as a 27-year business in southern Louisiana has lent positive credibility to whatever the company has ventured to do.

Second, the pest control side provided a pre-established database of customers already receiving a home-oriented service.

Finally, having both services allows Couhig to provide single-source service for landscape and pest control needs.

Cross-marketing the two services has been a large part of Couhig's success in gaining business so far, according to Michael Reech, staff horticulturist and manager of the horticulture division. Converting current clients receiving pest control has been a major source of sales for the young division.

"We're fortunate to be one of the largest pest control operators in the

area, with a great deal of residential, commercial and industrial clients that we serve," explained Reech. "It allows us to cross-reference customers already receiving pest control. It's a great advantage to approach them and say, 'you know, we can provide you with the mowing, the chemical lawn care, the tree and ornamental care, or whatever you need for your landscape.'"

"Our services are so multifaceted," he continued, "it's like one-stop shopping. Rather than dealing with several different individuals or companies for these services, we can provide them all under one roof. People in the '90s don't have time to deal with several different servicers for

the things they need done with their home — if they can deal with one company, and they know and trust that name, they feel more comfortable."

HUMBLE BEGINNINGS. Although the company had been involved to a small degree with landscape maintenance services, it had always been wrapped into the pest control division and not treated as a separate profit center.

In the fall of 1988, however, Couhig received a call from ChemLawn, asking if he would be interested in purchasing its then-defunct New Orleans franchise. ChemLawn had shut down the franchise due to low profits, but the deal

would offer a strong prospect list of customers who had received chemical lawn care.

Feeling that the failure of the office was more a function of poor management than a bad marketplace, and having been given what Couhig described as a tremendous deal, he decided to make the purchase in January of 1989.

A separate horticulture division was created for both the New Orleans and Baton Rouge office. Couhig's New Orleans-based horticulturist who had been doing Couhig's lawn care service, was dispatched to train new employees for the fledgling division.

By the time Couhig got the list and began its effort to bring lawn maintenance customers on board, the once-hot list had cooled significantly. In the nearly 4-month period since the ChemLawn office closed, many of the customers either sought lawn service from other companies, or went with one of the former ChemLawn technicians who struck out on their own. Despite this, extensive telemarketing and direct mail converted about 30 percent of the list to Couhig's infant lawn service division.

The first year was a period of establishment, as the largely residential lawn care division grew, but lacked the level of profitability Couhig had hoped for. In 1991, Reech, a state certified horticulturist and arborist who had served in the sales division of the company, was placed in charge of taking the new division to the next level.

"It had gotten to the point that, if this is the direction we wanted to go, we needed to get someone in there to do what needed to be done," said Reech.

He reorganized the division, taking charge of selling new accounts, routing, scheduling, product buying and fine-tuning many aspects of the day-to-day operations of the division.

He also took a hard, realistic look at the customer base, noticing that many of the old ChemLawn customers were simply not profitable to maintain.

"In this market, residential landscape maintenance is a very cutthroat business — lots of companies open their doors and close their doors every year. Between the time and expense of sending out a truck and equipment, we simply cannot afford to do the \$35 to \$40 lawn, and we have had to turn some of those jobs down."

Reech targeted the country club circuit — larger-dollar neighborhoods where a higher price could be generated per service call. "With the same trucks and the same technicians doing similar work, we can generate a bigger price, sometimes three to four times more," he noted.

In addition, Reech bridged communications with the pest control division, offering a bonus for pest control technicians who generate a sale for the horticulture division. "We have a very powerful customer base of 1,500 to 1,800 regular pest control clients. Nothing has been more successful than personal referrals from our pest control division," said Reech.

Today, Couhig Environmental services more than 1,000 accounts with its landscape and horticulture services.

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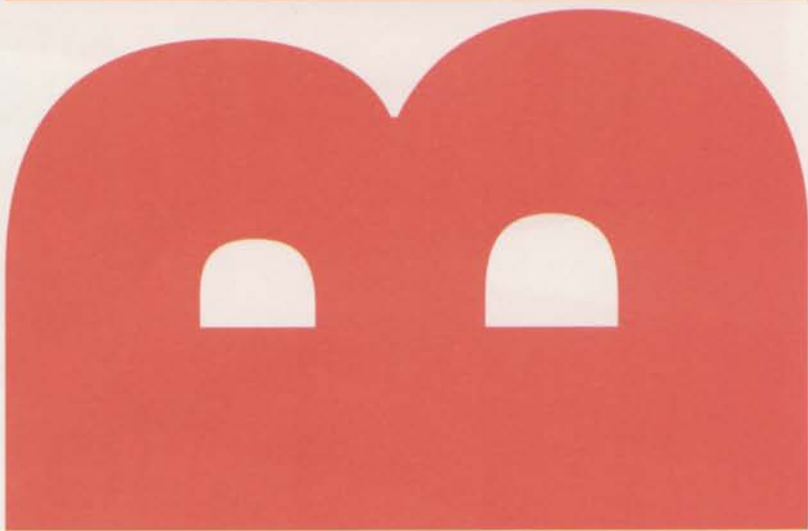


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USE READER SERVICE #84

(continued on page 36)

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_____ % Irrigation Services
_____ % Installation
_____ % Pest Control

3. What were your 1994 revenues? \$ _____

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

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

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_____ Hedge Trimmers

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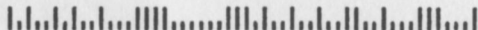
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3. This sweepstakes is not open to employees or the families of all sponsoring firms, Lawn & Landscape Maintenance magazine or other GIE Publishing Co. publications, and affiliated companies.

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

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

is awarded the grand prize. Only one grand prize will be awarded.

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

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

8. Void wherever prohibited or restricted by law.

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

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

11. To obtain 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.

Cover Story

(continued from page 32)

LOOSE REINS. It is often said that the culture of the organization can be traced back to the management style of the person in charge. Couhig is certainly no exception.

Couhig allows his managers to run their departments the way they see fit, to purchase needed equipment, hire new personnel and set policy without looking over their shoulders. Of course, this freedom comes with a great deal of accountability.

"He really lets the managers run their own domains—we definitely aren't puppets on pull-strings around here," said Reech. "Mr. Couhig really trusts us to do the job, but we have monthly meetings, and if your numbers are out of line, he'll get you back in line.

"He'll never threaten," headed, "but we'll all work together and talk about ways we can get the numbers up and the costs down."

Reech's philosophy is similarly loose in terms of his work crews—probably more so than many contractors would feel comfortable with

—but that has been successful for Couhig Environmental.

He directs a group of technicians who work within "teams." The teams work the same routes consistently, but no individual serves a particular function. Each team de-

termines who does what job. everyone on the crew is paid above the average scale for the area, and is paid the same amount of money. Of course, just as with Couhig and his managers, there is a level of accountability that goes with the freedom the crews enjoy.

'Rather than dealing with several different individuals or companies for these services, we can provide them all under one roof.'

termines who does what job.

Reech said that the system of using one foreman and a crew sets up unneeded animosity and resentment, and that properly trained, equal individuals are happier and more productive workers. "Getting the work done really becomes a team effort. My main concern is that the work is done in a timely and safe fashion."

Just as important, he added, ev-

"I go out and personally inspect the properties they maintain. Frankly, if they don't get the job done correctly the first time, they are required to go back on their own time to get it done right," he explained. "We pay well to get a job done well, and I don't think the company should pay twice for a crew to go back and fix shoddy work. It almost never happens, but when it does, I make no bones

about getting the work fixed."

The loose reins and good pay scale are just part of what Reech and other managers at Couhig term "treating employees like human beings." Management provides as many special perks as possible, from high-grade uniforms to state of the art equipment to air-conditioned cabs in the trucks.

GROWTH AND CHANGES. The company's most recent endeavor has been the addition of full service landscape design and construction. This new area of business was also brought on board via a company already established in the market.

Scott Livingston, who heads up the landscape end at Couhig, started out working weekends for various companies in the industry for extra money. He struck out in the business full-time on his own four years ago, and during that time had actually done a job at Couhig's home.

Just over a year ago, Livingston met Couhig again, and took the opportunity to discuss the potential for adding landscape services to Couhig's mix of services.

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"I had grown about as large as I could on my own, and I kind of sold him on the idea of taking me on to bring landscape services to Couhig's mix," he said. "The lawn and landscape areas go hand in hand—it was the next logical step."

With just a year—and not a full summer—under his belt at Couhig, Livingston is still looking to solidify Couhig's place in the market. His focus has been on converting a small number of large dollar, commercial/industrial projects.

"With residential jobs, the low profit margins make you feel like you're on a treadmill, not getting anywhere," explained Livingston. "We'd like to get five or six large projects as a base, and fill in the rest of our time with smaller jobs."

While Couhig's intention is to stay involved in his business for as long as he is physically and mentally capable, he also understands the importance of getting his ducks in a row for the next owner. Recently, he's been consulting with an attorney and an accountant, as well as conducting family meetings, about the best ways to handle it.

Couhig has four sons, but none have stayed particularly close to the company. One of his oldest, who recently purchased the New Orleans AAA baseball team, has the financial resources to own the company, but is less interested in being hands-on.

WELL CONNECTED. Reech believes that, considering the size of the industry, its political representation and networking opportunities are limited on the state and local level. In his home state, a two-year old organization called the Louisiana Ornamental and Turf Association is attempting to be that representing body. Reech, now president of LOTA, explained in a recent interview the importance of such an organization:

Q. What are the primary goals of LOTA?

A. The green industry is really a very young industry, and is especially vulnerable to changes in legislation. The biggest goal for this group is to give people in the industry a voice they have never had before in the legislative process. The most obvious thing today is

that legislators can go out and pass laws that will affect the way I do business literally overnight. We get involved in the process, representing the industry's interests to legislators and making members aware of impending legislation.

We also want to provide a forum where landscapers, arborists, nurserymen and maintenance contractors can network with one another, and maybe help solve problems and work together better.

Q. Does LOTA sponsor any special events?

A. LOTA has implemented a full public relations program, which is building a positive image for the green industry through participation in the media.

Q. Does Louisiana present any unique challenges to the industry?

A. The state of Louisiana requires professionals to be licensed to perform many of the services that the green industry provides—if you prune, you need one type of certification, or if you spray or fertilize, you need another. Frankly, the tests for these licenses are pretty tough and are regulated by the En-

vironmental Protection Agency. We provide training and education courses for individuals that will help them pass their certification exams.

Q. Does LOTA provide other kinds of professional support?

A. Of course, there are many organizations in lawn care and maintenance that are small, and have problems affording workers compensation and liability insurance. LOTA is self-insured, and can provide these services at a more reasonable cost. The organization can also help with debt collection, advertising—really anything we can do to make the green industry in the state a better place to be.

Q. How large is the Louisiana green industry?

A. Conservative estimates indicate in excess of \$500 million, and LOTA is currently funding an impact study through the Louisiana State University Agricultural Center to determine the dollar amount of all economic activities. ■


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

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USE READER SERVICE #82

Fall Fertilization: Getting It Right

Timing, type of fertilizer and marketing all play an important role in making late fall fertilization a successful and profitable service offering. Research continues to show how beneficial these treatments can be.

By John Street, Ph.D.

RESEARCH has shown that heavy nitrogen fertilization during the spring and summer is undesirable for cool-season turfgrasses. Environmental conditions are favorable for rapid top growth in the spring. High nitrogen levels in the spring and early summer accentuate a top growth surge, at the expense of root growth.

The "late-season" nitrogen fertilization concept is designed to apply nitrogen during that period of the year (late fall) that will favor a positive carbohydrate balance. Shoot and root growth of cool-season turfgrasses occur most readily in the temperature ranges of 60 to 70 degrees Fahrenheit, respectively.

Root growth of cool-season grasses will continue at soil temperatures close to freezing. Shoot growth will cease at higher temperatures than that for root growth. Late-season nitrogen fertilization capitalizes on this differential.

WHEN TO APPLY. Under late-season fertilization, the nitrogen application should be made when vertical shoot growth has stopped, but the turf leaves are still green to produce carbohydrates via photosynthesis. Air temperatures of 45 to 50 degrees Fahrenheit are usually necessary for vertical shoot growth stoppage. It is important to understand that since temperatures will be at a point causing stoppage of top growth, the roots' rhizomes and stolons will capitalize on any applied nitrogen.

The carbohydrate produced will be more efficiently used for root, rhizome and stolon growth during the late fall and winter periods. It is critical that the nitrogen be applied prior to dormancy for maximum efficiency of applied nitrogen. Once the tissue has turned brown, photosynthesis will no longer occur. "Late-season" fertilization does not mean dormant fertilization.

PHOTOSYNTHESIS CONTINUES. During late fall, photosynthesis is higher than respiration for cool-season grasses. With green tissue, photosynthesis will occur readily at low temperatures. The high net photosynthesis during the late season leads to maximum carbohydrate production and carbohy-



TURF BENEFITS CAMPAIGN TO COUNTER NEGATIVE MESSAGES



FERTILIZER USE for lawns has been challenged in several ways recently, according to Tom Delaney, director of governmental affairs for the Professional Lawn Care Association of America, Marietta, Ga.

Basically, this challenge is evidenced in three areas:

1. Some local water departments are sending flyers with billing letters warning customers to "use pesticides sparingly on lawns and gardens and only after considering more natural methods of control." Other statements urge customers to "control fertilizer use on lawns and gardens or use natural organic fertilizers."
2. The development of state-wide "nutrient management plans" near the Chesapeake Bay area, limiting the amounts and times of fertilization.
3. Movements in some Midwest areas to regulate fertilizer use, the

amount of phosphorous allowed in a mix and the timing of applications.

Delaney pointed out that such actions can indicate a lack of knowledge about the role that turf plays in holding water to prevent runoff and in neutralizing chemicals to protect groundwater.

"In some cases, they are jumping to a conclusion from the idea that all pesticides and fertilizer found in runoff is from turf," he noted. "Officials in some local governments see traces of materials in lakes and streams, like algae blooms, and say it's from the phosphorous in the lawns. What they don't consider is that it can also be from clippings, leaves, snow and soil erosion (where you have naturally occurring phosphorous), for example."

The tendency for local agencies to want to regulate lawn care fertilization is getting stronger, Delaney believes, and misconceptions about the source of materials in runoff "could cause some mandatory controls."

The irony of this developing situation is not lost on him. "We've gotten pre-emption in a lot of states for pesticide use, yet the lawn care industry doesn't have anything like that for the use of fertilizers."



drate storage for the plants' reserves.

The positive carbohydrate balance favors root and rhizome growth over top growth, since the air temperature is well below that considered optimum for shoot

growth. Nitrogen application during the late season, if timed properly, will extend the greening of the turf later into the fall and the winter.

Another possible benefit from the application is that Spring

greenup normally occurs earlier.

The green turf is photosynthetically active, favoring a positive carbohydrate balance. Late-season nitrogen fertilization increases the "green growing" period of the

Late fall fertilization programs take advantage of the turf plant's growth cycle, when it is most likely to produce valuable carbohydrates and store them in reserve for use in the next growing season. Credit: Vigoro Industries Inc.

TURF BENEFITS VIDEO. One response to this phenomenon is a new program developed through PLCAA's Education & Research Foundation, using a video that explains the benefits of turf in terms of the environment and water quality.

The video, which was produced by Ciba Corp., is titled "The Value of Turf to Water Quality and the Environment," and it is aimed at community officials and water department managers.

The 10-minute video shows turf research being conducted by Dr. Tom Watschke of Pennsylvania State University, Dr. Harry Niemczyk of The Ohio State University and Dr. Marty Petrovic of Cornell University. Each explains his findings and experiments for the video.

The Foundation's program enables lawn service contractors to order the videos and contact local officials themselves, or help the Foundation do the local contact.

"We hope to get this video in the hands of people who make the decisions about sending letters to homeowners about lawn care use of fertilizers," Delaney explained. "The researchers in the video make the

point that with good management programs, turf products are not a problem."

Delaney noted that the problem of fertilizer use is not simply a matter of their application. "It's when they're not used according to the label that is the problem. For example, overapplication on cement, use on a bare ground without a good growing turf or other types of wrong applications done not according to the label."

He thinks some of the consumer notification programs were instigated when local water departments found small levels of nitrogen and related materials during routine water quality testing. "Most of the time the levels of materials are below drinking water tolerances or otherwise not significant, but that depends on who decides what is significant," he pointed out.

The video package includes an introductory letter outlining the key messages and encouraging the recipient to view the video for facts. For more information on supplying local officials with this video, contact PLCAA Education & Research Foundation at 800/458-3466.

turfgrass plant later into the fall and earlier in the spring. Physiologically, this is a positive agronomic practice.

WHICH FERTILIZER TO USE? The most efficient nitrogen fertilizers

Nitrogen application during the late season, if timed properly, will extend the greening of the turf later into the fall and winter.

for use in late-season programs are those independent of temperature for nitrogen release. Soil temperatures and microbial activity are low at this time of the year, resulting in less efficiency from methylene urea, coated materials and other temperature-dependent fertilizers.

Urea and IBDU are fertilizers that are independent of temperature for nitrogen release and therefore, make for excellent late-season nitrogen sources.

IBDU, having a slow-release characteristic, will not cause surge growth even if misapplied (i.e., too early) in the late-season program.

THE THATCH DRAWBACK. Thatch accumulation has been reported to be greater under late-season nitrogen fertilization, in comparison to spring and summer fertilization. This has been the only disadvantage reported to date for late-season fertilization. The greater root growth occurring with late-season fertilization is considered the likely reason for more thatch.

Thatch was found to consist of 60 to 70 percent roots. It should be anticipated that any management practices such as late-season fertilization or high mowing, which increase the depth of roots and number of roots, will more than likely over time increase thatch development.

This implies, in long-term management strategies where cultural

FALL FERTILIZATION SALES RELY ON CUSTOMER EDUCATION

THE ADVANTAGES of a late-season nitrogen fertilization have been well documented, but may not be well understood by homeowners. Some may even question why fertilizer is needed so late in the growing season. In personal discussions with customers, company newsletters and bill stuffers, explain this technique's many advantages:

- Maximum carbohydrate production and storage for reserves.
- Increased root growth for grass plant establishment.
- Well timed applications can extend turf greening into fall and winter.
- Spring green up may occur earlier.

practices are imposed to maximize root growth, that accompanying strategies like core cultivation must be implemented to control thatch.

Nitrogen is a key component of turfgrass fertilization programs. It has an influence on both the morphology and physiology of the turf.

High quality turf exhibiting acceptable green color and density, which is what many homeowners want, requires periodic applications of nitrogen.

Nitrogen, however, is frequently referred to as the "TNT" of turfgrass fertilization programs. It can be just

as detrimental as it is beneficial if it is mismanaged.

Physiologically, the lawn service contractor should maintain a good carbohydrate reserve/balance and maximum root mass.

Proper timing and rate of application are important in successful programs. Remember, greener is not always better. A happy medium should be obtained between agronomics and aesthetics.

The author is professor in the Department of Agronomy at The Ohio State University, Columbus, Ohio.

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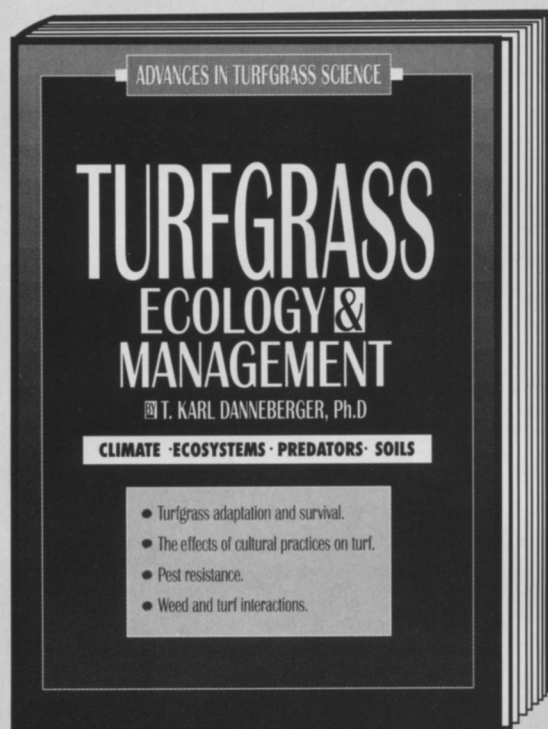
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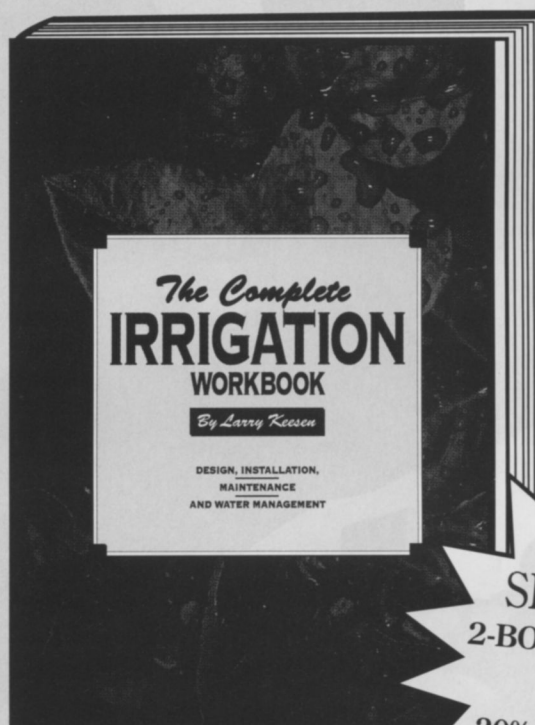
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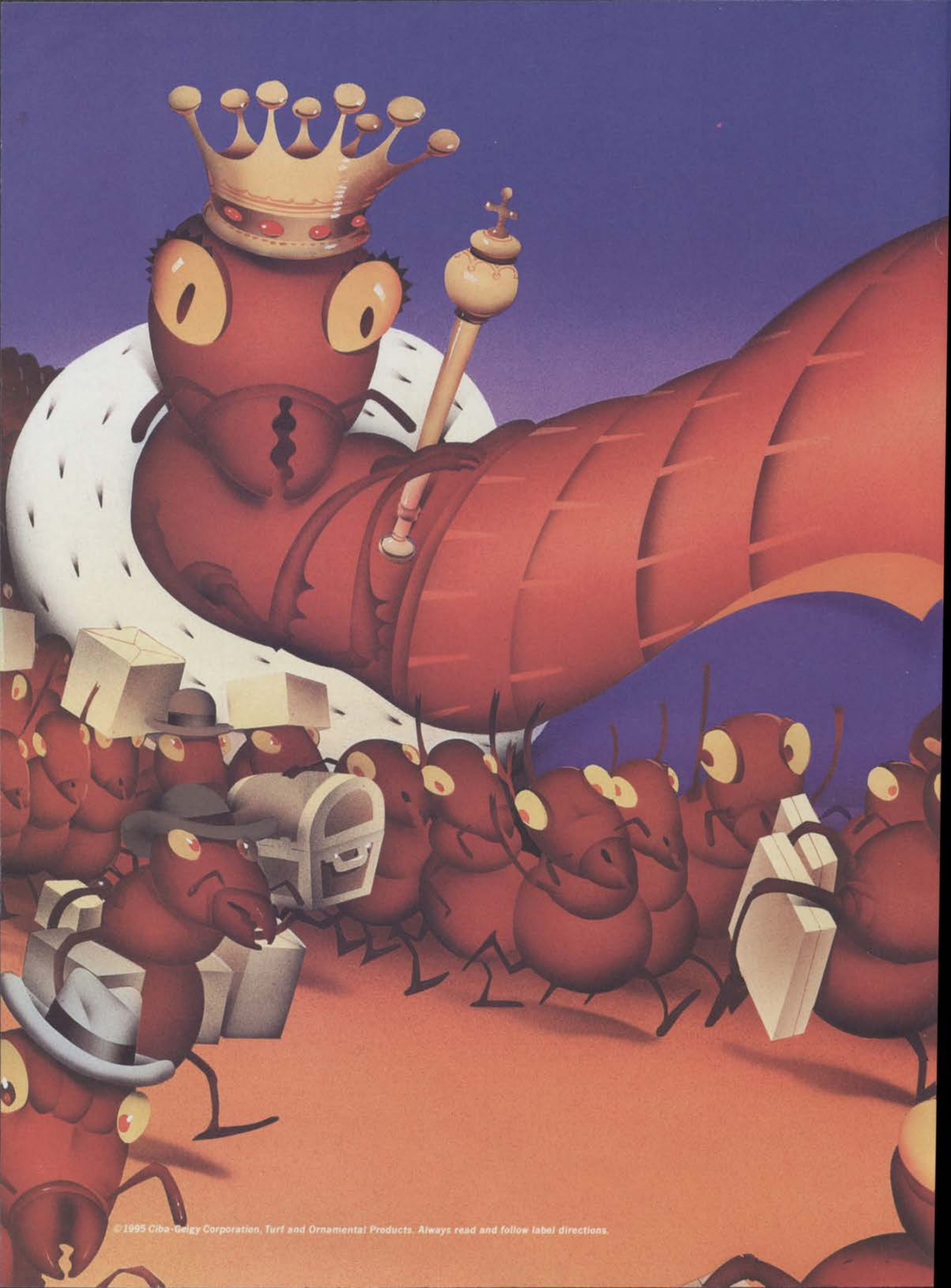
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THE TERM "utility vehicle" can mean anything from a golf car ("golf cart" is incorrect) up to two-ton pickup trucks in the lawn and landscape industry.

Most successful lawn and landscape companies make use of low-horsepower motorized cars to get around at the jobsite and perform specialized tasks.

Some contractors come up with innovative solutions to their utility vehicle needs or they buy standard models from manufacturers.

Claiming to own two "utility vehicles" — meaning little motorized units — is Lance Schendorf, general manager of Gachina Landscape Management, Menlo Park, Calif. "Aside from 30 pickup trucks, we have one utility vehicle we went out and bought that way, and another that's really a golf car converted into a utility vehicle."

Both of these machines are used on large homeowner association sites, he said.

"Those properties have paths that aren't passable for a regular motor vehicle," Schendorf said. "The paths are not unlike golf car paths."

The maintenance departments of these associations themselves use utility vehicles. Such properties are made for small motorized traffic and have fire lanes instead of roads.

"The utility vehicles go between the bollards set up to block access," said Schendorf. Bollards are vertical posts, usually removable, placed in fire lanes. If an emergency vehicle needs to get in, municipal employees armed with universal keys can unlock them.

"That way, a fire truck can go in," Schendorf said, "Firemen can unlock the bollards, pull them out, and respond to an emergency. But somebody can't drive in because they're moving into an apartment."

With security being what it is, only the scrappy little utility vehicle gets around hassle-free. "One of our utility vehicles is a standard



Their suitability for a variety of tasks makes utility vehicles popular. Credit: Cushman

"Bigger properties like universities use them a lot to get around. They have the same situation: a lot of paths networked to specific work areas."

Schendorf's lawn and landscape crews working on such properties often notice that the in-house maintenance department workers use utility vehicles.

"We've got one vehicle we keep on-site at a homeowners association we maintain, but the group itself probably has four or five. All their maintenance people go back and forth between the shop and the field in the vehicles. Or maybe a

resident has a leaky faucet. Having a vehicle expedites service calls."

Utility Vehicles Gain The Inside Track

Utility vehicles, as well as customized trucks and carts, offer versatility, productivity and cost effectiveness on the job site.

By Bob Gitlin

model," Schendorf added. "We bought the other vehicle from the association, which went from an in-house department to a contracted maintenance situation."

CREATURE COMFORTS. What's the cost? Current market price, Schendorf estimated, is between \$5,000 and \$6,000, and more if

you get all the bells and whistles.

"We're in northern California," Schendorf said. "We don't need rain or cold-weather things. But you can get an enclosed cab or just a roof. If you have the enclosed cab, you can get a heater. You can probably get everything you can put on a car."

"Utility vehicles are widely used on golf courses," he continued.

COST EFFICIENCIES. "A lot of times, these vehicles help cut time," Schendorf said. "We've got some pretty good treks on foot on a 1- or 2-acre site, which a lot of them are. Our crews tend to be working together most of the time, unlike the on-site maintenance people for the homeowners associations, who will have people out there alone. It's all about bridging distances."

Utility vehicles are more cost-efficient to run than pickup trucks, he believes. "You should substitute the little vehicle if you can. If you've got a pickup truck and all you're going to do is run around the site, never taking it on the road — then it's a lot cheaper to spend \$5,000 for a utility vehicle than \$15,000 for a pickup truck."

He noted that users can often take utility vehicles into commercial thoroughfares, depending on their size. Some vehicles are not licensed for the road; some are.

"You can cross a street or go down a little ways and cut back into the area you're working," Schendorf said. "Mostly, where we're using the small vehicles there are private roads, and these things are rolling around just like golf cars. In a lot of communities in Arizona

(continued on page 46)

Questions!! Questions!!



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Question No. 1: What is your profession, and what should you do about it?

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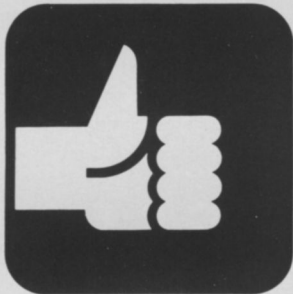
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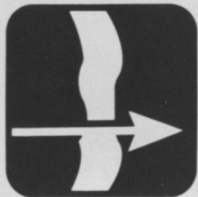
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Utility Vehicles

(continued from page 44)

and Florida, a resident will have a car and a golf car. And he uses the golf car to go to the store and get around the neighborhood."

Driven by California environmental regulations, a move is being aimed away from gas-powered utility vehicles to electric power.

"One of our carts is electric and one is gas," said Schendorf. "I'd recommend electric as long as you don't need a tremendous amount of power or speed. In California as elsewhere, we're trying to reduce emissions where we can. It's a logical thing to use an electric vehicle. You put it in a garage at night and just plug it in."

COMMERCIAL CAMPUS. "We don't use utility vehicles," said Peter Brummel, a manager of sales and marketing for the commercial landscaping division of Teufel Nursery in Everett, Wash. "We use retrofitted United States Postal Service Jeeps with little trailer carts on them. We have four. We paint them

up, put a ball hitch on the back end and put our logo on them."

Teufel's big maintenance account is Microsoft headquarters.

"At Microsoft, which is our biggest maintenance account," said Brummel, "we have an on-site full-time maintenance and irrigation staff. For our maintenance accounts, we have a mobile crew with a regular 3/4-ton pickup and trailer that hauls all our mowers and other equipment. But at Microsoft, we use the little Jeeps."

There's no other way to dart in and out of the traffic.

"These things work great," he said. "They're maneuverable, and, as they're a little bigger than the traditional carts, I think they may be somewhat safer. We don't put them on the road; we just keep them on the Microsoft campus, where we use them to haul around annual color pots, shrubs and fertilizers."

The Jeeps' luggage carts offer distinct conveniences.

"They're like the baggage carts you see on vehicles at the airport," said Brummel. "We lash on two or three of those and kind of putt

around campus. Taken generally, 'utility vehicle' in this business can have quite a range."

Brummel believes that repair of units like Teufel's is easier than for traditional golf cars. "These vehicles, with their four-cycle gas engines, are easier to maintain than the smaller vehicles with their two-cycle engines."

Teufel commandeers vehicles as grand as 2-ton pickup trucks. But at Microsoft, small is the key.

"Those trucks wouldn't help us carry stuff around Microsoft, with its parking lots that are always full. We'd have to spend half the day backing in and out trying to maneuver. These little jeeps have tight turning radiuses to get in and out, and they're easy to store," Brummel explained.

SPECIALIZED TRUCKS. "We don't have any utility vehicles," said Ulrich M. Reich, landscape supervisor in the maintenance department of Clarence Davids & Co., a maintenance firm in Blue Island, Ill. "We go mostly with 3/4-ton pickups. This year we got a one-ton

truck. Other than that, we don't use any small, utility vehicles."

The trucks shorten the distance to and from the warehouse, where morning loading is done. They get crews to the job site, from site to site and back to the warehouse. Some debris is hauled in the trucks.

"We have 10 trailers for hauling large equipment, including mowers," said Reich. "Each truck has a rack built to fit the back to store hand tools. Side boxes built into the side of the racks hold some of the smaller hand tools, tool boxes and irrigation boxes, so they can be put somewhere other than in the back of the truck."

MARKET INTEREST. Manufacturers are trying to balance the needs for quality and economies for this growing market.

"Utility vehicles such as we'd sell the lawn and landscape industry would commonly have beds and be used in nurseries or similar sites," explained Bryan Taylor, vice president of marketing at Melex USA Inc., based in Raleigh, N.C.

(continued on page 48)



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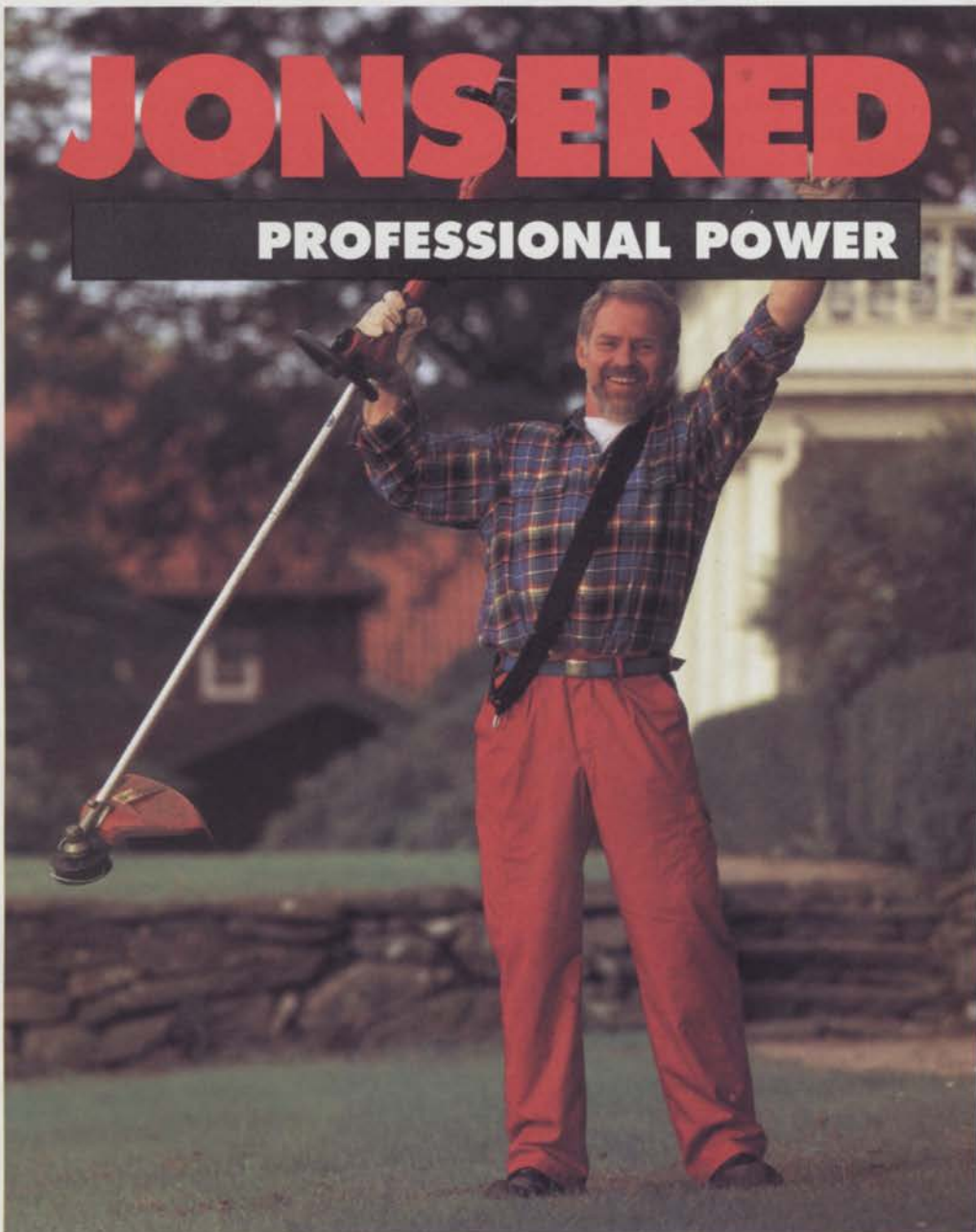
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USE READER SERVICE #101

Utility Vehicles

(continued from page 46)

Melex's golf car division makes the utility vehicles that might find their way into the hands of a landscape contractor.

"Our bread and butter is golf cars for fleet use," he said. "We have a line that's basically a golf car converted to a utility vehicle, with a small wooden-sided platform on the rear. Many nurseries use the three wheeler, with the bed on the back, because of the ability to maneuver around. If you've got a lot of tight turning radiuses and you're not going far, the three wheeler is a good choice."

So what's the difference between a golf car and a utility vehicle that a landscape contractor might use?

"One of the major differences we found between golf cars and utility vehicles is that golf cars have one major application: to carry golfers 18 holes," Taylor explained. "The applications outside golf course use are limitless. You have a wide range of needs and uses, be it any type of landscape, nursery or



Modified golf cars offer on-site flexibility for transporting plants and materials. Truck accessories offer similar customization to meet job requirements. Credits: Melex USA (left) and Reading (right).

commercial growing application."

The key is that the end-user has a wide choice.

"He can go with a three or four wheeler, electric or gasoline, short or long range wear requirement. We talk to customers to find out: Are they going to use it over long ranges? Is the terrain difficult to handle?"

ELECTRIC VS. GAS. Another thing worth considering is electrical recharging needs, should electric utility vehicles be in your future.

"Golf courses need a lot of electricity to recharge 60 or 70 golf cars. It's typical that a landscape or lawn application only requires two or three vehicles. But the work is largely the same. Landscape operators need utility vehicles for light burden hauling," Taylor noted.

Apartment complex maintenance is a big market for Melex USA, he added.

"We had a situation in California where there are many big multi-family apartment and condominium areas. Our dealer out there

did a cost analysis on how much time it took for both security and lawn maintenance personnel to get from place to place."

And the results, he noted, were big cost savings on an annual basis, from leasing three to five multi-passenger or light-burden utility vehicles. That goes for landscape contracting, he said, as well as other maintenance and security needs.

Utility vehicles face a trend away from gaspower, Taylor noted. "The California Air Resources Board has targeted small engine (under 25 hp)

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applications," Taylor explained.

"Small utility vehicles are under different regulation than golf cars. But they're under similar scrutiny. Gasoline golf cars will be outlawed effective Jan. 1, 1997, in California areas CARB designates high-emissions areas," he continued.

The utility vehicle market isn't scrutinized as much as the bigger golf cars used on golf courses. "But with government stamping down on, or closely regulating, small engine application, a lot of people are looking in the crystal ball to see what will happen to the lawn and landscape maintenance industry too," said Taylor.

The trend is already inching toward electric in golf car and light-duty utility vehicles, he added.

"Landscape contractors use utility vehicles for many of the same reasons as do people on golf courses," said Sandi Gridley, spokesperson for Ransomes-Cushman-Ryan in Lincoln, Neb. "They use them for picking up debris — hauling equipment from one location to another."

It depends on what the land-

scape contractor does, she said. "If his business is heavily commercial, he's going to be more likely to use a utility vehicle than would someone with mostly residential work."

APARTMENT MANAGEMENT. It's the apartment and multifamily housing properties that require the vehicle to a significant degree.

"A lot of times, crews will transport grass clippings or haul a mower or something like that on a utility

Indeed, the company's brochure, like other manufacturers', shows a score of specifically modified products to enable lawn maintenance contractors to do their jobs on the run and to shorten distances on far-flung properties. They are stuffed with information about harvesters, aerators, top dressers, sprayers and other useful attachments.

"With some models, you can put attachments on and aerate," said Gridley. "You can topdress, spray

models and options. "We have a full range from large models down to a utility vehicle," she said.

The company introduced utility type vehicles in 1964, Gridley said. "We had other types of utility vehicles in the 1950s. We also had two-wheeled motor scooters, which were introduced in the 1930s."

"We offer a lot of turf products," said a spokesperson with E-Z-Go Textron, Augusta, Ga. "The golf car's the frame of it. We call the landscape model a 'turf utility vehicle.' Its application is 100 percent turf oriented. It does things that landscape and grounds maintenance people need."

Beds haul chemicals, fertilizers and other products. Weight capacities are based on different turf applications, she said. "Some carry heavy duty equipment. Some fill the bed up with pine bark. The main thing is the convenience and the time savings. Every crew finds its own special use."

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

Driven by California environmental regulations, a move is being aimed away from gas-powered utility vehicles to electric power.

vehicle," Gridley explained. "And it also depends on the type of vehicle. Maybe a contractor needs a model with hydraulics that allows you to do different things with the attachments."

and also have a dump box. It depends on what you're going to use it for. If it's just for transportation and to haul materials around, a contractor may want a cheaper vehicle."

Most suppliers offer several

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USE READER SERVICE #40

USE READER SERVICE #41

Pesticide Packages Simplify Safe Handling

The regulatory push to ensure safe pesticide handling has resulted in some innovative packages that make it easier and safer than ever to apply products.

By Curt Harler

RETURNABLE? Water soluble? Or less filling? Unlike the competition in the light beer market, the battle in pesticide packaging may be all but decided, with the decision going to ultra-concentrated materials over returnable packages. Some contractors, however, definitely prefer returnables.

Manufacturers have turned their sights to packaging that makes products easier and quicker to use safely. At the head of the pack for new packaging techniques is Dow-Elanco's Dursban for lawn service professionals, which won top packaging honors in a national contest this spring. The award was given by the Flexible Packaging Association in Washington, D.C.

"Packagers are being driven by the United States Environmental Protection Agency to improve package design, not only for better

package disposal but also for applicator safety," noted Tom Delaney, director of government affairs for the Professional Lawn Care Association of America, Marietta, Ga.

In April of 1994, the EPA proposed changes in pesticide container handling as part of the FIFRA reauthorization. Congress told EPA to reduce pesticide residues from containers sent to landfills. Today, many landfills charge extra for disposing pesticide containers and others simply will not deal with them. EPA's goal is to discourage one-way disposable containers with the alternatives of using refillable containers and water-soluble packs.

EPA has been buried in comments as a result of its proposals. Look for final regulations to be issued sometime later in 1996.



This applicator takes a middle road and wears nitrile gloves and a long-sleeved shirt while filling several boxes of pesticides. Traces of dye found on the boxes showed little contamination compared to systems filled from bags of material.

WATER-SOLUBLE PACKS. Ciba first produced a water-soluble pack in 1983. "We like to lead the market in packaging innovation," said Lawrence Dull, manager of packaging development in Greensboro, N.C., noting that pesticides used to be purchased on price and performance. "Over the last several years, two more criteria have been added: safety and package disposal."

Growth of water-soluble packs has been exponential over the past few years. Dull pointed out that they offer a closed system, without operator exposure to chemicals. And, since the outer package has no exposure to the chemical, the need for triple rinsing is eliminated.

Ciba also has 70,000 refillable containers moving back and forth in the agricultural market, which usually leads the golf and turf markets in packaging developments. Dull sees increased growth in this area to meet regulations.

"Down the road, this industry will be more regulated," agreed Steve Chaney, turf and ornamental product manager for Bayer Corp.

EDUCATORS TARGET SAFE HANDLING

PESTICIDE applicator safety will be a major emphasis at the GIE Show in Ft. Worth, Texas, to be held November 12-16.

A graphic display, devoted to applicator safety, will be part of the Professional Lawn Care Association of America's booth. The display is developed and presented with the cooperation of the American Association of Pesticide Safety Educators.

A dramatic video, prepared by the Illinois Cooperative Extension Service, will be shown. It features a fluorescent dye which was placed in different applicators' gear. Each applicator prepares his materials wearing different levels of protective clothing. For instance, one applicator takes no safety precautions, while another is fully protected with a respirator, goggles, gloves and protective apron. Observers can follow the traces of dye as the various applicators wipe their bodies and faces, spreading material to different places on the body. Like the wrecks in those old safe driving films they show in driver's education classes, it's an image that will stick with you.

The AAPSE was formed in 1992 by pesticide safety educators in the United States and Canada in response to the growth of regulations and new pesticide products. The group aims to strengthen the educational programs at land-grant universities, cooperative extension services and other training groups. For more information, contact AAPSE at 2304 Plymouth St., Blacksburg, VA 24060.



Ultraviolet light shows how the applicator's gloves absorbed most of the contamination from the simple transfer to the pesticide containers. Picture below shows even more movement of material to the applicator's face, ears and neck over a two-hour period after handling. This kind of evidence suggests that applicators may want to wash after handling materials, even if they wear protective equipment. Credit: Illinois Cooperative Extension Service

in Kansas City, Mo. The turf industry often follows the agricultural market in both packaging and regulation. There are states today that require packages which can be returned to the point of purchase for farm chemicals, he explained. "I hope we don't get to that point with specialty sizes."

One way to avoid that predicament is to do a better job of packaging in the first place. The award-winning DowElanco package contains a powdered insecticide for professional use. It was cited as

being easy to open and close by an adult, but still child resistant.

The 11-inch by 15-inch pack is side-sealed and opens with a zipper. It is odor resistant, repels moisture and tearing, and keeps applicators from contact with fumes or from direct contact with the chemical. The new bag replaces a foil-lined composite container with a metal lid which had to be pried off.

The design benefits applicators through its inherent efficiency and safety. It also benefits the manufacturer because it saves money. The pouch costs 27 percent less in materials, uses 66 percent less packaging components and weighs 77 percent less when empty.

DowElanco figures it saved about 13 percent in labor at the plant since it eliminated some assembly and loading operations, which had to be done with the old canister design.

INNOVATIVE IDEAS. Many other chemical providers are looking at nontraditional packaging for their materials, too.

Rohm & Haas Co. moved to water-soluble packets for its Eagle and Fore fungicides and Kerb for the turf and ornamental market. Jeff Jetton, business communications manager for the Philadelphia-based firm, said the company encourages users of the water-soluble packets to stay away from using them in mixtures with high concentrations of boron or chlorine.

"Those elements keep the pouches from dissolving as quickly as they should," he warned.

Jetton suggested that applicators use warmer water in the mix when working in colder weather. Plus, he reminded applicators that good agitation is important for water-solubles or any chemical mix.

Even large users like Lawn Doc-

tor, Marlboro, N.J., hardly ever see drums in their operations. John Buechner, director of technical services, said the firm has gone away from drums and has all but standardized at 2.5-gallon or smaller containers. "It just works out better for us with the 2.5-gallon container," he explained.

Sean Casey, marketing manager for Riverdale in Indianapolis, Ind., said his firm has fixed its lot firmly with the concentrated materials. "You'll hear people say that water-soluble materials cost more, and they do at first. But over the long haul, if they ever start to enforce the rules on returnable drums, water-soluble will be the cheapest way to go."

Riverdale focuses on three chemicals — Dissolve, a 2,4-D-based material; Triplet, 2,4-D plus dicamba; and Tri-Power Oxy, a three-way 2,4-D mix — which are packed in pouches. They come in

two sizes to handle one-quarter acre and a full acre.

Barefoot Grass, Worthington, Ohio, purchases most of its materials through Riverdale and PBI/Gordon Corp., Kansas City, Mo. Jeff Shufelt, Barefoot's vice president of operations, explained that water dispersible granules (WDGs) have solved many of the problems which occurred in the mid-to-late 1980s with waste disposal.

"The only reason we are not heavy into dry packs is the cost," he continued. "Also, we don't have a standard fill. One day we're using 50 gallons of material, the next day 100 gallons and then the day after that 40 gallons. It is hard to get an accurate fill."

"Bags are best for user safety, environmental safety and user convenience," Casey stated. "Water-soluble bags are an entirely closed system. There is no need for triple-rinsing. All you have left when the application is completed is a pouch and an outer package that never has touched the chemical.

"In addition, you don't have to measure, mix and pour," he pointed



A key pad controls the pesticide going from a refillable container to a spray tank. Credit: Ciba

out. "As a result, you get more accurate fills and you are better able to control cost."

out. "As a result, you get more accurate fills and you are better able to control cost."

Chaney said his company tries to package in dry formulations whenever possible. While some materials lend themselves to dry formulations and others don't, there are savings in transportation costs with dry chemicals. The use of poly-

vinyl alcohol pouches limits worker exposure to products. "We're always searching for better ways to put packages together to reduce the amount of packaging material that has to be disposed," he added.

RULES COME FIRST.

Kresti Lyddon, director of regulatory affairs for LESCO,

Rocky River, Ohio, noted that other factors play a role in how much packaging is used. The Department of Transportation's hazardous materials regulations require an outer carton, in addition to the plastic jug, she explained. Compliance with DOT regulations, and the additional packaging, is necessary to get materials shipped.

Delaney explained that applicators are most at risk to exposure when they are mixing and loading the concentrated material. He sees closed systems as the wave of the future because they are safer.

"EPA misunderstood the pump-and-probe system as being a closed system," he said. "It actually caused more exposure — the applicator would crank up the pressure and be exposed to full-strength material. The applicator still had to remeasure from the larger to the smaller device. EPA just missed the boat."

He noted that regulators now seem to understand that the person mixing, loading and applying most lawn service products is one individual, not three separate people. EPA recently asked PLCAA for information on the number of lawns an applicator sprays per day and the amount of exposure to products.

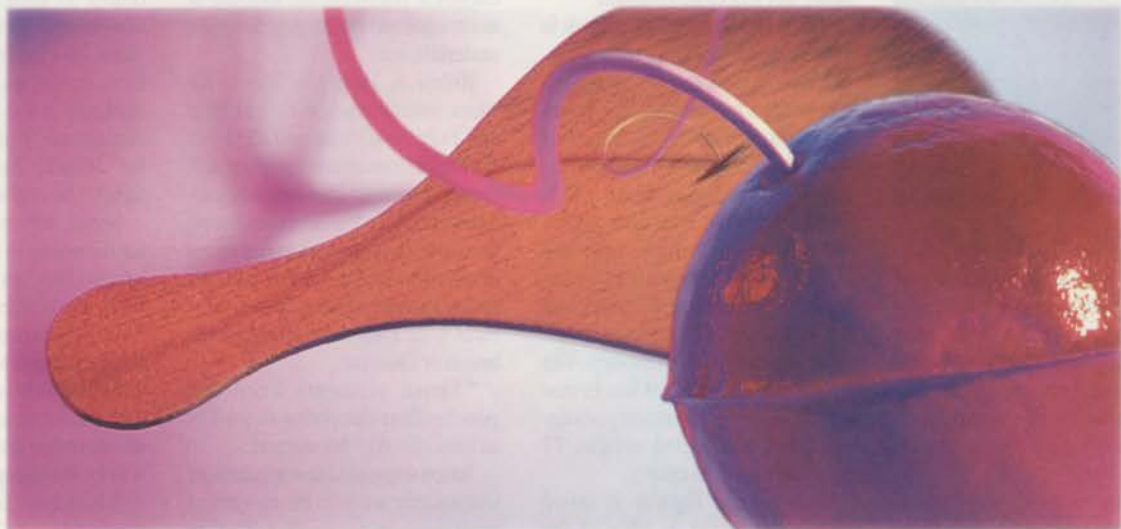
"We don't know what they will come back with," Delaney said.

PACKAGE FOR PERFORMANCE.

For Gene Hintze, marketing services manager at Sandoz Agro, Des Plaines, Ill., water-solubles also rate

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high on the score card. He cited similar reasons for his firm's going to water-soluble formulations for Maverick insecticide, which now is being used to control turf insects.

Sandoz downsized the packaging of Barricade, which formerly was available in a 5-pound box containing 10 half-pound water-soluble tablets. "That was a bit large for treating smaller areas like ornamentals," he explained.

The user was faced with mixing a much larger amount of material than needed or trying to break up tablets... which defeated the whole purpose of the package. Additional fallout occurred because smaller sprayers don't give the agitation that a larger unit does and often the bag would only half dissolve and then plug up the unit, he explained.

As a result, Sandoz now makes Barricade available in a 1-pound box of loose product formulated as 65 WG (wetable granules).

"You're stuck between a rock and a hard place," Hintze said. "The lawn applicator finds the larger dose pouch convenient. There is no contact with the material and you are

sure to the right amount of product. The thing you sacrifice is you can't use the tablets in smaller areas."

American Cyanamid, Wayne, N.J., solved the problem with its Pendulum material by packing it in 1.2-ounce water-soluble bags. "It is designed for the backpack sprayer," explained Gary Curl, senior marketing manager of the turf, ornamental and pest control products. An applicator uses either one or two bags per gallon of water to treat a 1,000-square-foot area.

For turf applications, the material is packaged either as a liquid or dry product in a 2.5-gallon container. There are 10 pounds water dispersible granule in the dry version. "We find it is a container that the end-user can reseal," Curl commented. "He or she can mix it on the truck and won't have partial bags of the product laying around."

B.J. Bilas, at AgrEvo USA Co., Wilmington, Del., said his company is packaging two of its fungicides in water-soluble containers. They include ProStar 50WP (wetable powder) and ProStar Plus, a twinpack of the 50 WP and Baleton.

"We are putting as much effort as possible into new packaging," Bilas noted. "It cuts down on packaging disposal and virtually eliminates user exposure to the material." The company packages materials both for the lawn and the agricultural markets.

He pointed out that in the farm field, ultra-low volume chemicals

together and users dropped them into a spray tank, where they started to fizz. When they dissolved, the user closed the lid, agitated and sprayed.

Another material, Beacon, is packaged with a resealable plastic bag, about the size of a wallet. It has 10 tea-bag sized water-soluble packets in it, which take two to three minutes to dissolve.

Concentrated materials valued at \$1,000 will fit in a jacket pocket, yet still treat acres of ground. It's easy to lose a bundle of cash if a single container is lost or stolen. For that reason, as well as more typical safety concerns, it is best to keep the materials in a proper, controlled storage area.

Almost everyone agrees that it is the cost to treat 1,000 square feet, not the cost of a container of material, that a contractor should keep in mind when purchasing pesticides.

RETURNABLE OPTIONS. Returnable containers are not as big with most firms, but new innovations in packaging are simplifying their use,

(continued on page 82)

...Regulators now seem to understand that the person mixing, loading and applying most lawn care products is one individual, not three separate people.

have been available since the mid-1980s. Pinnacle, a postemergence herbicide, was packaged like self-seeder tablets. Four pieces were molded

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USE READER SERVICE #43



Formula for Success: Using Soil Enhancers

Don't settle for substandard soil. Organic, inorganic and synthetic soil enhancers can correct practically any soil deficiency and increase your success in growing without breaking the bank.

By C. Neal Howell

WHO NEEDS SOIL? After all, a good landscape contractor can grow watermelons on concrete — with enough money and time! Unfortunately, in the lawn and landscape industry, time and money are often the limiting resources. In many areas, however, soil can be the limiting resource.

How often have you wished for the perfect growing medium to enhance your efforts in producing quality turf and ornamentals, but had to suffer with a heavy, sticky clay soil or a sandy soil that refused to hold water or nutrients longer than 24 hours?

Have you ever considered a soil enhancer? Basically, enhancers and amendments are the same. For purposes of definition, we'll say that they're anything added to the soil to correct a physical problem. Also, for the purposes of this article, we will not include straight NPK fertilizers, even though they are definitely soil enhancers.

FORMULA FOR PERFECT SOIL. What makes up the perfect soil? It must have a number of qualities. It must provide adequate water retention, release needed moisture upon plant demand while also managing to hold sufficient nutrients, provide an ample supply of beneficial organisms and, at the same time, allow just the right amount of air to reach the plants' roots.

Obviously, a combination of soil types would be necessary to provide all the qualities needed for optimal growth. While simply replacing the soil may be an option, if the soil is really substandard, cost usually rears its ugly head to prevent total replacement.

Also, remember that unless the replacement soil is thoroughly mixed at the point of contact with the original soil, layering may result and can severely restrict root growth. This layering will effectively neutralize your replacement efforts.

If you're not satisfied with the soil types or conditions in the area you're contemplating planting, there are a number of soil

Composts are one of the most popular forms of soil enhancers. Credit: Land & Lakes Co.

enhancers that can help you modify the conditions to improve your success rate in growing top quality turf and ornamentals.

Soil enhancers can be broken down into three groups: organic, inorganic and synthetic. All have different advantages, depending on local soil conditions, climate and growing requirements.

NATURAL OPTIONS.

Organic products are derived from natural materials and are physically manipulated to provide the maximum benefit. Their major advantages are that they function by physically

separating the soil particles, thus allowing air and water movement and increasing the soil's nutrient and water holding capacity.

Organic materials also form humus upon decay and help maintain optimal levels of beneficial organisms in the soil.

Composts: Composts are formed by the breakdown of plants and plant residue. They make excellent mulches and, when worked into the soil, provide a high degree of water and nutrient-holding capacity.

Composts can also enhance biological activity by providing optimum conditions for bacterial growth within the soil.

Marcy Padorr, a spokesperson for Land & Lakes Co., based in Park Ridge, Ill., said the firm began to compost grass clippings and other plant residues in the Chicago area when grass clippings were banned from landfills.

The company, realizing that yard waste accounted for 17 percent of the total waste stream, decided to go into the business.

James Cowhey, president of Land & Lakes, explained: "We saw composting as an opportunity and

our trademarked compost material is proving very popular."

Many major cities are encouraging composting to provide a beneficial product for home gardens and landscape use and to eliminate overloading of landfills.

Sludges: These are products resulting from both aerobic (with air) and anaerobic (without air) digestion of sewage and composted sludges. Other sludges are digested and then heated treated.

Sludges can provide added permeability to clay and silt soils and also increase the water-holding capacity of sandy soils.

In addition to providing soil enhancing properties, these products also provide considerable amounts of plant nutrients. They serve as a food source for beneficial soil organisms, too.

The product Milorganite, which is marketed by the city of Milwaukee, Wis., is an excellent example

of a waste product fulfilling a useful role in the green industry while providing a method of disposing of city wastes.

"Milorganite is different," said Terry Ward, sales manager, Milorganite Department, Milwaukee Metropolitan Sewerage District.

"Our product now meets exceptional quality standards as defined by the United States Environmental Protection Agency and is even approved for use on vegetable crops," he said. "One of the final steps in our process is a pass through a high-temperature rotary drying kiln, where temperatures range from 850 to 1,200 degrees F."

Ward continued: "This heating/tumbling process effectively kills any pathogens and produces the granular product known as Milorganite."

Most sludge products now being offered by municipal sewage treatment plants are required to meet

minimum standards beyond those required of process plants handling animal wastes.

Manures: Composted cattle manures and poultry litters can be an economical source for enhancing problem soils. They offer fair to good water and nutrient-holding abilities and also provide some beneficial biological activity.

With the increase of confined feeding operations for both poultry and beef animals, there has been a tremendous expansion of composting operations associated with them.

While raw animal or poultry wastes have fairly high nutrient contents, they may also have fairly high odoriferous qualities.

This problem is greatly reduced, if not eliminated, by the composting process. Composting also helps to eliminate weed seeds and unwanted biological organisms, as well as reducing salt associated with the content of raw manures and litters.

PROPERTIES OF SOIL ENHANCERS

ENHANCER	WATER HOLDING ABILITY	PERMEABILITY	NUTRIENT HOLDING ABILITY	BENEFICIAL SOIL ORGANISMS	PH	LONGEVITY
Plant Composts	high	high	high	high	varies	6 months +
Composted Sludges	high	high	high	high	5.0-6.0	1-6 months
Heat Treated Sludges	high	high	high	high	5.6	1-4 months
Composted Manures	fair to good	fair to good	good	high	5.0 - 6.0	up to 1 yr.
Rice Hull Composts	fair to good	high	fair	high	5.5 - 6.0	20 + yrs.
Ground Fir Bark	fair	high	low	fair	3.2 - 4.0	5 + yrs.
Peat & Sphagnum Moss	extremely high	high	high	high	4.3 - 5.0	5 + yrs.
Peat, Reed-Sedge	very high	high	very high	high	6.5 - 7.0	20 + yrs.
Sawdust or Wood Shavings	poor to fair	high	poor to fair	fair	varies	6 months - 5 years
Calcined Clay	high	high	fair	poor	7.0	indefinitely
Perlite	none	high	none	none	6.0 - 7.0	indefinitely
Vermiculite	high	high	high	poor	7.0	indefinitely
Sand	low	high	low	low	varies	indefinitely

Table 1.

Poultry litters have been used extensively in assisting problem soils for the last few years. Sustane, an aerobically composted turkey litter, has been tested widely in over 28 colleges and universities across the country for the last eight years, according to Gary Watschke, an agronomist with Sustane Corp., Bloomington, Minn.

"Our products have been shown to help reduce incidence of disease as well as increase microbial activity," he said.

Other companies produce enhanced poultry litter products, such as Misty Grower, manufactured by Misty Mills of Lavonia, Ga. According to John Toller of Arthur A. "Buck" Jones & Associates Inc.,



"The product is pelletized and can be mixed with conventional fertilizers to enhance performance."

In fact, this may be the best method of use for many of the composted products—that is, as a supplement for conventional fertilizers.

Rice Hull Compost: This is formed by grinding the hull from rice as it is processed at the rice mill. Rice hulls have a fairly high mineral content and allow excellent movement of air and water through the soil. They offer fair to good water-holding ability and their nutrient-holding ability is fair.

According to James D. McMas-

Dakota Peat invented these vacuums, which collect Reed-Sedge type of peat from a prehistoric lake bottom.

ters of McMasters Rice Hull Compost™, Cypress, Texas, rice hulls offer a number of benefits.

"Because of its high silicon content, rice hull compost can provide soil enhancing qualities for a longer period than most other amendments," he explained. "Tests have shown that rice hulls have lasted up

(continued on page 58)

SOIL COMPOSITION PROPERTIES

SOIL TYPE	PERMEABILITY	WATER-HOLDING	NUTRIENT-HOLDING
Clay	low	high	high
Silt	low	high	high
Loam	medium	medium	medium
Sand	high	low	low

Table 2.

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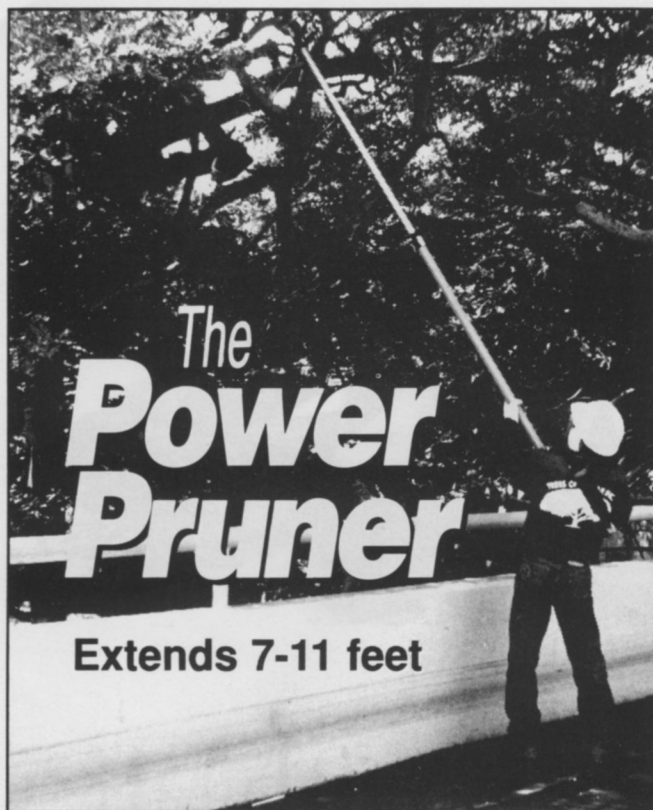


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Soil Enhancers

(continued from page 56)

to 20 years in soil mixes. It has a pH of about 6.0, which is a plus when soil mixing because you don't lower the soil pH. It also provides an excellent source of beneficial soil organisms."

Ground Fir Bark: This product is a finely-ground bark from the western fir tree. It aids in water and oxygen movement through the soil and, while it has fair water-holding abilities, its nutrient-holding ability is low.

Ground fir bark helps soil resist compaction and can last five or more years in the soil. The pH generally runs from 3.2 to 4.0.

Peat: Peats are formed by the decomposition of plant materials while either submerged or in very wet areas. They come in various configurations depending upon the type of plant they were formed from and the length of decomposition.

As a rule, peats have very high water- and nutrient-holding abilities but some are difficult to rewet after drying. They usually last far longer in the soil than other cellulose products.

Peat Moss and Sphagnum Moss: These peats have the ability to hold up to 30 times their weight in water but have a pH of around 4.0 to 4.5.

Contractors should take care in mixing these with soils because they are difficult to combine thoroughly and the mosses are sometimes difficult to rewet if allowed to dry out. Peat and sphagnum mosses do provide a home for beneficial soil organisms. The more decomposed they are, the more peat mosses enhance the plant's growth abilities.

Reed-Sedge Peat: This material is very high in water and nutrient-holding ability, with a pH of 6.5 to 7.0. It mixes well with soil and is said to rewet easily.

Michael Pierce, president of Dakota Peat, Grand Forks, N.D., commented: "One of the primary reasons our product works so well is that it is a growth enhancer. Due to the fact that our carbon-to-nitrogen ratio is so low, very little, if any, soil nitrogen is used in furthering the decomposition of our peat.

"Our carbon-to-nitrogen ratio is the lowest of any similar product on the market today," he noted. "The very high cation-exchange capacity of this product reflects its humus content."

Sawdust and Wood Shavings:

These products have been very widely used due to their easy availability. They provide good movement of air and water through the soil but poor to fair nutrient and water retention.

Depending on the type of wood used, they may last from six months to five or more years in the soil. The pH will vary depending upon wood source used.

INORGANIC ENHANCERS. Inorganic products also separate the soil particles, allowing more efficient movement of air and water. However, they do not provide humus or promote its production. They can increase the water- and nutrient-holding capacity of the soil to some degree.

Calcined clay: These materials consist of fired clay particles which, while allowing excellent movement of air and water through the soil, have relatively poor nutrient retention. The amount of water that the soil can hold is high but its release is hampered.

These products have been used primarily in high-value plantings due to their high cost. Care should be used in applying calcined clay products to areas with high traffic or on contact sports fields, as they tend to provide little cushioning.

Perlite: This is a naturally-occurring mineral which has been heat treated to produce a low-density product which increases air and water movement through the growing medium. Perlite has no water- or nutrient-holding ability and has no effect on pH.

Vermiculite: This also is a naturally-occurring mineral that, upon being subjected to heat, pops like popcorn into a light-colored, bead-like material which has the ability to hold many times its own weight in water. Even when fully saturated with water, it still has the ability to allow movement of air to plant roots.

Vermiculite doesn't break down so it lasts indefinitely. The primary use has been in potting soils for nursery use.

Sand: Traditionally, sand is regarded as a low-cost, long-lasting amendment. Unless used in very high concentrations (75 percent and above), sand can compact finer-textured soils.

The primary use of sand has been in applications requiring excellent drainage such as athletic fields, golf greens, tees and nurseries.

(continued on page 81)

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Field Of Dreams

Research at Iowa State University has found a useful, organic preemergent weed control material in an unlikely place — the cornfield.

By Nick Christians, Ph.D.

WHEN MODERN lawn care began in the late 1960s, there was little concern about pesticide use. Homeowners wanted a high quality turf and they left the details to the lawn company. Pesticides were seen in a positive light and company advertisements often emphasized pesticides. Things have changed considerably.

There is widespread concern over environmental issues and lawn services have caught the brunt of much of this concern. Proximity to the consumer has been a big problem for the industry because children and pets are often in contact with the treated areas shortly after application.

With this change in perception and the pressure for reduced use has come a demand for natural substitutes for synthetic pesticides.

Research activity has been greatest in the field of entomology and a number of products are available, such as insecticidal soaps, grass varieties containing endophytes, selective bacterial pathogens, nematodes that attack insect pests and predatory insects.

Progress on the control of diseases with natural substitutes has been slower, but there is some promising work involving the use of environmentally safe bacteria to inhibit the activity of fungal pathogens.

The development of natural substitutes that can be used for weed control has made particularly slow progress. There are soap-like materials that can be used for nonselective vegetation control and there has been some research on selective pathogens, but until recently there has been little available for

those who would choose natural substitutes in place of synthetic herbicides for weed control.

PUZZLING RESULTS. About 10 years ago, a research project at Iowa State University, Ames, Iowa, led to the development of a natural product for weed control that just recently reached the market.

The original project had nothing to do with weed control or natural products. Its objective was to study the effect of a fungal pathogen on grasses. The work involved the growth of the fungal organism on corn meal in the laboratory, followed by the incorporation of the fungal-corn meal combination into

the soil of a new golf course green at the field research area.

At the same time, adjacent field areas were treated with the same amount of corn meal that had not been cultured with the fungal pathogen. The study area was then seeded with creeping bentgrass.

We expected the fungal organism would affect the grass and a reduced stand would be observed in the treated plots. That did not happen and the original study was unsuccessful.

However, researchers observed something unusual. In the control plots that received raw corn meal that was not inoculated with the fungal organism, the grass stand

was very thin. In the plots that were treated with the inoculated corn meal, grass establishment was normal. The amount of corn meal on the two areas was exactly the same and it had come from the same lot of material. The only difference was that the fungal organism had been cultured on the corn meal on the plot with the healthy grass.

This response was hard to explain. One possibility was that there was some type of organic compound in the corn meal that had the ability to reduce the stand of grass. Possibly this active component was destroyed by the activity of the fungal organism.

To test the hypothesis that there was some activity in the corn, several components of corn were obtained for further testing, including starch, germ, fiber and gluten meal.

These components were tested along with corn meal in the greenhouse to determine if they had some type of inhibitory effect on grass germination.

The studies showed that there clearly was some type of inhibitory effect on the establishment of the grass at germination and that the inhibitory material was concentrated in the *corn gluten meal* — the protein fraction.

Close observation showed that the effect was on the root system of the germinating seed. There was something in the gluten meal that stopped root formation at the time of germination while shoot tissue formed normally. When the soil surface dried, plants that did not develop a root system simply died,

(continued on page 62)



This research done in a greenhouse shows how corn gluten hydrolysate inhibits the establishment of grass and has a similar effect on weeds. Credit: Christians

A man with a concerned expression is peering over a tall wooden fence. The fence is made of vertical wooden planks. The background shows green trees and a clear blue sky. The overall scene suggests a sense of being restricted or observing something from a distance.

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USE READER SERVICE #44

New Herbicides

(continued from page 60)

while plants with a well developed root survived.

COMBINATION MATERIAL. Corn gluten meal is a 60 percent protein material that is approximately 10 percent nitrogen by weight. It is a by-product of the wet-milling process and is sold as a feed material for livestock. It has been used for commercial fish production and it is also a primary constituent of some dog food products. Corn gluten meal is produced as a fine, yellow powder, but can be pelletized for easier soil application.

The high N content of corn gluten meal made it a potential N source for mature plants. Testing showed that it was an excellent source of slow-release N for mature turf. Once this was understood, the idea developed that it had potential as a natural "weed and feed" product.

It could be used as a fertilizer on mature grass and, if timed properly, could be used to inhibit the establishment of annual weeds, such as crabgrass, that germinate into the turf.

Field tests showed that the material was effective for that purpose and a United States patent was issued on the use of corn gluten meal as a natural preemergence herbicide for use on turf in July of 1991.

NEW STUDIES. Many new developments have occurred with this project since then. Further work with corn gluten meal in other crops showed that the idea had potential in several management systems where the use of a natural substitute for synthetic pesticides is desirable.

Following submission of new data to the patent office, the original patent was reissued in April 1994, expanding the original claims to include it as a preemergence material in field crops, gardens and other agricultural areas.

The invention was licensed to Gardens Alive Inc., Lawrenceburg, Ind., which registered corn gluten meal as a preemergence herbicide with the United States Environmental Protection Agency in August of 1994. The product went on sale by mail order in the fall of 1994.

It is recommended to be applied at 20 pounds product/1,000 square feet (two pounds N/1,000 square feet) to turf before germination of annual weeds in the spring and 20 pound product/1,000 square feet in late summer. This provides a total of four pounds N/1,000 square feet per year.

Research has shown that the material has slow release characteristics and provides a uniform turf response throughout the season.

RESEARCH RESULTS. Research with corn gluten meal has been conducted at ISU for a number of years. The longest running study has continued for four consecutive years, from 1991 to 1994, on the same plot area. Treatments on the area were applied for the fifth year in April of 1995.

The objective is to observe the effects of corn



Iowa State University graduate student Diane Liu injects a liquid solution of corn gluten hydrolysate into the high pressure liquid chromatograph for analysis.

gluten meal on weed control and turf quality of Kentucky bluegrass under field conditions.

It was applied to the same 5 by 5-foot plots at the research station each April at levels of 2, 4, 6, 8, 10, and 12 pounds N/1,000 square feet. The very high rates were included to determine if the product has any detrimental effects of the turf over extended times of application.

Table 1 includes data on crabgrass control over the four-year period from 1991 to 1994 and data on clover and dandelion control for 1994. In the first year of the study, the 2 pounds N/1,000 square feet rate reduced crabgrass by 58 percent and the 4 pound rate reduced infestation by 86 percent. Crabgrass control improved to 85 percent at the 2 pound rate in 1992 and to 91 percent in the 1993 season. Crabgrass was nearly eliminated in plots treated at rates above 2 pounds N/1,000 square feet in 1992 and 1993.

The 1993 season was one of the wettest seasons in history. The grass on the plots often became very long on the plots between mowing, resulting in some thinning of the stand. Crabgrass control dropped to 70 percent at the 2-pound rate in the spring of 1994, although it remained good at higher rates of application. No detrimental effects on the Kentucky bluegrass have been observed at even the highest rate.

There is no postemergence effect of corn gluten meal on weeds. The effect is entirely preemergence.

By the end of 1994, there was a considerable difference in clover and dandelion infestation between nontreated and treated plots. Over the 4-year period, clover and dandelion infestation in the area surrounding the plots and in the control plots began to increase, whereas treated plots maintained very low infestation levels (Table 1). The clover infestation was very uneven, resulting in no statistically significant differences among plots.

Numerically, the plots treated with 2 pounds N/1,000 square feet had 81 percent less clover than control plots. Areas receiving higher levels had even less clover.

Dandelion infestation was reduced by 71 percent in plots treated for four years with the 2-pound N rate. Plots treated with higher levels were almost completely clean of dandelions.

The control plots showed an average infesta-

(continued on page 64)

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New Herbicides

(continued from page 62)

tion of 16 percent cover of clover and had 14 dandelion plants.

The reduction in broadleaf weeds is likely due to a combination of the corn gluten meal inhibiting their germination and the competition of the grass in the treated plots. Broadleaf infestation will be monitored in future studies.

TIMING COUNTS. Timing is important for proper weed control. If the material is applied after the weed has rooted, no control can be expected. The germinated weeds will thrive on the N in the meal.

This, of course, is also true of synthetic preemergence herbicide-fertilizer products if they are applied after the weed has germinated.

If the material is applied too early, weed control is less effective, which is likely due to microbial degradation of the active component of the corn gluten meal.

The length of time before weed germination that the material must be applied will depend on weather and soil conditions.

Experience has shown that the material should be applied in the three to five weeks before weed germination. Under extremely wet conditions, weeds that are initially prevented from forming a root can grow out of the problem, reducing control. Early studies also showed that if the material is allowed to sit on the surface for several weeks during dry conditions, effectiveness is limited.

The ideal way to achieve control is to apply the material a few weeks before germination. Water it in if there is no rain. When the weeds have germinated, allow a short drying period for plants without a root to die before irrigating again.

Like other natural substitutes for synthetic pesticides, this material will require a greater level of knowledge by consumers. They will have to know the life cycle of the weed species that is to be controlled and have a good level of understanding concerning the management of turf.

Control at lower rates of corn gluten meal also requires persistence, because weeds are phased out over several seasons.

WEED SPECTRUM. Researchers screened 22 plant species for susceptibility to corn gluten meal. The ten dicotyledonous species used

were: black medic, black nightshade, buckhorn plantain, catchweed bedstraw, common lambsquarters, curly dock, dandelion, purslane, redroot pigweed and velvetleaf.

Monocotyledonous species also were screened: annual bluegrass, barnyardgrass, creeping bentgrass, giant foxtail, green foxtail, large crabgrass, orchardgrass, quackgrass, shattercane, smooth crabgrass, woolly cupgrass and yellow foxtail.

Corn gluten meal reduced plant survival, shoot length, and root development of all tested species. Black nightshade, common lambsquarters, creeping bentgrass, curly dock, purslane and redroot pigweed were the most susceptible species. Plant survival and root development for these weeds were reduced by 75 percent or more and shoot length was decreased by more than 50 percent.

Catchweed bedstraw, dandelion, giant foxtail and smooth crabgrass exhibited survival and shoot length reductions greater than 50 percent and rooting reductions of at least 80 percent. Barnyardgrass, quackgrass and velvetleaf were the least susceptible species, showing survival reductions of 30 percent or less.

FINDING ACTIVE COMPONENTS.

Once the observation had been made that corn gluten meal could reduce weed infestation, the next logical question was why. What is the active component in the material that is responsible for the activity?

The isolation and identification of an unknown chemical substance is a difficult process that requires a thorough knowledge of chemistry and a great deal of tenacity.

The graduate student chosen to take on the work was Dianna Liu. She had completed a master of science degree in food science at Iowa State and had a good knowledge of food chemistry and horticulture.

Liu began her work in 1989. To isolate the unknown active ingredient, she needed to use a high pressure liquid chromatograph to separate chemicals by distinguishing different chemical properties.

The problem was that this requires a soluble material that can be injected into the machine and corn gluten meal is very insoluble. She tested the efficacy of 53 different extracts and components to find one that showed a high degree of

(continued on page 66)

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USE READER SERVICE #85

New Herbicides

(continued from page 64)

the root inhibiting activity and a high solubility.

After 12 months of work, a material called *corn gluten hydrolysate* was identified as the best candidate for future study.

Testing continued for two years, when five compounds were identified by the ISU protein laboratory as individual dipeptides (combinations of two amino acids).

The process wasn't finished, however. The final step was to obtain synthetically produced samples of these compounds and test them to determine if they had the same root inhibiting activity as that observed with the naturally occurring dipeptides. This work was completed in 1993 and it was shown that the activity was the same.

ALTERNATIVE SOLUTIONS. The idea of using these naturally occurring dipeptides as substitutes for synthetic preemergence herbicides received a patent in March of 1994.

The idea also developed of using

WEED CONTROL						
LEVEL LB N/1000 FT ²	1991 CRABGRASS	1992 CRABGRASS	1993 CRABGRASS	1994 CRABGRASS	1994 CLOVER	DANDELION
% REDUCTION FROM CONTROL						
1. 0	0	0	0	0	0	0
2. 2	58	85	91	70	81	71
3. 4	86	98	98	97	90	100
4. 6	97	98	93	98	98	100
5. 8	87	93	93	87	100	98
6. 10	79	94	95	86	94	100
7. 12	97	100	100	98	90	100

Table 1. Weed control with corn gluten meal in the field over a 4 year period.

corn gluten hydrolysate as a natural herbicide. This material has the advantage of being sprayable, it appears to have a higher degree of activity on a weight basis than corn gluten meal and it is 14 percent N by weight.

Corn gluten hydrolysate is presently being developed as a protein source for human consumption by another Iowa company, indicating its potential as an environmentally safe material.

Work on other hydrolyzed grain materials is also continuing. Field work to assess the feasibility of using the hydrolysates and dipeptides as preemergence herbicides is just beginning in 1995 and there are still a lot of questions to be answered. It is unlikely that products based on this technology will reach the market for a few years.

There are probably many other naturally occurring, plant-derived chemicals that have potential for

use as substitutes for synthetic pesticides. Improvements in the methodology by which natural materials are isolated and identified have also made this work possible.

The impact that these new technologies will have on pest management is yet to be determined, but the future looks very promising. ■

The author is professor of horticulture in the College of Agriculture at Iowa State University, Ames, Iowa.

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SIXTH ANNUAL CONFERENCE of THE COMPOSTING COUNCIL, October 11-13 at the Greenbelt Marriott Hotel in Beltsville, MD. This is a unique conference for the composting, wastewater treatment, and animal management industries to understand the science of odor formation, techniques of

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CONFERENCE FEE: \$350 for Council members and \$400 for nonmembers. Fee includes a reception, one lunch and dinner, all panel presentations and poster sessions, and transportation between the USDA facility, hotel, and tours. Academics and government officials qualify for the member discount. Registration after October 2 will incur a \$75 surcharge. Cancellation after that date will be subject to a \$75 fee. Call the Marriott Hotel at 1-800-228-9290 for hotel reservations at \$95/night.



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BELTSVILLE, MD • OCT. 11-13

Employee Recognition Goes A Long Way

Several contractors believe that employee recognition programs make the difference between keeping and losing their best employees.

By Barbara G. Howell

Lawn and landscape contractors are already facing employee retention problems and the specter of a labor shortage looms ahead. The question of employee recognition will play a key role in meeting these challenges. And the answers may surprise you.

DOCUMENTING THE NEED. Reports like the 11th Crystal Ball Report from the Associated Landscape Contractors of America studied the tough problem of "Preparing to Deal with the Difficult People Problems During the 90s and Beyond." Published in 1990, the report suggested, "In the next 20 years, the landscape contracting industry will face labor shortages. This could be our single biggest roadblock to success."

Quoting a 1988 Colorado study of the workforce in the year 2000, the committee observed, "There is a growing gap between supply and demand for workers. The supply of labor is shrinking, and the demand is growing." It cited the following reasons:

- A slower rate of growth in the population and a rising median age from 30 to 36, resulting in a shrinkage in the pool of young workers.
- An increase in the proportion of women and minorities in the workforce, with up to 85 percent of new additions coming from these groups.
- Growth in United States service industries, resulting in fierce competition for service employees.

The report noted that even in 1990, landscape contractors were "hard pressed to fill crews in most regions. Additionally, the available work force has a new emerging work ethic. They want 'instant gratification,' but bring less skill to the work force. The skill reduction

is substantially due to a reduced experience with physical work, growing plants and the use of tools."

The challenges continue as the report noted that schools are not doing an adequate job of introducing or training young people in activities relating to positions in horticulture. "As a result, our

When employees are interested and motivated, their work will reflect attention to detail and extra effort.



industry is still dealing with too many unskilled and frequently unmotivated entry level laborers."

PEOPLE PROBLEMS. Attracting good, new employees is not the only challenge. Turnover rates in lawn care and landscape industries are as high as 100 to 200 percent. Many companies continue to seek seasonal employees to meet peak demands. Often, companies employ workers only to find their attendance to be irregular or haphazard.

For David Frank, chief executive officer of David J. Frank Landscape Contractors, Germantown, Wis., the time came in his company when matters such as employee recognition became matters of survival.

After almost 10 years in the landscape business, Frank said he had "people problems." He explained, "To meet client expectations and grow the company, we had to find ways to meet our people problems - which were turnover and quality of work, equipment safety and client relations."

"In the early 1980s," he said, "we formed a relationship with an organizational consultant to work on the ways that we select, train and manage employees. Recognition of employees was a major part. For us, it became a business necessity."

Frank's company has continued to grow as a result of the new strategy and now employs about 250 people on 47 crews with revenues totaling \$10 million. He said he has one of the lowest turnover rates in the country, maybe less than five percent.

The number of quality employees that contractors retain, as well as the quality of work the employees produce, can be dramatically affected by employee recognition. And recognition begins at hiring time.

"The first step in employee recognition is not wages, but the recognition of people's ability," said Tom Lied, owner of Lied's Nursery in Sussex, Wis. "You want to hire the body and the brain. You need to recognize the need for both and then give employees the tools they require to get the job done."

The screening and hiring process is the first step.



Rich Akerman, president of Northwest Landscape Industries, Tigard, Ore., recommended three basic steps in the hiring phase (see box on page 69).

The next step is matching ability to the position. Lied suggested that employees be hired not only for their technical abilities, but for the performance traits desirable in a position.

"For sales, you might want someone who is outgoing, sensitive, intense and able to communicate well," he noted. "For a bookkeeper, you might look for someone who is detail oriented and who enjoys working with numbers. You can train them in the technical skills if they have the right personality traits and abilities."

Lied's did a study of fired employees. Most people, he discovered, were hired by the company because of the technical skills they possessed and 90 percent of those fired were let go due to behavior traits.

After selecting the right people for the right positions, he said it is important to educate and train employees so they know how their positions fit in with the company and recognize what success looks like.

"Give them the tools they need. Take the blinders off and let them know why they are doing something and how it fits in," Lied suggested.

THE RIGHT REWARDS. Once a company finds the right employee for the right job and trains him to be a successful part of a team, it is time to reward him for fulfilling the goals of the company.

The Herzberg Theory of Motivation reminds us that "motivation comes from supplying the individual with one or all of the following - recognition, added responsibility, job enhancement, a sense of achievement and creating the opportunity for advancement."

An occasional letter or party or prize is not enough and can even be counterproductive. Frank noted that "for recognition to work, it has to be a part of the company culture, not a two-week thing. Consistency is important."

Employee reward programs vary widely in purpose as well as prize. Regardless of the type of reward, employers agree that consistency is most important.

ONE COMPANY'S REWARDS. Lied's goes beyond traditional reward systems. He explained, "There are about ten things identified as being important to working people. Salary is about eight in the list. Recognition for a job well done, security and an opportunity to provide positive input are much more important."

In addition to salary, Lied's provides:

- A bonus system which gives "compensation at risk" for employees who meet and beat certain production standards.
- An "Atta Boy" recognition form which can be

Consistency and sincerity are major requirements in making recognition programs work.

filled out by anyone in the company who sees someone doing an exceptional job.

- An employee of the month reward.
- Regular employee reviews. "People want to know how they're doing," Lied explained. "That's an important part of recognition."
- Social programs.
- Gain sharing. When the company profits, so do the employees.

PRODUCTION BONUS. Mike Rorie, president, and Steve Pearce, director of human relations for Groundmasters Inc., Cincinnati, Ohio, put together a reward program which allows employees' quality of work to have a positive impact on the benefits they receive.

Rorie explained that his company uses a production bonus "to stabilize our production department work ethic by requiring employees to work an average of 40 hours a week to be eligible for benefits like vacation, sick leave and health insurance."

Instituted in January 1993, the bonus has been successful in two ways. First, it has increased the amount of money available in the company's benefits fund by 300 percent. And about 90 percent of the company's employees can now receive the benefits.

According to Rorie, the program was instituted because the company was paying out a substantial amount in benefits to "full-time" workers who were not working full time. The company had no way to handle irregular attendance or inconsistent work efforts. These problems were hampering the company both financially as well as in completing jobs.

In addition to the production bonus for regular attendance, the company uses a monthly "Circle of Excellence" award to recognize punctuality, appearance, good safety record and job quality as evidenced by call-ins. It also uses company social activities like parties and a softball team, as well as recognition in the company newsletter, to motivate employees.

YEARS OF SERVICE. Frank's system involves name and years of service recognition in traditional and non-traditional ways. A name recognition program gives employees a badge after one year so the client doesn't have to refer to him as an anonymous worker. Other successful programs at Frank include:

- A company-wide safety program to encourage sound practices. Among recognitions for safety are publication of names in the company newsletter and a magnetic name sign for the team leader's truck.
- Time of service recognition with certificates and monetary awards are made for years of service. Employees get recognition for achievement in the company newsletter and on bulletin boards.
- The "Superstar of the Moment" program has no limit to the number of outstanding employees who can be recognized for coming in on the weekend, getting an unusual compliment from a client or finding a constructive answer to a problem.

The employees' photos are mounted inside Holly-

THREE STEPS TO SUCCESSFUL HIRING

1. Look for people who are interested in the industry.
2. Always screen for substance abuse.
3. Check references and investigate their work histories to eliminate hiring those with a poor work ethic.

wood-style gold stars in the hallway.

"I get upset if I don't see three or four new people up there all the time," Frank commented. "The employee of the month program didn't work for us. We actually found it could be a disincentive when someone was nominated and then didn't get the award."

Frank encouraged companies to make recognition, employee reviews and employee input an ongoing effort. "The result is a profitable, stable company. Employee recognition is an integral part of our success.

"Don't get discouraged if your initial efforts are met with resistance," he cautioned. "Employees don't always trust the motives of management. Stay with it. Remember what employees want isn't just the paycheck. They are looking for professional growth, getting communication on what's going on, a sense of belonging, job comfort and security."

To further boost security Frank and his employees have worked very hard to eliminate winter layoffs. "We had to do back flips to do that, but it was worth it."

BUILDING MORALE. In Columbia, S.C., Gene and Butch Broome offer rewards to improve production and morale. President of the Columbia TruGreen/ChemLawn, Gene Broome said the company refers to its technicians as "route managers" and encourages them to think that way, too. An incentive program sets weekly production goals and rewards employees with an extra 10 percent on amounts over goals.

His son Butch, general manager, noted that many awards are designed to improve morale. Each year, employees meet for a lunch or dinner and special awards are given. The competition is friendly and tough. One recognition is given for the employee who writes the best note to a customer. Another certificate is called the "Cat's Eye Award," and is given to the employee who "doesn't know when to come in at night."

The light-hearted awards set the personal tone for the company. At the end of each round of applications, the route managers are taken out to lunch to discuss how the company fared during that season.

Apparently, it's working. After only four years in business, the company was recognized with TruGreen/ChemLawn's 1993 Franchise of the Year award for its growth and good practices. ■

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

People

THE BOZZUTO Landscaping Company recently appointed **Tam Serase** to supervisor of enhancement and **T. Keith Robinson** as supervisor of grounds maintenance. They will both work out of the Upper Marlboro, Md., office. Serase will oversee landscaping enhancement and installation projects for property owners and managers, and Robinson will supervise landscape maintenance work.

Ron Freund was appointed to manage the new irrigation division of Fairway Construction. He will oversee the specification and purchase of irrigation equipment and all installations, and will be based at the company's headquarters in Temecula, Calif.

FMC Corporation appointed **Barry Schwartz** marketing manager with its APG Specialty Products Group in Princeton, N.J. He will oversee marketing and planning for product growth in the turf and ornamental and pest control markets.

Gerald Baril joined Berryman & Henigar as a vice president in the Civil Engineering and Water Resources Divisions. He has more than 30 years of experience in public works and land development design.

David Gardner has been named technical services supervisor for James Hardie Irriga-



Dunn



Kay

tion. He has served with the company for five years, most recently as retail marketing manager. In addition, the company appointed **Jim Mitchell** to the position of marketing technologies coordinator, responsible for developing applications of communication technologies for marketing. **George Jimenez** joined the Turf division as a specifications manager for Florida.

Fiberstars recently announced two new board appointments: **John Stuppin** was elected chairman of the board and **Mason Willrich** was appointed as the eighth member to the board.

Jim Jacobi joined ISK Biosciences Corp. as Southeast turf & ornamental specialist. He

will handle commercial development of turf and ornamental products and experimental compounds in the Southeast.

Vermeer Manufacturing Co. named **Joe Dunn** and **Brian Bischel** to direct and manage the development of equipment lines in its underground division. Dunn was named director of rubber tire products while Bischel was appointed to the position of director of trenchless products.

Bill Bradshaw, owner of Bradshaw Landscape, was added to the executive committee of the board of directors of the Environmental Fund for Texas.

Alyn Kay was named manager of the landscape division of Foliage by Flora Inc. His responsibilities will include managing both interior and exterior landscape services for the company.

Stihl Southeast Inc. promoted **Bob Noble Jr.** to executive president and general manager; **Ward Brooks** to vice president of sales and development/south; **Jeff Taylor** to vice president of sales and development/north; **David Perkins** to vice president of industrial sales and dealer systems; and **Don Sproat** to vice president of finance and resources. ■

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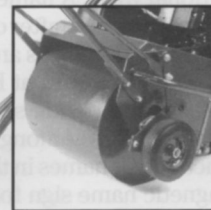
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Products

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Circle 126 on reader service card

Digital measuring wheels from **Calculated Industries** simplify job site estimates because they measure and store distances, then calculate areas and volumes quickly. Keys



for length, width and area make calculations easy, while a memory feature and built-in counter can tally other elements like trees, posts or parking blocks. Added features calculate

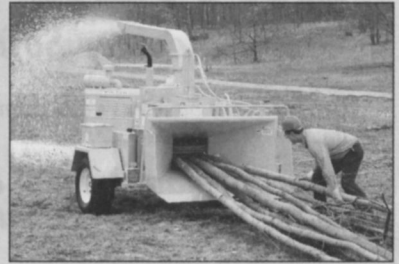
PRODUCT SPOTLIGHT

SERIES XP chippers from **Bandit Industries** incorporate new chip throwers, thicker knives set at a more aggressive position, a scoop covering most of the bottom feed wheel and redesigned feed wheels for extra power and improved performance.

Throwers are designed to discharge chips at a greater velocity using less air and little power, and are said to increase effective chipping horsepower by as much as 40 percent, resulting in better fuel efficiency. Chippers catch all of the chips as they come off the knives, eliminating plugging and other delays.

This series replaces standard trap doors with a hinged plate, which cuts wedging and eliminates mess below the machine. Heat-treated knives are situated for more aggressive chipping and feeding. Six hydraulic feed, disc-style chipper models make up the series.

Circle 125 on reader service card



volume, store dimensions, count automatically and provide an LCD display for poorly lit areas. Wheels can be customized and are built for long wear and easy storage.

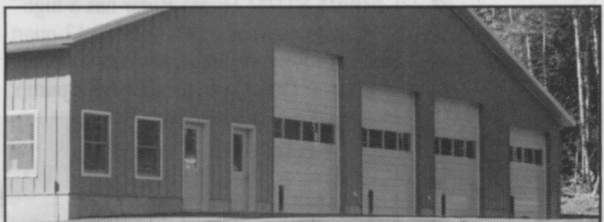
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SysTec 1998 WDG™ water dispersible granular fungicide from **Regal Chemical** works

as a broad spectrum, systemic product for the prevention and control of turf diseases. Formulation is effective on diseases such as dollar spot, fusarium blight, copper spot, stripe smut, large brown patch and several others. Material comes in 5-pound bags, four to a case.

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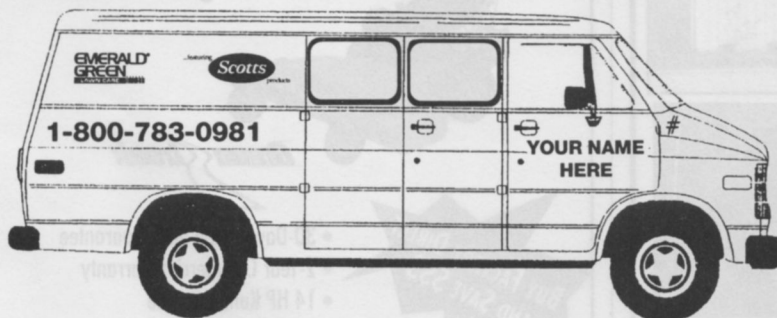
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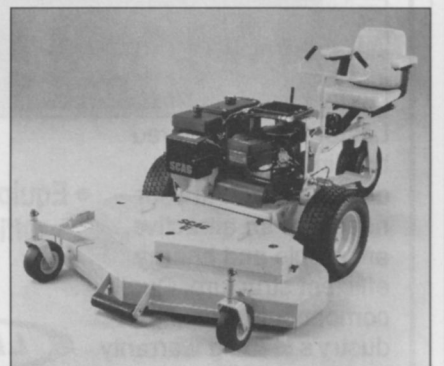
extensions to cover up to 15 feet, a 135-foot hose for spraying shrubs and trees, low-pressure nozzles and the ability to handle a wide range of application rates. Rider can fit through 48-inch spaces and can carry up to five 50-pound bags in the rear. Other features include an 80-pound capacity hopper with variable speed, ornamental gun with adjustable pattern, hydrostatic variable speed controls and easy transport on a pickup truck or trailer.

Circle 129 on reader service card

Laticrete International's latex-fortified, wire-reinforced mortar bed is the second step in the Laticrete® Plaza and Deck system, following the Drain Mat studded polystyrene sheet. Mortar bed offers a weather resistant, loadbearing layer rated for vehicular traffic. System also uses waterproofing and crack suppression membrane, latex thin-set mortars and fortified grouts to tackle a wide variety of landscape construction challenges.

Circle 130 on reader service card

Scag's STHM Hydro Rider has a high capacity cooling system with a 13-quart nylon reservoir and heavy duty cooling radiator. Drive system includes a pump/



motor drive system designed for smooth, even power to both wheels. Other features include a maneuverable pivot-mount frame, choice of 20- or 22-hp Kohler engines and a range of deck sizes from 52 to 72 inches.

Optional 44-gallon capacity grass catcher has an auxiliary engine and mulching plate
Circle 131 on reader service card

Three screening machines from **Satellite Screens** handle a variety of materials and offer portability for both large and small composting operations. Junior model supplies 20-hp screening, while the midsize model provides a 36-hp diesel engine and a variety of conveyor and accessory options. Larger Model 11A adds conveyors and extra power with a 48-hp diesel engine.
Circle 132 on reader service card

Rycom Instrument's Model 8875 portable locator pinpoints buried cable, pipe, wire and faults, identifies their paths and notes loss of signal caused by damaged underground materials. New features include a push-button depth indicator and an absolute



signal strength feature for positive identification. Optional DC cigarette charger provides power from a truck on site.
Circle 133 on reader service card

R K Manufacturing introduces Grassy™ Pavers, which are honeycomb shaped pavers made of recycled polyethylene. System stabilizes soil and promotes natural water drainage while providing the strength to support up to 97,500 pounds per square foot of weight. Soil fills each honeycomb and allows healthy grass to grow, serving as an alternative to paved parking lots, driveways, cart paths or highway shoulders.
Circle 134 on reader service card

Tree and shrub fertilizer system from **Haimbaugh Enterprises** places fertilizer in a biodegradable tube for staking into a plant's root system. The 5-15-5 slow-release fertilizer is layered with sphagnum peat moss, peat cup retainers and filter material. Users simply fill the tube regularly with water, which then percolates nutrients through to the root ball.
Circle 135 on reader service card

Zero turn radius mower from **Byers Gold** offers a forward speed from 0.0 to 8.5 mph, dual hydraulic reservoir system and a cold start feature that lets the operator start the engine only, not the entire hydraulic system. Models come in 48-, 52- and 61-inch widths and are available with either an 18-hp Briggs Twin Vanguard or 18-hp Kohler Command engine.
Circle 136 on reader service card

Universal pressure control unit from **Udor U.S.A.** is said to provide easy pump priming and pressure control on positive displacement pumps up to 18 gpm and 300 psi. Model 6010 controls pressure and bypass on gasoline-engine driven, as well as remote



mounted PTO-driven pumps. All parts and seals are compatible with pesticide products.
Circle 137 on reader service card

Two models of E-Z Dumper trailers from **Valley Manufacturing** are sized down to handle unloading jobs between 2,990 and



3,500 pounds. Trailers are constructed of heavy gauge steel tubing and include a 12-volt hydraulic power unit that operates with a turn of a key. Model EZ-508 quickly hitches and unhitches to stay on site for additional job productivity.
Circle 138 on reader service card

Invoicing Pack software from **Armor Systems** is an add-on package for Report Generator Report Pack III. The package controls billing information and allows contractors to create a picking ticket that automatically prints information from alternative locations. Detailed statements, order consolidation, volume discount calculations and custom reports are some features of this program.
Circle 139 on reader service card

Power equipment parts are featured in **Stens'** 1995 catalog. More than 125 new products are listed, including mower belts,

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Circle 140 on reader service card

Bush Hog's zero-turn mower is designed for maneuverability around trees and other obstacles and comes with an 18- or 22-hp Kohler engine. Adjustable operator seat and easy-to-reach controls, tilt-up deck for servicing, choice of 48- and 60-inch widths and adjustable cutting height from one to five inches are special features of this model.

Circle 141 on reader service card

Biobarrier® root control system from **Reemay Inc.** creates a two-inch chemical zone that discourages roots away from areas around hardscape elements. Each nonwoven geotextile barrier includes nodules of carbon black and trifluralin that release over a long period of time to prevent the division of cells at the roots' tips. Trifluralin will not be absorbed into the plant. Barrier is flexible to fit a variety of landscape features and allows air and moisture into the root layer.

Circle 142 on reader service card

Emergency Response Bucket Kit from **Green Stuff Absorbent Products** meets



new EPA worker protection standards, OSHA regulations and pesticide applicator license requirements for hazardous material clean-up. Kit includes a bale of material capable of absorbing 15 times its weight, chemical suit, foil gloves, boot covers, goggles, respirator, dust pan and brush, guidebook and disposal bags.

Circle 143 on reader service card

Series LMC commercial irrigation controllers from **Weather-Matic** handle three programs with simultaneous drip program operation and three start times per program. Up to a 200 percent seasonal adjustment, 2-minute test run program, 1 to 7-day rain-off program and nonvolatile memory also are featured. It includes a short sensing circuit to show problem zones and is available to control from 7 to 30 stations.

Circle 144 on reader service card

Woods Equipment's Series 6000 zero-turn radius mowers range from 14 to 24.5 horsepower with seven engine options (including diesel). Design features include a 3-spindle deck for mowing under plants, instant forward and reverse action, ergonomic design, large headlights, 4-gallon fuel tanks, and choice of sizes from 44 to 61 inches. Several attachments for grass catching, snow throwing, sweeping and grading are offered.

Circle 145 on reader service card

Model AG-18 leaf vacuum disposal unit from **Highway Equipment** can be mounted on a 3/4-ton or larger pickup truck or customized trailer. Hydraulic, 6,000-pound capacity dump system can be unloaded in under a minute. The 18-hp vacuum generates 5,000 cubic feet of suction with a 10-cubic-yard capacity body. Push-button controls simplify use.

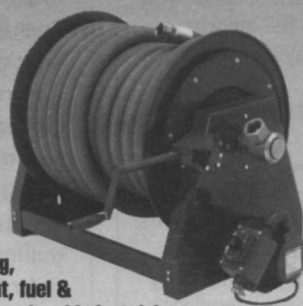
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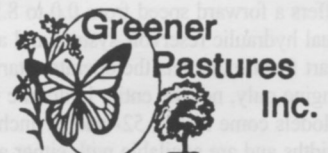
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The **GROTECH** MPS-125 spreader allows lawn and landscape contractors to handle fertilizer, seed, ice melters and sand with one piece of equipment. Corrosion resistant features include thermoplastic, no-rust hopper; a 12-volt, high-torque motor mounted inside a sealed housing; a stainless steel flow adjuster; and a heavy duty, weather-proof connector. The MPS-125 mounts on any utility vehicle, front mower, tractor, etc. Its variable speed spinner adjusts from 4 to 40 feet, and features a single lever that controls the spreading pattern from the operator's seat.

Circle 150 on reader service card



CLIP — Computerized Lawn Industry Program from **SENSIBLE SOFTWARE** cuts paperwork to minutes a day and is now available in Windows to handle billing, scheduling, routing and job costing tasks. Billing, Scheduling and Routing modules are designed to keep users on the cutting edge of profitability. Simply key in information and CLIP tracks scheduling and routing. Accurate job costing helps make money on every job, every time. CLIP offers several reporting functions and the "Customer Report Writer" lets users make up custom reports from their own data. For marketing, CLIP's mail-merge functions allow users to export the new season's proposals to any word processor, making new proposals more attractive than ever.

Circle 151 on reader service card



ICD's SELECTedge® border stones provide durable, permanent edging. SELECTedge has the scale and look of brick but is specially designed to form curves, circles and straight edging without any gaps or saw cuts. The specially designed trapezoidal SELECTedge offers unlimited flexibility in just one simple shape. The system provides a 4-inch border that also serves as an ideal mowing strip. Placing the wheel of the mower on the SELECTedge units brings the mower blade past the end of the grass. This will virtually eliminate trimming. Create the ideal trench to install the SELECTedge with a power trencher that digs 25 feet per minute.

Circle 152 on reader service card



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Circle 153 on reader service card



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LAWN & LANDSCAPE MAINTENANCE magazine is proud to introduce *T&O Service Tech*, the industry's first and only publication serving the needs of front-line turf and ornamental crew members in the professional landscape contractor market. Editorially, it covers topics such as proper mixing and handling of pesticides, safe equipment use, proper turf and ornamental installation, maintenance techniques, providing good customer contact and much more. It will help crew members will acquire a deeper understanding of their job function and develop pride in the services they provide. *T&O Service Tech* is for any crew member involved in pesticide applications, lawn and landscape maintenance and landscape installation.

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Calendar

AUG 23-24 Pennsylvania Landscape and Nursery Trade Show, Monroeville. Contact: PLNA, 717/238-1673.

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

AUG. 30 - SEP. 1 85th Annual CAN Convention, Pacific Hort Expo and Ornamental Research Conference, San Diego, Calif. Contact: California Association of Nurserymen, 916/567-0200.

SEP. 7-8 Southwest Horticultural Trade Show, Phoenix, Ariz. Contact: Arizona Nursery Association, 602/966-1610.

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

SEP. 20 PLCAA Regional Workshop on Customer Service and Risk Communication, Portland, Ore. Contact: PLCAA, 800/458-3466.

SEP. 21-22 Digging Deeper for Better Solutions, Ellicott City, Md. Contact: Maryland Arborist Association, 503/254-0482.

SEP. 24-27 Florida Turfgrass Association Conference & Show, Tampa. Contact: 800/882-6721.

SEP. 26 Building With Trees: Saving Trees at Construction Sites, Bonner Springs, Kans. Contact: The National Arbor Day Foundation, 402/474-5655.

SEP. 27 PLCAA Regional Workshop on Customer Service and Risk Communication, Columbia, S.C. Contact: PLCAA, 800/458-3466.

SEP. 28-29 Using Compost and Other Organic Products, Danvers, Mass. Contact: American Society for Horticultural Science, 703/836-4606.

SEP. 29 - OCT. 2 ALCA Interior Plantscape Conference & Trade Show, New Orleans. Contact: Associated Landscape Contractors of America, 800/395-2522.

OCT. 7-9 Annual Meeting of the American Society of Landscape Architects, Cleveland, Ohio. Contact: ASLA, 202/686-2752.

OCT 11-13 Composting Council Sixth Annual Conference, Beltsville, Md. Contact:

Composting Council, 703/739-2401.

OCT 12-13 Southern Plant Conference, Raleigh, N.C. Contact: Southern Nurserymen's Association, 404/973-9026.

OCT. 18-20 Atlantic Seedsmen's Association Convention, Williamsburg, Va. Contact: John Baylor, 814/237-0330.

OCT. 21 Women in Horticulture Conference, Bellevue, Wash. Contact: Association for Women in Landscaping, 206/367-1836.

NOV. 12-15 International Irrigation Exposition, Phoenix. Contact: Irrigation Association, 703/573-3661.

NOV. 12-16 Green Industry Expo, Fort Worth, Texas. Co-sponsored by Associated Landscape Contractors of America, Professional Grounds Management Society and Professional Lawn Care Association of America. Contact: GIE, 404/973-2019.

DEC. 5-8 Ohio Turfgrass Foundation Conference & Show, Columbus. Contact: Julie Guenther, 614/261-6750.

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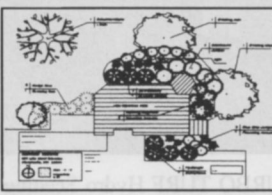
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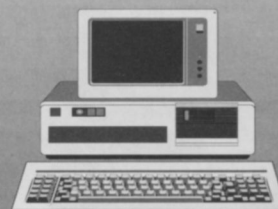
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Soil Enhancers

(continued from page 58)

SYNTHETIC MATERIALS. Synthetic soil enhancers can increase water-holding capacity of the soil and help with nutrient holding, but they do not allow for additional movement of air in the soil and they do not produce humus.

The chemical industry has spawned a number of products that can assist growers in enhancing soils. For localized dry spots, a number of wetting agents have been developed that break the surface tension of water and allow it to penetrate soils. While these products do not physically alter the soil, they can achieve some of the same results on a short-term basis.

This type of product can transform a difficult soil into one that handles water much more efficiently. According to Steve Jedrzejek, director of technical services, LESCO, Rocky River, Ohio, products like LESCO-Wet have the ability to make "water wetter," thus allowing easier penetration in problem soils.

Terry Boehm, business manager of United Horticultural Supply, Salem, Ore., also feels that there is definitely a place for problem-solving materials like Respond, UHS' wetting and penetrating agent.

"This product was designed for use on turf-grass soils which are water repellent. It has been tested for over seven years in Europe and is only now available in the United States," he explained.

Another unique synthetic product is Hydretain 77, manufactured by Ecologel USA Inc., Ocala, Fla. According to Richard Irwin,

company president, it is a liquid product that can be added to soils without tilling it in.

Once the product is in place, it acts as a water absorber, pulling moisture from the air, dew and other sources. It then stores the water as microscopic droplets on plant roots and soil particles. It "can reduce watering requirements of plants by as much as 50 per cent or more," Irwin stated.

Working with problem soils is a complex process. Sometimes it takes considerable time, money and effort to effectively make things right. Understanding what type of soil you need and the right materials to use will enable you to obtain the soil improvements you need.

There is no reason why soils should be your limiting factor. This should free you up to concentrate on the money and time demands of your business. ■

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

BIBLIOGRAPHY:

1. *Soil Fertility and Fertilizers*. Fourth Edition. S.L. Tisdale and W.L. Nelson. The Macmillan Company, 1985.
2. "Evaluating Organic Amendments For Sand-Based Turf Systems." Charles R. Dixon. *Golf & Sports Turf*. September, 1990.
3. *Western Fertilizer Handbook*. Seventh Edition. California Fertilizer Association, Sacramento, Calif., 1985.

COMING NEXT MONTH

The September issue of *Lawn & Landscape Maintenance* magazine takes a look at debris management. Upcoming articles include:

- The Future of Composting. Landscape contractors will find more opportunities than ever in this growing area.

- Seed Harvest Report. Major seed producers report how this year's crop has fared.

- Snow Removal Equipment. Innovative equipment can make this add-on service more profitable.

- Managing Cash Flow. This article in our Business Management series explains how to keep a healthy cash flow moving through your business.

- 1996 Truck Preview.

Pesticide Packaging

(continued from page 53)

too. The sticking point seems to be size of the package and cleaning the containers.

Except for the largest operations like TruGreen/ChemLawn, which sends out fleets of trucks on a regular basis, the volume of material is just too large for the average user. American Cyanamid does package its Pre-M in a 110-gallon "minitote" for the upper-end market. "There is no deposit on the container," Curl said. "The containers are returned and cleaned at no cost to the customer."

However, Riverdale's Casey said that his firm "does not see a future in reusable, returnable containers. Those drums are certified reusable/returnable for the first trip. But after that, they have to be washed and cleaned. About 75 percent of the drums we see have the tamper seals removed," which means the company has to check for cross-contamination and do a pressure test on the drum itself. "You have to prove that the drum is ready to go out on another trip."

The concept of recycling, however, also has appeal. Jennifer Cannella, with Lawn Doctor's tree and shrub division, explained that the firm encourages its local outlets to recycle everything — fertilizer bags, herbicide, and pesticide containers — through local recycling programs. "I tell them to rinse 10 times and then recycle the containers if their town offers a program."

Some towns, for instance, will even handle small amounts of chemicals in programs that also take care of battery acid and other toxics.

Ciba is one of the few firms going full speed ahead with returnables. Two systems, turfPak for the turf industry and LinkPak for golf course operations, are being used. These both are closed

systems using refillable containers.

"Eliminating the need to rinse the containers improves worker safety," noted Dull. LinkPak is being tested on 21 golf courses this summer for use in the golf industry and is expected to go commercial in 1996. The lawn service version should be available in 1997.

"A lawn service contractor will buy a bottle filled with chemical," he explained. The bottle is turned upside down, metered into a backpack sprayer, decoupled, emptied and sent back to the distributor (not Ciba) for refilling. "This is a true refillable container for the lawn service market."

It is that low-volume problem that slowed AgrEvo's move to returnables for the lawn and landscape market. Bilas explained that the company has not moved to deposit containers in the market, although it uses them widely in the agricultural market. "Our small-volume, returnable containers are 30-gallon stainless steel vessels that look like beer kegs," he noted. Each bears a bar code on the side and can be refilled.

"The problem with using small volume returnable containers for the lawn and landscape market is volume. In the ag market, you are dealing with large acres. In the lawn market, one 30-gallon container of material might last two years. Farmers deal with thousands of acres, where lawn service contractors deal with thousands of square feet," Bilas explained. He said that AgrEvo is considering marketing a 5-gallon size for the lawn market in the future.

Bayer used multitrip containers at one time. In addition to being tough to clean completely, "returnables for the lawn industry are not practical in the quantities that we use," Chaney explained. "We use a lot of quart and pint containers. It is hard to justify for containers that size."

Lyddon pointed out that use of returnables on

the retail level often is forbidden by law. "Reuse of containers is prohibited right on the label."

Rohm & Haas is doing nothing with returnables. "We are not set up for handling them," said Jetton. The company has made a commitment to producing dry flowable materials and is staying away from emulsifiable compounds or liquids.

While Sandoz makes its products available in mini-bulk form for the farm market and 30-gallon drums for industrial buyers, it does not run a return program for the turf market, according to Hintze. He said the small size and volume of the product moved makes returnables impractical. The one exception is Sentinel fungicide for golf courses. However, that is often used in farm-sized applications.

Barefoot Grass's Shufelt said that down the road, the company may look at bulk hopper systems for dry materials that will fit into the vans. This will eliminate bags, he noted. Because today's application amounts vary so much on a daily basis, he is sold on the recyclable containers he gets from Riverdale and PBI/Gordon which come with quick couplings and feed tubes. "We just pump them dry and then return them," he added.

Barefoot also has been approached on testing injector systems. "It gets us away from warehousing hundreds of gallons of premixed materials. Not only does it save floor space, but it is safer," Shufelt commented. These systems may use a 1.5-gallon container with a line that injects the material into the water container.

"We'll look at anything to reduce refuse, make the workplace safer and deliver better results to our customers," he concluded. ■

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

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Ecogel USA Inc.	56	Miles/Bayer	2,3	Zeneca	11,59
Emerald Green	74	Oldham Chemicals Co.	15		

*Denotes regional advertising



Liquid Assets

Water conservation has been our greatest asset since our founding in 1933. Because irrigation is our only business, we have been able to put countless resources behind engineering our equipment to save our most precious resource: water. Irrigation products that carry the Rain Bird® name save millions of gallons of water every year, but not at the expense of results.

Rain Bird technology effectively and efficiently nourishes landscapes all over the world.



Innovative, durable Rain Bird irrigation equipment makes good business sense. It also makes sound environmental sense. We consider wise water management to be a corporate responsibility, but we practice it as if life depended on it. And that's our greatest asset.

RAIN BIRD

145 North Grand Avenue, Glendora, CA 91741 • (818) 963-9311

USE READER SERVICE #92

DURSBAN ELIMINATES 140
INSECT PESTS BECAUSE ALL IT TAKES
IS ONE TO BUG A CUSTOMER.



Most customers tend to overreact. Discover one lawn pest and they think they're infested. Never mind that most customers can't tell the difference between a sod webworm and a night crawler.

Keeping customers' lawns insect pest free is what Dursban* insecticide is all about. Not only is it a dependable and economical broad spectrum insecticide,

but it has also been formulated to provide you an effective residual on most turfgrasses and ornamentals.

One thing for sure, use Dursban and customers won't be bugging you with their insect pest problems.

For further information on Dursban, or any other product in the extensive line of DowElanco products, give us a call at 1-800-352-6776. Always read and follow label directions.



*Trademark of DowElanco

