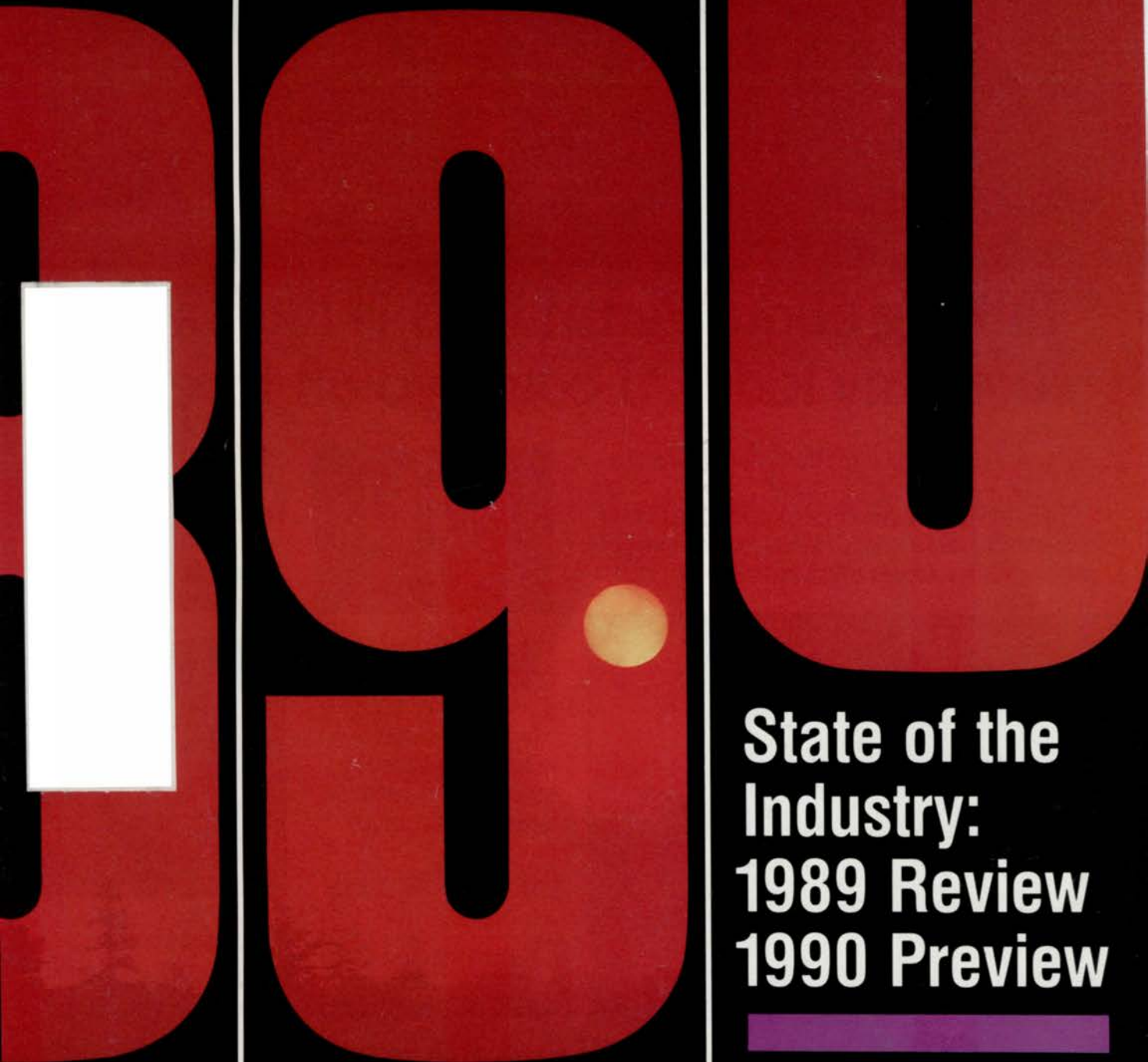
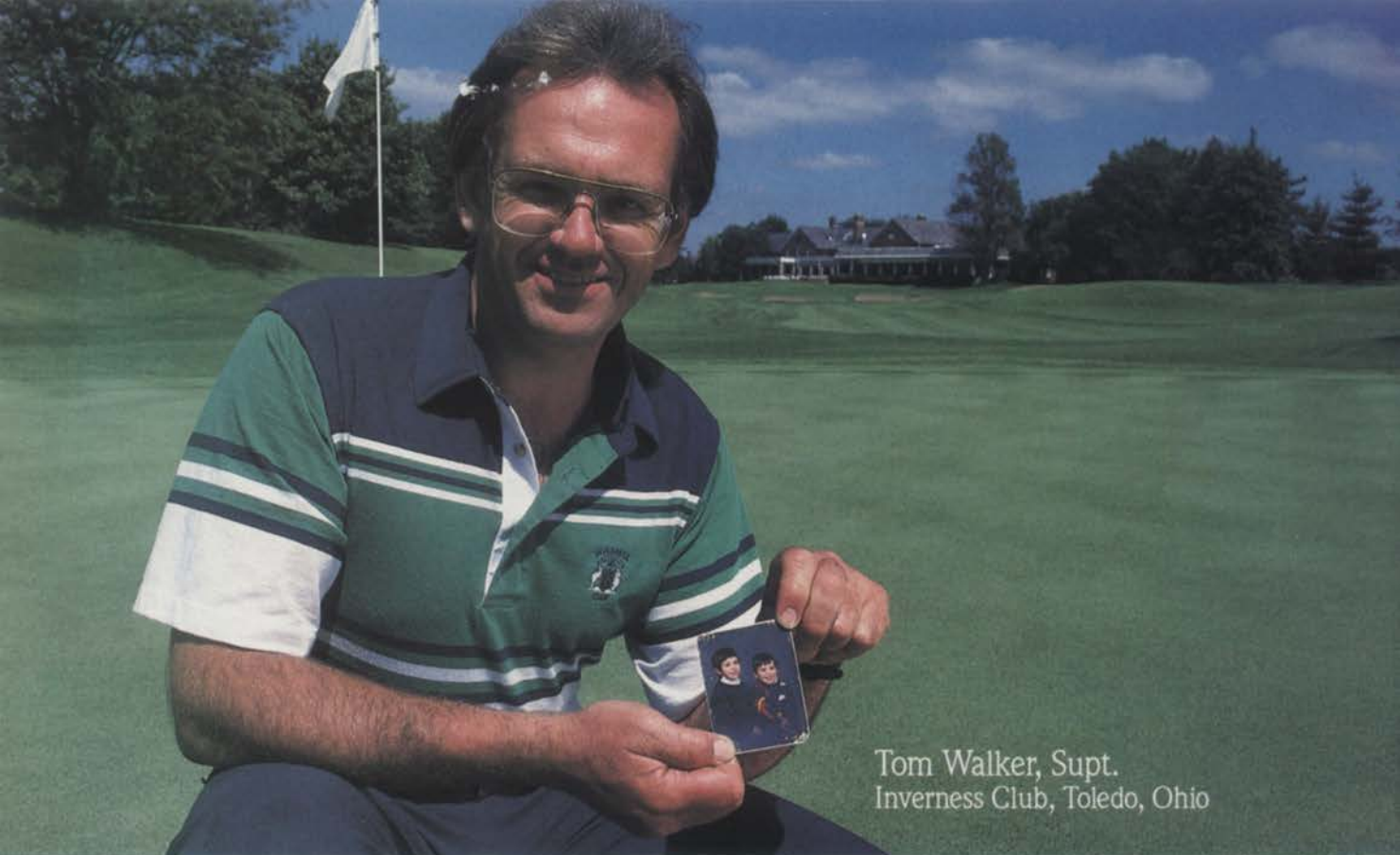


LANDSCAPE MANAGEMENT

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**State of the
Industry:
1989 Review
1990 Preview**



Tom Walker, Supt.
Inverness Club, Toledo, Ohio

“Talking about PennLinks is like talking about my kids...I could go on forever.”

A few of Tom Walker's words on PennLinks:

“The first thing that impressed me about PennLinks was its pleasant color. And our longer 5/32" cut promotes good root growth and reduces chance of scalping.”



“PennLinks' fine texture and upright growth allows a longer cut with less grain and a respectable speed. You just can't ask for a better putting green grass.”



“In less than a year, PennLinks' roots reached a depth of 14 inches in our compacted soil. This increased carbohydrate reserve helps carry PennLinks through stressful times.”



One of the 'Penn Pals'

PennLinks[®]
CREEPING BENTGRASS

And about his boys:

“I couldn't have done any better there, either.”

LANDSCAPE MANAGEMENT



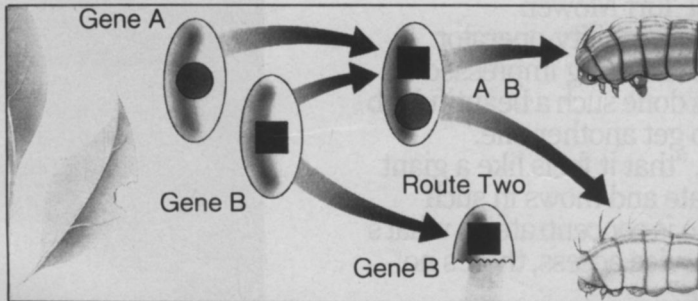
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by the Landscape Management staff with Ed Wandtke. What's in store for the green industry in the 1990s? How about more people, more work, and more money.

Cover illustration by Larry Kassell

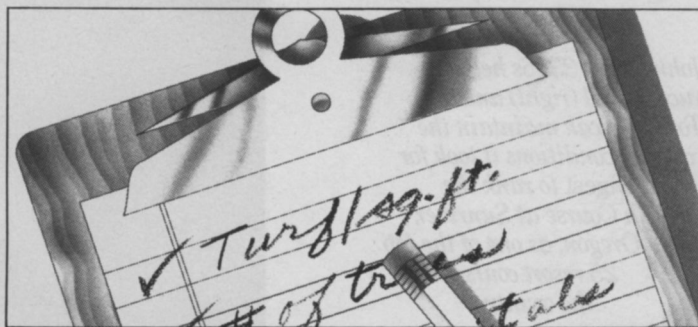
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Spotting a Deere seems only fitting at Oregon's Sunriver Resort. Because here, where wildlife abound, the resort has gained a national reputation for making people feel more like a part of nature than intruders upon it—even on the golf course.

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"I helped build this course," says Toepel, "so I take personal pride in trying to improve it each year. In fact, improving the appearance and playability of the course was our top priority a year ago when we decided to buy our first John Deere 3325 Professional Turf Mower.

"The 3325's cut, speed, maneuverability, operator comfort and single-lever lift for cross-cutting impressed us then. Since then, our first 3325 has done such a beautiful job on our fairways that we decided to get another one."

"It's so precise," adds Krpicak, "that it feels like a giant greens mower. It's so easy to operate and mows in such straight lines that all you have to do is concentrate on what's out ahead of you. And, as far as service access, there's no other mower that even comes close."

Talk to your John Deere distributor today for more information on all we have to offer. Or write John Deere, Dept. 956, Moline, IL for free literature. We know, like Bruce Toepel and Tom Krpicak, you're going to like what you see.



*Two John Deere 3325s help Bruce Toepel (right) and Tom Krpicak maintain the quality conditions it took for Golf Digest to rank the North Course at Sunriver, Oregon, as one of the top 25 resort courses in the country.**

**October 1988 issue*



**Nothing Runs
Like a Deere®**





One for all; all for one



Hallelujah. Hip-hip-hooray. Huzzah, huzzah.

They're finally doing it. Three of the top professional organizations in the green industry are combining their conference/trade shows into one.

The Associated Landscape Contractors of America (ALCA), the Professional Grounds Management Society (PGMS) and the Professional Lawn Care Association of America (PLCAA) will hold the first "Green Industry Exposition" this coming October in Nashville, Tenn.

This consolidation was a long time coming. Too long, as a matter of fact; just ask your friendly local trade magazine editor, who's flown hither and yon while family and friends savored his last four birthday cakes.

"Yeah, I was getting a little tired of those long road trips," he would say. "This year, it was four days in Lost Wages, Nevada, followed by four more at the Gateway to the West."

That's 10 days away from home and office, including travel time, podners. And that's enough to easily tucker out most of us old tenderfeet from east of the Pecos.

Suppliers, too, are breathing a sigh of relief. The consolidated conference, notes Bill Culpepper of Elanco Products, "will bring some economies into play which are critically important." Major players in the industry like Toro, Jacobsen, Deere, Cushman and Lesco can cut expenditures 33 to 50 percent by attending one rather than two or three important trade shows.

It's also a good move for directors of the respective organizations. "For a change, I'm not coming off as the bad guy," observes the PGMS's Alan Shulder. (Shulder, you may know, isn't really a "bad guy." Never has been. But it's understandable that he might have felt like one in years past when forced to ask suppliers if they would exhibit at yet another trade show.)

Finally—and most importantly—the consolidation better serves the fraternity of landscape managers. Each of the Green Team Expo's three co-sponsors will hold separate break-out educational sessions. That means attendees will be able to see just about every major supplier plus visit sessions tailored especially for their interests, all in one place at one time.

We're talking "aces around," if you'll forgive a metaphor left over from a recent western gambol. As ALCA president Ron Kujawa says, "It's a win-win situation."

And it's about time. See y'all in Nashville.

Jerry Roche, executive editor

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The Rose Bowl at Pasadena, CA, January 1, 1988

Ferry-Morse Gold Tag Brand Covers the 1988 Rose Bowl

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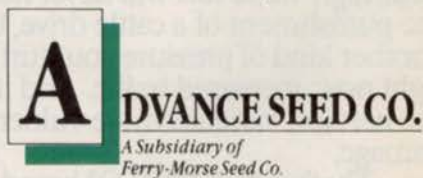
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at thrives under pressure.

mentals, you can depend on it to keep all the grounds you care for healthy and disease-free.

Add the fact that CHIPCO® brand 26019 fungicide is available in two convenient formulations—wetable powder and smooth-pouring flowable—and it's easy to see why it has become the disease control of choice for quality-conscious superintendents across the country.

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Chipco 26019
Fungicide
 RHÔNE-POULENC

LANDSCAPE MANAGEMENT

LAWN CARE

LCOs celebrate in Vegas; Steinau issues challenge

LAS VEGAS, Nev. — Richard Steinau was installed as new president of the Professional Lawn Care Association of America (PLCAA) at its 10th annual convention and trade show here last month. In his acceptance speech, Steinau challenged the organization's membership.

"The choice is yours: spectator or participant?," Steinau said. "I'm going to offer you the chance to get involved as you never have before—to shape your future and the future of an entire industry. We need to hear your thoughts; we need your participation."

Steinau is president of Greenlon Lawn Care Services in Cincinnati, Ohio.

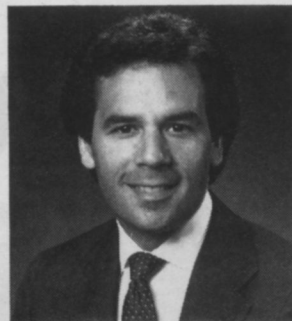
Bob Parmley, bringing an end to his one-year presidential tenure, pointed to advances in PLCAA affairs. "We raised dues a bunch," he recounted. "It was truly a painful decision, (but) your organization is now better equipped to be proactive and cope with the issues facing the industry."

Secretary David Sek's report noted 184 new members during fiscal 1989 to bring the PLCAA's total to 1259. The trade show, he said, was extremely successful with a pre-registration of 1101, 167 exhibitors and 67,000 sq. ft. of exhibition space.

Executive vice-president Jim Brooks said that even more members are



New PLCAA president Rick Steinau (below photo) issued a challenge to LCOs, then past president Bob Parmley (top photo, with knife) joined founding members in celebrating the organization's 10th anniversary convention and show.



needed.

"We are colleagues, not competitors, at meetings like this," he said. "I'd like us all to carry that colleaguesmanship back to our communities. Do your part to bring other companies to be a part of us, and it'll really pay off."

"Our new competitors are the environmentalists and legislators. We set a goal in 1990 of having 2,000 members, but we won't meet that goal without help from you, our current members."

Former PLCAA president Russ Frith, president of Lawn Doctor and chairman of the new Education and Research Committee, reported pledges amounting to \$118,500. *Lawn Care Industry* magazine led the way with a pledge equal to \$50,000 over the next three years. The E&R Committee also realized \$4,000 in profits from a pre-show benefit golf tournament.

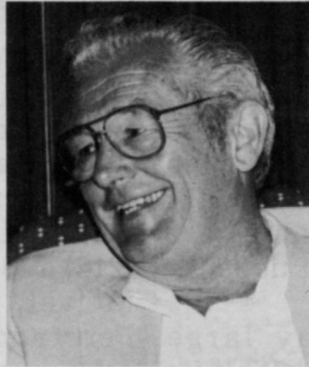
Other officers elected unanimously at the annual meeting: J. David Fuller of Fullcare, Louisville, Ky. and Joseph L. Winland of Tru Green Corp., Alpharetta, Ga. as vice-presidents and Neal A. Deangelo of Lawn Specialties, Hazelton, Pa. as secretary/treasurer.

Directors elected to three-year terms are Edward J. Coia of Lawnmark, Hudson, Ohio; Denny Linnell of LawnLife Corp., Salt Lake City, Utah; Jerome L. Faulring of Hydro Lawn, Gaithersburg, Md.; Patrick J. Nibler of ProGrass, Wilsonville, Ore. and Daryle L. Johnson of All American Turf Beauty, Van

Meter, Ia.

At the opening ceremonies, *Lawn Care Industry* magazine publisher Jon Miducki presented its "Man of the Year" award to James I. FitzGibbon, CEO of Lesco, Inc., in Rocky River, Ohio.

"Many names crossed our minds in trying to decide what one person made the most significant contribution to the industry," Miducki said. "(We found) one person who consistently went the extra mile. FitzGibbon had the foresight to recognize lawn care as a separate industry from landscape, and has been instrumental in developing marketing programs and distribution systems to benefit the LCO."



Lawn Care Industry magazine "Man of the Year" James I. FitzGibbon.

The lengthy but interesting opening session also featured a reunion of some of the organization's 36 founding members, who gathered in Fort Mitchell, Ky. on June 14, 1979. □

ORGANIZATIONS

REAP scientists offer certification

LAS VEGAS, Nev. — Formation of a new organization, the Registry of Environmental and Agricultural Professionals (REAP), has been approved by the Board of Directors of the American Society of Agronomy.

REAP will provide standards and certification for professionals working on "agricultural, urban, public health and environmental services."

To join REAP, a society or organization will need to develop its own registry and certification program for members. Working to-

gether, REAP societies will benefit by using the same offices, staff and other resources.

"REAP represents a strong move in the right direction to pull a number of disciplines and organizations together so they can mutually benefit," says Dr. Ricks Pluenneke, a plant scientist from Fort Worth, Texas. "Many of us work with properties where we deal not with just one aspect but the whole landscape package."

Pluenneke believes that certification is becoming more important, and that better communication between scientists with different specialties and with practicing professionals is imperative.

"In modern agriculture, unquestionably the biggest problem facing us now is our inability to adequately communicate with the public," says Pluenneke. "we need to get our act together, and REAP will help us with that as it grows."



Pluenneke

Pluenneke was named chairman of the Soil & Plant Science Division, or Division A-8. For the sub-division for urban professionals, he has enlisted the services of Dr. Jim McAfee of ChemLawn Corp.

Standards and certification requirements would be the responsibility of each member society with approval of REAP directors.

continued on page 14

LEGISLATION

Drug testing is here, now, for lawn, landscape drivers

WASHINGTON, D.C. — Drivers of trucks carrying commonly-used lawn care chemicals will be required to be tested for drugs under new federal regulations that begin this month.

Lawn and landscape companies which employ 50 or more drivers must comply by Dec. 21 with new sections of the Commercial Motor Vehicle Safety Act of 1986. Those with fewer than 50 drivers have until Dec. 21, 1990 to begin a drug testing program.

"The problem with these rules is enforcement," says Paul Skorupa, assistant director of the Pesticide Public Policy Foundation.

"People could probably get away with it (failure to do drug tests) for years and years," he says, just as they now skirt DOT

regulations on packaging and shipping hazardous materials.

However, enforcement is likely to occur if a vehicle is involved in a traffic accident. The U.S. Department of Transportation may then find cause to audit the company headquarters and the entire operation, Skorupa warns.

A number of consulting firms will provide drug testing along with the required notification and documentation.

Drivers are to be tested for the presence of marijuana, cocaine, opiates, amphetamines and phencyclidine (PCP).

If test results indicate that a driver has used drugs, the new rules do not mandate that the person be fired. Each company, though, must have a written policy on how such an offense would be dealt with. □

GOLF

Groundwater may remain nitrate-free

ITHACA, N.Y. — With good management practices, golf courses can protect groundwater from nitrate contamination, according to a recent study by Dr. Martin Petrovic of Cornell University.

Petrovic recommends applying frequent, light rates of nitrogen, or using slow-release nitrogen resources, even though they may be more costly. Superintendents also should avoid fertilizing when turfgrass is naturally slow growing, especially in cool weather.

Managers, Petrovic adds, should conservatively irrigate the golf course to both save water and reduce leaching. They also can reduce the scope of "heavily-managed" areas and use fewer energy-demanding plants where possible.

Petrovic adds that research on greens-type sites (high sand content) does not support the conclusion that golf courses are prone to heavy nitrate leaching, especially with today's trend toward lower nitrogen rates and slow-release sources. □

Correction

The chart accompanying our October seed report failed to list Pickseed's Crossfire and Shortstop as dwarf tall fescues. Also, Mustang is a Pickseed variety, not a Turf-Seed variety, as was listed.

LANDSCAPE MANAGEMENT apologizes for the errors. □

REAP from page 11

Noted Dr. Arden Baltensperger, new president of the American Society of Agronomy: "The REAP approach to certification is very timely to turfgrass practitioners and consultants at a period when environmental concerns are so much in the limelight. It could complement existing certification programs such as that of the Golf Course Superintendents Association of America."

REAP will not be limited to scientific societies but can include professional organizations in the turf, landscape and urban forestry sectors, including those which may already have existing certification programs, Plueneke notes.

Interested organizations should write Dr. Robert Barnes, ASA, 677 S. Segoe Rd., Madison, WI 53711.

The ASA made the recommendations in October at its annual meeting in Las Vegas, Nev. □

LANDSCAPING

The 'Top 50:' do you qualify?

CLEVELAND — LANDSCAPE MANAGEMENT magazine will publish its fourth annual listing of the Top 50 landscape contractors in the U.S.A. in March, 1990. Companies are permitted on the list depending on size.

Is your company large enough to make the list? If its sales revenues were \$2 million or more in 1989, it may qualify

for the Top 50 list. If sales are less than \$2 million but more than \$1 million, it may make our "Best of the Rest" category. For more information, call the LM editorial offices at (216) 243-8100. Ask for Terry McIver, Jerry Roche or Will Perry and we'll make sure you get a copy of the questionnaire we send out to qualifying companies. □

SERVICES

Computer program ends search for ornamentals

FORT LAUDERDALE, Fla. — The most comprehensive on-line electronic retrieval service for buyers and sellers of ornamental plants and foliage has been introduced by Betrock Publishing Inc.

Called PlantSearch, this

state-of-the-art program enables landscape architects, landscape contractors, nurserymen, plant brokers and interiorscapers to instantaneously locate hundreds of plants in Florida and other states.

"This stands to revolutionize the plant searching business as we know it today," says company president Irv Betrock.

PlantSearch subscribers can access a daily updated electronic library just by dialing a toll-free line through a personal com-

puter any time of the day or night. The program offers listings of more than 10,000 plants from 500 nurseries. In addition, subscribers will be informed of the plant's specific characteristics like water and food needs, soil suitability, salt tolerance, etc.

The service is available in the U.S., Canada, the Netherlands, West Germany, Italy, France and England. For more information, call April Hutchinson at Betrock: (305) 434-4440. □

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TRAINING

Consulting firm to offer training, workshops, testing, certification for lawn and landscape industries

CLEARWATER, Fla. — A new consulting firm will produce educational materials, plan training workshops and meetings, and develop testing procedures and certification programs for the green industry. Its name: Horticultural Education Services Inc. (HES).

The firm has already produced a certification manual for landscape maintenance operators. It is writing another manual for supervisors in maintenance. Also in the planning stage is a workshop for consultants, with emphasis on the preparation of reports.

"Many instances occur where the actual presentation of a report can be the primary influence on a consultant's continuing with a client or not," says HES president Dr. Derek Burch. "The professionalism which is displayed is the indication of a person's ability to produce top results." Burch is also executive secretary of the Florida Ornamental Growers Assn.

Jack Siebenthaler serves as vice president, and Charles Binaman is secretary/treasurer.

For more information, call (813) 446-3356. □

SHORT CUTS

THE BAN ON EDB...might backfire, writes **Walter Shroeder** in the New York State Professional Applicators Coalition newsletter. According to Shroeder, EDB was effective on mold spores. Some of the mold spores it helped to control produce aflatoxin, which Shroeder describes as "one of the most potent carcinogens known." Now that EDB is no longer used, Shroeder believes the consumers are receiving higher levels of a carcinogen with their food intake than they would if EDB was still around.

WHAT DO THEY WANT?...If they're baby boomers and senior citizens, they want instant color, mixed plantings, exotic materials and native stock. So says Dr. **Chuck Greenidge**, president of Greenidge and Associates, Inc., a consulting group located in Evergreen, Colo. Their goal, says Greenidge, is to guarantee "an immediately successful lawn and garden experience." That's something to consider when marketing your landscaping service. Greenidge says nursery consumers delay their purchases until just before the season breaks or until a pest or weed problem has already developed.

A NEW KEY FOR THE RING...A microcomputer-assisted dichotomous key has been developed by Drs. **A.E. Dudeck** and **J.A. Wetherington** at the University of Florida to key out and identify seed of 21 commonly used turfgrasses. Called "Turfseed," the program has a "help" function that calls up entries from a glossary referencing technical terms displayed on any one screen. When an unknown seed sample is identified, or "keyed out," all characteristics of the identified sample are summarized on one screen. Knowledge of basic plant morphology and agrostology is a suggested prerequisite for interested users. For more information, contact IFAS Software Office, Building 120, Room 203, University of Florida, Gainesville, FL 32611.

SAFETY MESSAGE IS OUT...The Outdoor Power Equipment Institute (OPEI) reports it has reached more than half the U.S. population with its safety education campaign. The message is to "Think Safety With Power in Your Hands." **Dennis C. Dix**, executive director of OPEI, says the message has been sent through dealer point-of-purchase materials, print and broadcast news, public service announcements and a nationally-syndicated radio program. "We believe we're making an impact," says Dix. The three-year safety campaign continues into 1990.

WEEDS: YOUR DAYS ARE NUMBERED!

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Promote turf growth and color this spring—while controlling crabgrass, poa annua and goosegrass with Country Club 19-4-6 with 1.15% Team. Formulated with 28% organic nitrogen, this homogeneous product provides a superior feeding and better particle distribution for outstanding weed control. All in one time-saving application! From the source for premium quality turf products—your local Lebanon distributor.


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Circle No. 113 on Reader Inquiry Card

DECEMBER 1989/LANDSCAPE MANAGEMENT 13

Texas super uses sulphur on sodium in water supply

DALLAS — Randy Thompson, superintendent at The Cliffs in Possum Kingdom, Texas, recently found a solution to high sodium content in the course's water supply.

He solved it by applying 10-0-0-18, a high sulphuric acid content fertilizer manufactured by The Greensmiths, located here.

"We had golden brown fairways last summer, and some black layer problems," remembers Thompson, "and there was nothing we could do. Now, everything's green, and it's a world of difference."

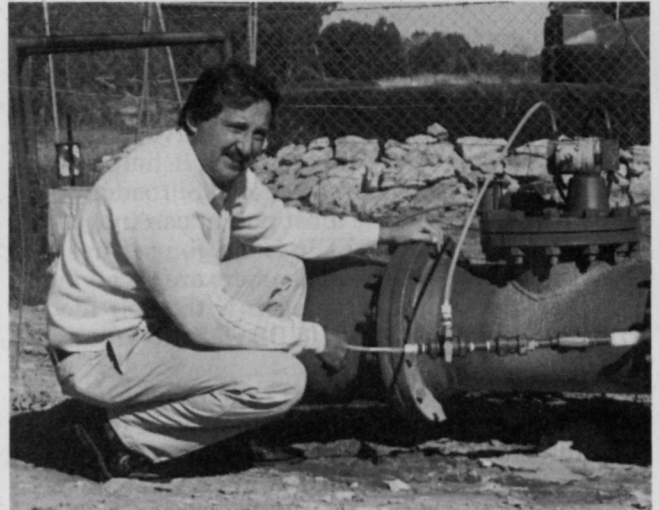
Thompson says The Cliffs' water is also high in carbonates, which is usually associated with high salt content. "As the pH

starts to increase," explains Thompson, "the carbonates precipitate and shrink the soil. It gets to a point where you can't get any infiltration. The 10-0-0-18 lowers the pH of the water, acts as a wetting agent, and dissolves the carbonates."

Jim Montgomery, chief executive officer of The Greensmiths, says the product contains 55 percent sulphuric acid, with 18 percent as elemental sulfur.

"We use it to acidify the water, to adjust the pH to a neutral or slightly acidic value," he notes. "But we're not going in there to pump a lot of acid into the soil. We're using nature's balance to bring everything back on an even keel."

"Although sulphuric is



Randy Thompson checks the fertilizer injector used on The Cliffs. A holding tank can be seen in the background.

extremely strong acid, it's safe to use once it's adsorbed (chemically bonded)."

Thompson says the 10-0-0-18 helped to lower the soil's sodium absorption ratio. "By disassociating the

sodium and carbonate ions and allowing the sodium to be leached, you get a good deep watering."

Montgomery says that Greensmiths is probably the only fertilizer company to address specialty soil



Stop crabgrass from grabbing hold

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problems that are industrial in nature, such as a toxic chemical spilled in the soil or an oil refining

site that's collected too much oil in the ground. "We manufacture a number of acid fertilizers be-

cause they're not available from other sources," Montgomery notes.

—Terry McIver

A tradition of excellence

WESTLAKE, Ohio — "Any guy," John Kramer says, "can put a shovel in the trunk of his car and call himself a landscaper. Landscapers have a very poor image. They (the un-professional ones) ruin it for those of us who've been in it for a long time. We have a good industry; there are a lot of good landscapers out there."

As founder/president of Kramer's Landscaping and Nursery Co. here, Kramer has upheld a tradition of excellence and professionalism. He's won numerous awards, from the American



John Kramer talking professionalism: "We have a good industry. There are a lot of good landscapers out there."

Landscape Contractors Association, the Association of Nurserymen and the Garden Center of Greater Cleveland.

For Kramer, professionalism extends to daily appearance, and he has always conducted business in a shirt and tie.

"I'm not trying to impress anyone, I'm trying to upgrade our image, to let people know we're as good as any other profession," he notes.

Kramer agrees that industry associations need to be more active in improving professionalism, but they have difficulty getting people to respond and participate. "A small percentage of them do, but you don't get enough of them to cover this area."

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development to design/build. Patios, decks, retaining walls, fences, sprinkler systems and outdoor lighting are all available.

Assignments cover basically all kinds of planting. This past summer, Kramer's men were busy landscaping quite a few newly-built residential homes now waiting for buyers.

One past assignment has become something of a Kramer's signature project. The grounds surrounding St. Bernadette's Church in Westlake was beautifully designed and landscaped, with a large pond to receive drainage from the parking area. Kramer found he needed an area to receive water runoff from the new parking lot, and suggested digging a large pond to collect the water. An aerator was installed, and a parishoner supplied two swans

who took up residence inside the fence.

Decorative mounds were built with dirt left over from the pond construction. Flower and tree arrangements close the public meeting area off from the lot, and provide an appropriately serene setting for churchgoers.

Kramer's is also known for its nursery, which is open to the public daily. Passers-by can view seven acres of trees, shrubs and ornamental and shade trees.

John Kramer's thoughts on the landscaping industry have been formulated and refined during his 40 years of experience. He's seen the best and the worst the industry has to offer, and is an ardent supporter of professionalism. When he sees something less than that, he becomes concerned.

Kramer thinks builders

are becoming more conscious of landscaping as an important part of a project.

"Even fast food chains try to outdo each other in the landscaping of each franchise," Kramer says. "I guess if everybody can get interested and active and stay at it, maybe we can turn it around."

—Terry McIver

The GCSAA will bestow its highest honor, the Old Tom Morris Award, in February. **Sherwood A. Moore**, a 50-year member, will be so honored. Moore has been super at Winged Foot Golf Course in Mamaroneck, N.Y., Woodway C.C. in Darien, Conn. and The Captains G.C. in Brewster, Mass. Recently retired as acting agronomist for the USGA Green Section, Moore continues to work as a consultant at The Captains. □

Industry must wake up, now!

To the editor:

An open letter to the National Arborist Association (see "NAA Set to Battle OSHA Regulation," October LM):

As usual, this industry views any regulation as an affront to its existence.

Our only method of response is "defense fund" and "battle" mentality.

The OSHA-proposed Vertical Standard regulations seem to make sense to me. Especially the CPR requirement. Having a security rope and the necessary training to do work around electricity should have been required long ago.

In our shortsighted effort to be competitive, we always seem to balk at spending a few dollars for the employees' benefit. And then tell them it's the "bad-guy regulators" or us.

You seem to wonder why this industry doesn't have new people interested in "filling the shoes" of older employees. First, if you trained people and then paid them what they're worth and then charged the proper price for services, you would be playing on a more even field. If you hire \$4.50-an-hour people, that's just what you'll get. Do you really think that a person qualified to (1) mix dangerous chemicals, (2) apply those chemicals without common-sense protection, and (3) bust their butts for you should make \$12,000 to \$15,000 per year?

This industry best wake up and start treating its hardest workers with a little respect and a lot more money and charging accordingly.

If you took a little initiative and worked with regulators, the resulting legislation might not seem so restrictive.

Steve G. Shegitz
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IDEAS OF THE FUTURE AT WORK TODAY

IN THE 1990s: MORE PEOPLE... MORE WORK... MORE MONEY...

If you work in one of the green industries and thought you had it good in the 1980s, you ain't seen nothin' yet. Read on.

by Jerry Roche, executive editor

The green industry continues to expand at an amazing rate, according to statistics obtained for this LANDSCAPE MANAGEMENT "State of the Green Industry" report.

For instance, a survey conducted just three years ago indicated that 41 percent of LM's readers were involved in ornamental installation and care. In an exclusive survey conducted this fall, that number zooms to 69 percent as operations have sought provide clients with more services and more diverse and beautiful landscapes.

In the 1986 survey, 49 percent of our readers indicated they purchased fungicides for turf disease control; this year, 73 percent said that they offer disease control.

Though most landscape operations are still small (fewer than five employees), the industry is attracting more workers. In 1988, the survey notes, the average staff was 20.8; in 1988, the average staff was 21.8. Projected to the magazine's full read-

ership, employment rolls totalled 982,231 in 1988 and 1,040,927 in 1989. That, nationally, means at least 60,000 new workers in the industry.

Managerial wages have not changed much. The average LM reader makes \$32,117.24 per year with the bulk of those (64 percent) in the \$20,000 to \$40,000 range.

Despite many concerns (see related article), most landscape managers remain optimistic about the green industry as they head into the 1990s. Almost 20 percent of our readers who took time to return questionnaires rated their outlook perfect 10s on a scale of 1-10. Sixty-five percent gave the industry at least an 8, and the survey average was 7.99.

Here is a quick summary of our findings in the three main segments of the green industry.

Golf: more public?

The golf industry's response to an increased need for more holes has been

good. Yet the average golfer will face long lines by 2000 if private courses continue to proliferate.

Developers see residential/member courses as the quickest way to make money—by selling the course to members as soon as possible. But the "equity" course is not without its disadvantages. Members descend upon the superintendent; everyone's a boss. Policital, stressful situations can follow in this scenario.

Profit, however, can be made from a long-term commitment to public courses. Industry experts see a need for more investor groups interested in one public course for a long time.

Landscaping: more companies

The landscape industry in 1990, according to projections, will be a phenomenal 25 to 40 percent larger than in 1989. Why? Because both homeowners and business owners are putting increased emphasis on good-looking lawns and landscapes.

This virtually uncontrolled growth will probably result in new landscaping contracting companies coming into the market, experts say. As a matter of fact, if 1989 is an indicator of the potential quantity of new companies in the industry, most markets will see the number of companies double.

Government: negativism

There exists among landscape managers in the government sector a degree of pessimism as the 1990s approach. Tax cuts mean cuts in the budgets of governmental institutions. And history has proved that landscaping is the first thing to go.

There is also a need to look at the government landscape manager as environmentalist. Most agree that they must do a better job of communicating. For the public to insist that government institutions abandon pesticides in the landscape borders on the ridiculous, some say.

Summary

The 1990s promise to be different in many ways for the landscape manager, depending on his or her individual field of expertise. But all indications are that the green industry as a whole will continue to grow at a healthy pace—healthy for the industry, healthy for society and, especially, healthy for the environment.

890

WHAT READERS SAY

When asked what factors would have a financial impact on their operation in 1990, an overwhelming number of LM readers (60 percent) indicated liability insurance. Also high on the list of concerns were equipment maintenance (54 percent) and insurance other than liability (49 percent).

LANDSCAPE MANAGEMENT readers voiced a number of concerns in their open-ended responses to the survey questions. Here are some of their comments:

- "Problem number one is labor; problem number two is insurance."

- "You should send the results of this survey to the heads of government so they can read about the importance of training and proper equipment in this industry."

- "I think golf course construction and multi-family homes around golf courses will continue to increase in the '90s."

- "We are in desperate need of upgrading our status as professionals in this industry. 'Landscapers,' 'arborists,' 'grounds maintenance personnel' and others representative of this field should have accrued a minimum requirement of educational credit or certification in order to get a dealer's license. \$50 is still a small fee to pay to receive all the advantages of established, legitimate businesses trying to pay technical personnel and remain competitive with seasonal operations."

- "Expansion begins in 1990 for our course. We're revamping the back nine and adding nine more holes with a new clubhouse at a cost of \$2.5 million."

- "We need an active organization to control various aspects of the industry, not only for the people in the industry, but for the consumer as well. Public opinion must be improved!"

- "The green industry has hopefully hit bottom in Texas and will have moderate construction growth going into the 1990s."

- "Overall, this industry is overworked and underpaid."

- "Being a golf course superintendent is a thankless job. Most people or owners don't realize the amount of variables involved that affect providing a quality facility. As prepared as you might seem, Mother Nature is always throwing you curves."

- "Operating budgets are becoming tighter as enrollments start to drop because of student age population decrease. We need ideas and help to be able to do more with less."

- "We dropped all maintenance in the spring of 1989 due to insurance and vehicle costs and employee turnovers. We are concentrating on installation and having a great year."

- "Quality-minded individuals in the mowing end of the business are very hard to find and keep."

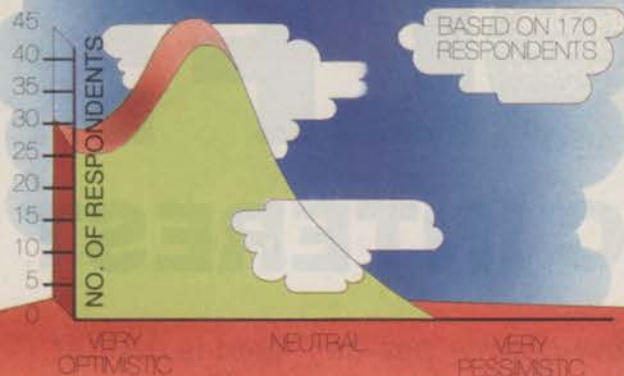
- "Water and governmental regulations could affect the whole industry."

- "As the population increases, the need for open/green spaces increases. Desire for athletic fields, recreation areas and hiking trails is on the increase."

- "One of my main objectives is providing chemical awareness to my customers, so that they know that I am applying the safest and most effective controls."

- "There's a tremendous golf boom in Hawaii. There's a landscape material shortage with all the construction projects, but it's a great time to be in the industry."

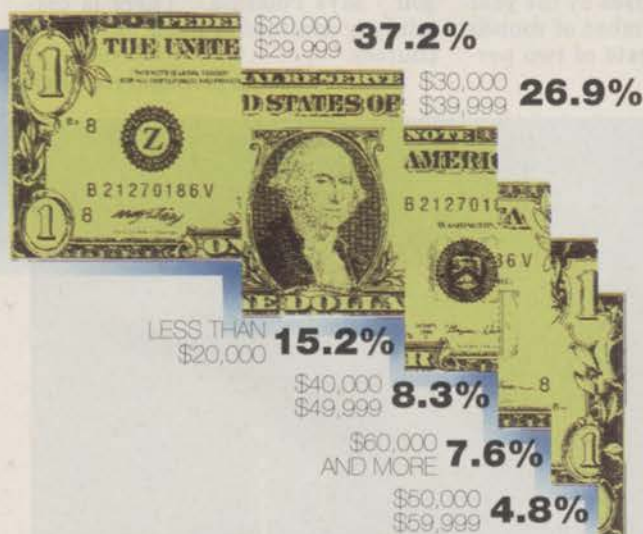
—Jerry Roche □



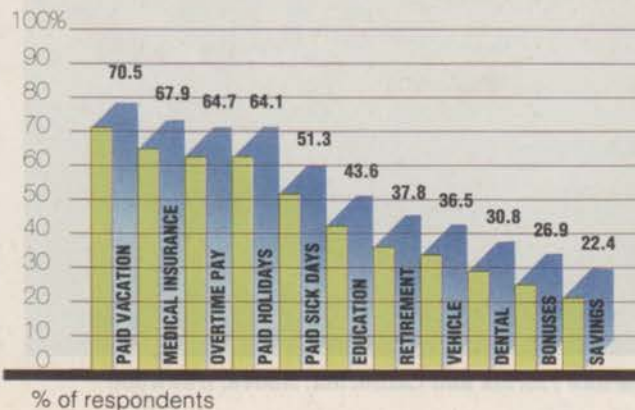
OUTLOOK

FOR THE GREEN INDUSTRY IN THE 1990s

WAGES ANNUAL WAGES REPORTED BY LM READERS



BENEFITS PROVIDED BY LM READER COMPANIES



continued on page 20

90 GOLF: IN THE PUBLIC INTEREST

The golf boom rolls along, though the 'one-course-per-day' goal is distant. More public links are needed, or Joe Golfer faces longer lines.

by Terry McIver, associate editor

Golf course developers in the 1980s harkened to the call for more and better golf courses. But as the industry enters the '90s, development of more public-access courses must quicken to match the demand expected by the year 2000.

Ribbon-cutting continues at courses across the nation. Regionally, the Southeast is most active in new project development. Florida leads

the region, with 39 courses planned. Angelo Polermo, vice president of golf course development for the National Golf Foundation (NGF), says construction nationwide continues at a good clip, based on annual NGF surveys, but still warns of a "capacity gap" of 4,000 golf courses by the year 2000, "even if the number of rounds played grows at the rate of two percent each year."

NGF expects 315 new courses to be opened nationwide by 1990. At least 138 of those, according to Polermo, will be resort/residential courses out of reach for the public golfer. "We (the United States) have 24 million golfers playing 487 million rounds of golf," says Polermo. "There is certainly a continuing need for public courses."

Still, Polermo is justifiably excited

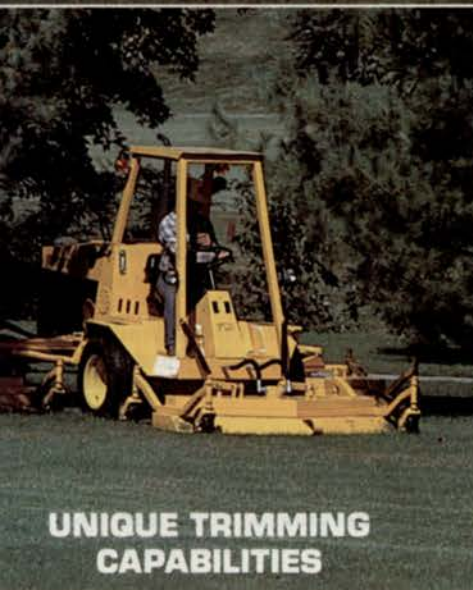


Great scenery and year-round sun are big draws for golf states like Florida and California. Above, Ironwood Country Club in Palm Desert, Calif.

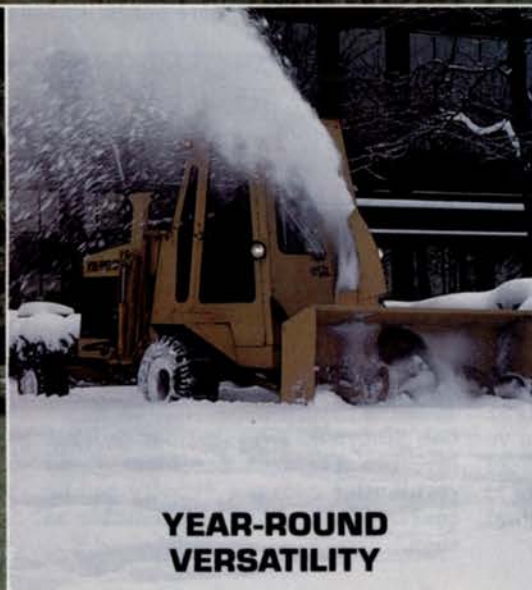
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when he sees the golf construction industry harken to the call for more courses.

"The industry recognizes the validity of the NGF's research, which indicates that there are some very strong golf markets out there," he notes, "and this is demonstrated by the number (of golf courses) under construction and recently opened."

Financially speaking

California's Palm Springs area, long a premier golf mecca, has a thirst for more public courses that won't take a divot out of middle-income pocket-books. Bob Stucynski, superintendent at Ironwood Country Club in Palm Desert, notes that the surrounding Coachella Valley has only six or seven public/semi-public courses that charge from \$25 to \$50 a round. The yen for private, residential courses seems to be driven by developers' desires for quicker investment returns. Much of the thinking, according to Stucynski and other supers, is that with high land prices and no housing developments to provide extra income, the lag time before a public course can be successful is a million yards long. A public course built for \$2-4 million would take 10-15 years before becoming profitable, especially with low green fees.

"Even if you run 380 rounds through each day," reasons Stucynski, "you still have operational budgets (which will vary), depending on what condition you want the course to be in. Let's say your maintenance and pro shop operation costs \$2 million per year, with salaries. You've got to generate \$2 million worth of outside play. Where are you going to get the money to pay off the initial premium?"

Public courses work

Funding is the biggest bunker to clear when it comes to development, and the combined resources of multi-investors can make it easier.

More private investors have to become aware of the money-making potential for new courses.

"No question about it," says Tom Haugen, of Stonebrook Golf Course in Shakopee, Minn. when asked if a public course can be a more profitable venture.

"You've got so many more people to draw from," states Haugen. "People don't like to play 20 rounds of golf at one place (as do members of a private club). It's an easy way to set up a golf course, with virtually no advertising other than to announce that you're open."

Jerry Lemons, superintendent at Tennessee's Old Hickory Country Club: "The business has been looked at by owners as an 'ego-driven' enterprise rather than one by which owners can profit."

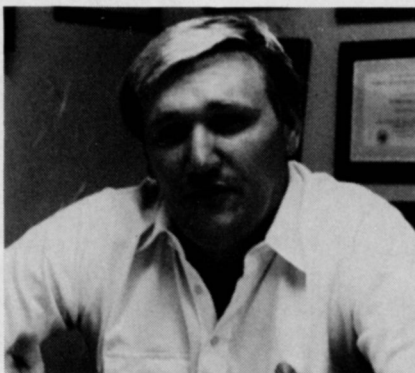
How much money can a public golf course make? "If you can keep land

hire a lot of lawyers and environmental engineers, and face a two- to three-year permit process before you can even break ground. In many cases the privates have access to more financing, but that's a generalization."

But to some experts, the "members only" golf course is not an absolutely more profitable way to play the game. Golf course architect Michael Hurdzan serves as president of the American Society of Golf Course Architects. Hurdzan believes there is a mistaken belief that a golf course developed in tandem with housing must someday become a private course in



Florida golf course designers Lloyd (left) and George Clifton believe in an "absolute need" for more public access courses in the state, just as in the U.S.



Bob Stucynski says that, for quicker investment returns, developers build residential courses. Wholly public courses don't prove as profitable as soon.

and construction under \$2 million," insists Lemons, "you can pay for that course in five years."

But is it indeed that quick a return? According to Pat Jones, director of communications for GCSAA, a public course can be a hard row to hoe.

"It takes quite a bit of capital to work for two or three years in advance of construction," reminds Jones. "To go through the permit process, to complete environmental audits, and deal with the government, you've got to

order to exist profitably.

"Primarily," states Hurdzan, "golf development is in the golf resort and second home market. That doesn't mean the most demand is there; that simply means that that's the easiest way to develop."

According to Hurdzan, "20 percent of the people who buy homes in a golf course development play golf. The other 80 percent want the amenity of not having neighbors; they just want to sit on their patio (and enjoy the view)."

"We in the golf industry can make the boom continue for a long time," Hurdzan warns, "or we can kill it by charging too much and trying to put too many people on too few courses."

The average golfer needs the help of the golf course construction industry. A developer in suburban Chicago, for instance, says golfers at courses there constantly face long lines.

More groups of private investors looking for a long-term commitment are needed. Those who will build the course and manage it for a long term. It can be done, and is in the best interest of golfers everywhere serious about the game.

continued on page 24

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TRUTHS AND CONSEQUENCES

Chemicals were favorite targets for environmentalists during the 80s. The future holds more of the same scrutiny.

"Be prepared," says Jerry Lemons of Old Hickory Country Club. "When there's a tragedy, it jumps out at us. That's when we in the business get hurt the most. Pesticides are guilty before proven innocent."

GCSAA's Pat Jones says resistance from persons who do not want to see a golf course built in their neighborhoods is a towering hazard many developers must clear to reach the green. And the best defense is to stay one step ahead.

"GCSAA's role," explains Jones, "is to educate the public, develop factual information and data, and prove to the public and government regulators that golf courses are safe places to be, are not damaging to the environment, and—if anything—are an environmental benefit."

Remembering the drought of 1987-88, superintendents want more sensitized irrigation systems that conserve more water. Systems are now hooked into weather stations that adjust the watering cycle based on daily evaporation rates; soil sensors corroborate with weather system information.

"We're seeing the trend to double- and triple-row irrigation," says architect Michael Hurdzan. "We're going to two or three systems of sprinkler heads around a green as well."

Lemons says the cost of lightweight mowers can outweigh the gains.

"On warm-season grass courses especially," he says, "wear and tear is not as critical as on bentgrass fairways. In the South, it's been one of those fads that has pushed down our way. You can still use the tractor-type mowers, and maybe go to a 10-bladed unit rather than a seven-bladed one."

"We've got 120,000 square feet of greens," says Lemons. "And we want to maintain high stimpmeter readings. Smaller triplex mowers are used on greens and approaches. We have Bermuda fairways, and we overseed with rye in the fall. By the time we get the Bermuda pumped up to take over the rye, we're on a five-day cutting schedule."

"The competition has forced us to lightweight mowing of fairways," says Brice Gordon of the Audubon Country Club, Louisville, Ky.

"You've got tremendous-looking courses out there," says Gordon, "thanks to the new varieties of grass and new equipment. It's a positive development. We now mow fairways six times a week at 1/2-inch. People want that quality."

Hurdzan also notices greens getting flatter, but not without drawbacks. "Lower cutting heights are due to less slope. They're mowing so close that if we put very much pitch to a green, the ball starts rolling too much. So we're forced to design flatter greens."

"Consequently, the flat greens don't have surface drainage. And shots don't hold as well, so superintendents are forced to over-water. Before, we could bank them. All the water goes through the soil profile, so we have more disease problems as a result of that."

The solution then is to increase the infiltration rate of greens, to dry them down.

Rolling mounds, wrap-around bunkers and elaborate water hazards have satisfied golfers' desires for challenging (some say impossible) shots and beautiful scenery. But design often becomes a game of one-upmanship, leading to time-consuming, costly maintenance.

Jones believes that with the heavy public demand for golf there follows a demand for relatively inexpensive tracks of \$2-4 million. "Without proper maintenance and a proper superintendent, the more expensive courses can be difficult to maintain. You might spend \$1 million a year to keep the place going."

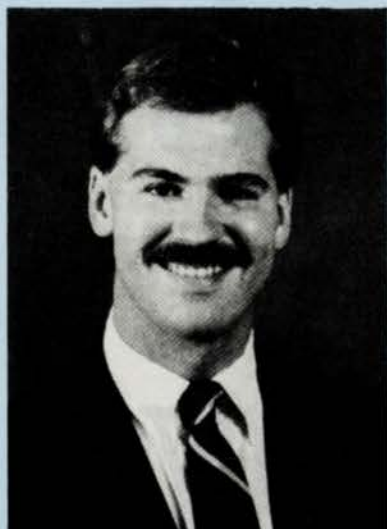
Lemons recently re-designed and rebuilt the greens and bunkers of Old Hickory Country Club in Tennessee. He believes that many current designs neglect maintenance concerns, and will frequently build huge mounds into designs "to keep up with the big boys."

Lemons asks, "How long can the course be maintained at the dollar figures that are received from public golfers? Big-name designers spend upwards of \$6 million, and often create nightmares for maintenance."

Lemons is using foresight. His concern is the capital required to maintain that look. "If the economy goes bad in the future," Lemons asks, "can we afford million dollar maintenance budgets?"

The answer: "Design for maintenance, and realize that form follows function."

—Terry McIver □



Pat Jones



Michael Hurdzan



Brice Gordon

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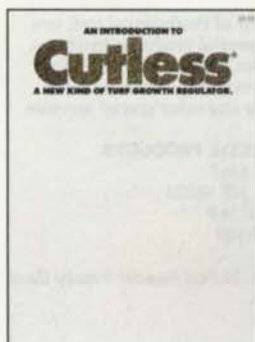
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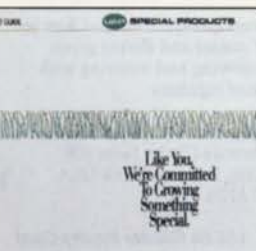
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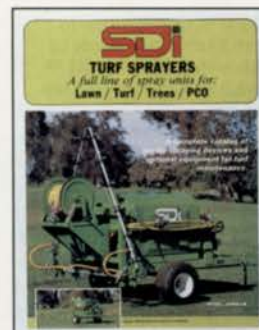
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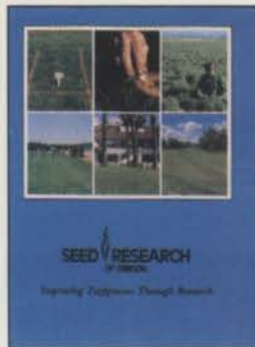
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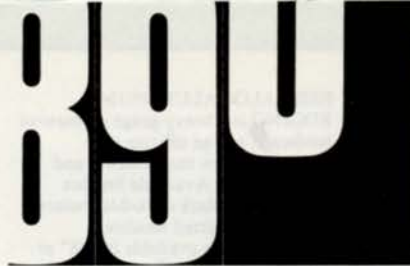


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Rapid growth for the landscape industry will continue into the next decade. Opportunities exist for the industry to double in the next three years or sooner. Being able to secure some of this available business will mean that you need to develop your management to take advantage of the growth.

What is the outlook for 1990? Is this an industry where diversifying companies are likely to expand? Will it be an industry where new companies can find an opportunity? What will happen to the quality of service as the industry expands?

Residential, commercial

Residential occupants are getting tired of spending time maintaining their properties externally. In addition, residential customers of chemical lawn care companies are starting to consider outside contractors to perform the rest of their landscape services. These non-commercial customers are realizing that, if they are to have multiple property services performed on their landscape, it can be cheaper and more effective to have

Our intrepid business expert peeks into his crystal ball and sees up to 40 percent—that's right, 40 percent!—growth in the landscape market within the next year.

by Ed Wandtke

only one service company.

In the commercial sector, companies that had been maintaining their own property are starting to turn to professional service companies. This is happening because of expanding pesticide regulations. Companies do not want to worry about liability issues derived from applying pesticides. Also, many businessmen believe that an outside landscape company can do the job better and cheaper.

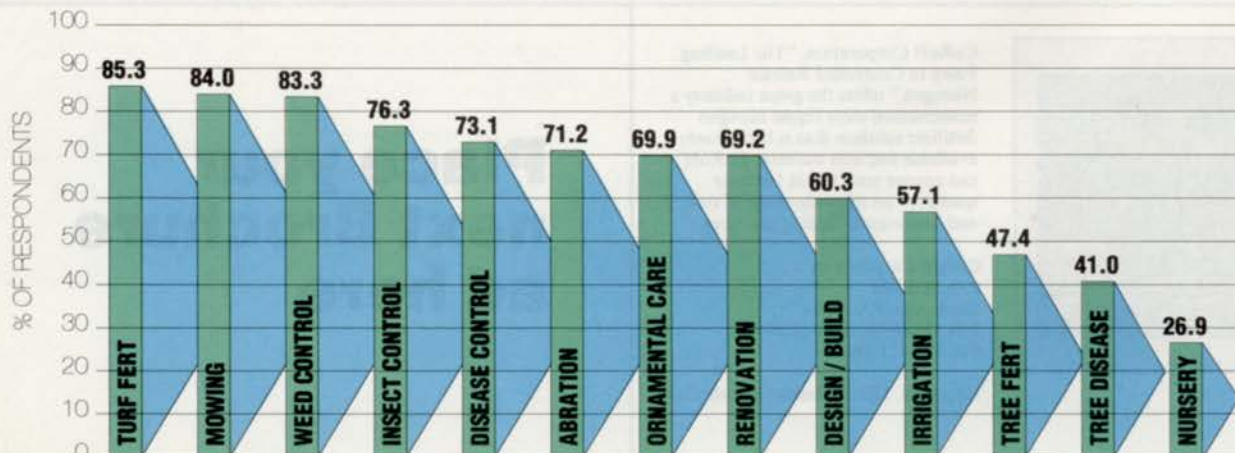
Increased growth, then, will come from first-time customers and more residential and commercial customers seeking outside professional landscape services. A 25 to 40 percent

growth in the entire landscape services market over 1989 levels is not out of the question.

New entries

With this growth will come many new companies. If 1989 is an indicator of the potential quantity of new companies in the industry, most markets could double in size. While many of these new companies often tend to lower prices for a while, most go out of business if they are not providing the service above cost. For most U.S. markets, the failure rate of these new companies is often more than 50 percent. These companies often do not fail because of under-capitalization

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Landscaping allows a company the opportunity to self-destruct because it took on more work than it could reasonably expect to service.

but rather because of management incompetence.

Seeing an opportunity in the landscape industry will not assure a start-up company that it will make it. As a matter of fact, customers will cancel landscape services because they failed to provide on a timely basis the only item they are selling—"service." Like many industries, landscaping allows a company the opportunity to self-destruct because it took on more work than it could reasonably expect to service.

Since there is no licensing requirement to provide landscape services, there is no effective method to police the industry. This may change in the future, but for now there are almost no barriers to any individual wishing to enter the landscape industry.

Many companies currently

providing some lawn care or tree services are starting to look at expanding into landscape maintenance. ChemLawn and Tru-Green, for instance, are testing the possibility of offering landscape maintenance services. And their tests will probably tell them there is an opportunity to enter this lucrative market because it is not now being fully serviced. In addition, with chemical lawn care industry's slowdown during the past three years, many companies have diversified into the landscape or tree service industries because of their larger untapped market segments.

Quality control

As the number of new service providers continues to expand, it will become important to somehow establish a determination of service qual-

ity. In professions like plumbing or electricity, there is a formal training sequence needed to acquire enough knowledge to perform the work. At the end of the formal training program, the individual is then licensed as a master electrician or plumber.

Such a system needs to be developed for the professional landscaper if there ever is to be some assurance—on a state, regional or national basis—that landscapers are truly "professional" and command the fees of a professional.

Quality control in the landscape industry is a very subjective notion. Even within a company, the level of quality provided customers differs significantly. If your company does not have written standards of appearance together with pictures of what the standards mean on a property, 1990 is definitely the year that you

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should put such a quality control system in place. If you do not, you will learn of customers' dissatisfaction with your quality when they cancel or do not renew a contract.

New offerings

For many years, landscape maintenance has meant mowing, edging and cleaning sidewalks and driveways. Today, consumers are asking their landscapers to do more:

- vacuum parking lots,

- aerate lawns,
- mulch decorative beds,
- provide vegetation control in beds,
- design and install flowering enhancement to their properties,
- prune small shrubs and trees under 20 feet,
- renovate part of a lawn that has been damaged,
- install and maintain irrigation systems, or
- re-do plant material that has become overgrown or just needs a new look.

Opportunities continuing to expand, and often are limited only by you not realizing that you could be providing the service.

So make a point of examining the opportunities and evaluating your

abilities to effectively deliver the services.

Beyond 1990

As new equipment continues to be developed, man and equipment will be more efficiently mixed to service customers. Today there is entirely too much labor needed to service landscape properties. That will need to change. In the future, property owners might ask you to design the property service, and then to provide those services. A standard of property management service for commercial sites might be developed on a national basis with individuals modifying the standard based on their budget.

Start looking at what property management associations are asking for, and work with them.



GOVERNMENT: PLAYING ENVIRONMENTALIST

Landscapers in the public sector have a lot to gain by educating the public on the importance of their work.

by Will Perry, managing editor

In many respects, landscapers in the 1980s never had it so good.

In this decade, the green industry has seen an avalanche of new and improved products that kept the lid on labor costs and bolstered the bottom line.

Two-cylinder, air-cooled engines; front-deck, hydrostatic mowers and the inventive use of hydraulics has made good turf equipment even better. And that equipment now borders on greatness, as manufacturers put more emphasis on operator-friendliness. More comfortable seats, better maneuverability, and improved speed and visibility continues to have a favorable, if immeasurable, impact on employees.

Chemicals too, have allowed landscapers to manage acreage that in the past would have been too substantial for today's smaller crews. The specificity of today's herbicides and

pesticides allow landscapers to better pinpoint targets, reducing rates while improving efficacy. Biologicals and integrated pest management (IPM) are making their presence felt as well.

Chemophobia's future

So what do landscape managers in the government sector have to worry about? Well, how about "chemophobia" or today's tax rollback climate?

"To be honest I don't think the future is too bright," says Allan Shulder, executive director of the Professional Grounds Management Society. Shulder says popular citizen movements to hold the line or reduce taxes (such as Proposition 19 in California) are a threat to government sector landscapers, since landscape management is too often regarded as an expendable municipal program.

"We're usually the first to go," says

Shulder. "I can't explain why that's the case, but it is. Right now, the climate in this country is to hold the line on taxes or cut them back. I'm not opposed to that personally, but when that happens our services are cut."

Other landscapers, particularly those caring for universities or school districts, are more optimistic. Jack Coffman, of Margaretta Local Schools, Ohio, says school board members today are more aware of the importance of well-landscaped building exteriors. "I've been getting real positive feedback for what I've done here," says Coffman. "The board realizes that only about 30 percent of the voters in this town have kids in the schools. The other 70 percent make up their minds about the quality of the schools by other means. By seeing well landscaped buildings they develop positive feelings about the school system."

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Coffman also mentioned that parents and administrators are increasingly aware of the importance of quality athletic fields. "There's more of a focus on safety. Parents are going from school to school and comparing playing surfaces. If they see a better field across town, they want our field to look that good or better."

Daryl Smith, assistant grounds manager at Colorado State University, Fort Collins, couldn't agree more. He believes that as universities become more aggressive in their pursuit of shrinking student pools, more emphasis will be placed on the school's landscape.

"My feeling is that the landscape's quality has a huge impact on a person's decision to attend a particular university," says Smith. "You get mom and dad here and take in all the trees, the grass, and the pretty flowers and it's impressive."

Nearly everyone interviewed by LANDSCAPE MANAGEMENT felt that the industry needs to do a better job addressing critics of chemical use.

Shulder, who has been in the green industry for more than 40 years, says, "I've seen tremendous strides made in the green industry, but the one thing I haven't see is increased public awareness."

Shulder notes that "we need to be more positive than reactionary,"

which is a primary factor behind resurrecting the Green Industry Summit as the Landscape Environmental Resource Council in 1990.

"We're the environmentalists," exclaims Shulder. "We're the ones out there day after day taking care of the landscape. Critics don't talk about the benefits of chemicals at all. They're tremendous. We've got to turn it around, and now is a good time to make a move."

Bill Johnson, North Carolina DOT, agrees that the climate is right

to bridge the gap between the green industry and its critics. "There's some middle ground out there. The radical element is there, but reasonable people are involved as well," says Johnson. "We should do a better job of communicating, of finding that middle ground. To insist that we abandon pesticides is ridiculous."

Adds Smith: "People's attitudes have changed. They're more aware of the fact that things are building up in the environment. For right or wrong, we seem to have put that out of our minds. Now we're opening up and taking closer look at it."

Smarter chemical use

The results of this reawakening, says Smith, are improved targeting of pesticide applications, the use of bio-controls and IPM, closer monitoring of chemical applications, a concerted effort to use adaptable species, and a back-to-basics approach toward cultural practices.

Tomorrow's labor pool may be shallow, but the employees drawn from it are likely to be better trained, according to Smith, who has five degreed employees on his 17-man staff.

"The labor market will be much better, even though it may cost a little more," says Dave Nelson, roadside development specialist with the Pennsylvania Department of Transportation. "There's more training today in- and outside-house."

Government landscapers are fortunate to be outside the competitive labor pools of the open market. Allen Goldapp, Jr., manager of grounds and horticulture at Southwest Texas State University, thinks that the competitive nature of the landscape market forces company owners to rely on low-paid employees. "The landscape market in this area is very cutthroat," says Goldapp. "Business owners have to use low-priced labor rather than professionals if they're going to make a living. That's a situation that's going to have to change."

Landscapers in the government sector appear to be less affected by this competitiveness because their employees enjoy more job security and (usually) higher wage rates.

Resiliency will remain an important element for government landscapers in the 1990s. By increasing public awareness about the benefits of turf, chemicals, and well-maintained athletic fields and school grounds, landscapers will go a long way toward insulating themselves from budget fluctuations. **LM**



Allan Shulder



Bill Johnson



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THE STORY BEHIND BIO-CONTROLS

Today's biotechnology boom means landscapers will enjoy a wealth of bio-control agents in the near future.

by John D. Briggs, Ohio State University

Before today's wide interest in biological controls, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) encouraged manufacturers to develop "growth regulating chemicals" to attack vital growth activities of insects and mites. In so doing, the EPA wanted to spur development of chemicals that destroy insects yet have no effect on humans, plants or animals.

Growth regulating chemicals work two ways. Either they prevent insects from becoming adults or they interfere with the completion of the in-

sect's skeleton.

Fortunately for landscape professionals, today there is active competition in the pesticide industry for formulations of custom-designed bio-controls. The products will be useful for agriculturists and landscapers. The competition leading to the rapidly advancing technology originated with the products that are still marketed by two imaginative industrial giants who have continued the development of insecticidal toxins produced by *Bacillus thuringiensis* (BT). These are Sandoz Corporation, marketing Thuricide, registered in 1958; and Abbott Laboratories, the producer and market share leader with Dipel. Both corporations are major players among others in developing formulations of genetically engineered bio-controls.

The industry is demanding an in-

crease in the persistence and the stability of bio-controls. In addition, genetic engineering is undergoing a biotechnology boom as researchers seek to incorporate into plants the production of insecticidal toxins by bacteria.

Research goals

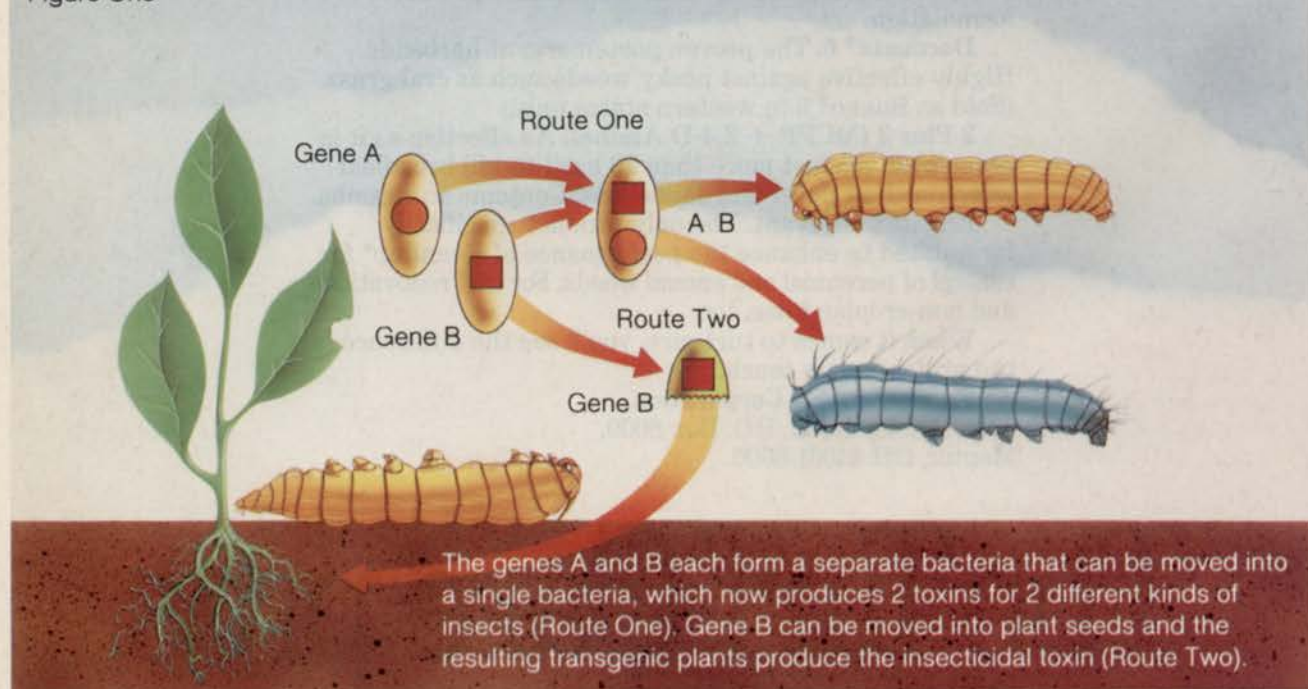
By adding insecticidal toxins from bacteria to all the other materials that plants produce, researchers may be able to create new plant varieties with built-in bio-controls.

Another objective is to develop a formulation of bacteria which inhabit plant roots, stems or leaves. The idea is to alter plant bacteria so that they have insecticidal qualities.

This procedure is like one used to change the bacteria on strawberry plants. The new bacteria lowers the freezing point of water, thereby re-

Dr. Briggs is professor of entomology at Ohio State University, Columbus. His current research includes participation in a biotechnology team researching new formulations of bacteria in bio-control agents.

Figure One



ducing frost damage to the strawberry plant.

The genes factor

Genes are elements in the cells which are the building blocks for bodies of all organisms, including plants, animals, bacteria, fungi and nematodes. Genes carry the inherited blueprint for the characteristic shape, size and behavior of the organism. In humans, for example, genes determine physique and abilities to learn and behave.

Genes are complex chemicals that influence cells to do specific jobs. Many different genes are needed to interact in each cell to produce a whole human, animal or plant.

Manufacturers of bio-controls are moving quickly and successfully to add, remove or change certain genes in animals, plants and bacteria. For example, genes can be chemically and physically extracted from a bacteria. An attempt is then made to put them into another living organism, first in both laboratory and greenhouse experiments then in the field.

Scientists do not shift genes around in humans to change or build a better person—yet. But it is becoming big business to engineer custom-made, safe, useful bio-controls, many of which will be used in certain landscape activities.

Combining genes

Some bacteria can exchange genes with each other through their cell walls when the same kind of bacteria are mixed closely together in soil. This means that different kinds of genes responsible for different kinds of insecticidal toxins can be exchanged or combined.

For example, strains of *Bacillus thuringiensis* (BT) found in different insects around the world can have any one of 20 different types of genes. These genes influence the production of many different insecticidal toxins, some with more or less insecticidal activity than others. By either having scientists move the genes from one strain of BT to another, or allowing the natural exchange of genes between strains of bacteria, different combinations of genes can be developed into a single new strain of bacteria (Fig. 1, route 1).

Chemical alteration

In addition to moving whole genes, the genes themselves can be changed by specific chemical actions. Changing genes provides the opportunity to change toxins regulated by genes. Therefore, regular variations of toxins can help avoid the threat of insects

and mites becoming resistant to bio-controls.

Moving genes from one kind of organism to another within the same type of organism (like within bacteria), or moving genes between different organisms (like from bacteria to plants) provides the opportunity for a new patent on the genetically-engineered organism. Examples of this would be a patented beneficial insect resistant to a pesticide for release with an insecticide treatment, or a herbicide-tolerant plant to survive herbicidal treatments in a landscape.

Cotton a forerunner

In 1988 and 1989, cotton plants were field-tested to demonstrate the successful incorporation of a bio-control



These grubs were exposed to milky spore disease, a widely used bio-control in the green industry today. The grub on the left displays early growth, while the one on the right shows advanced disease.

built into plants. These plants contained genes from bacteria that regulate the production of insecticidal toxins.

Incorporating bio-control genes from BT into bacteria that normally inhabit plant roots, stems and leaves has also been successful for controlling root-feeding caterpillars. This suggests that we can expect turfgrass varieties to be developed with built-in, custom-made bio-controls for insects that attack roots, as well as those that attack the crown and stems of grass.

Herbicide resistance can also be combined with insect bio-controls in plants.

Hard at work

Industry giants are continuing their genetic engineering programs to increase the tolerance of plants to herbicides. Monsanto Corporation works with the herbicide Roundup. Ecogen Corporation continues its development of Condor, a bio-control using BT for gypsy moth. The caterpillars of gypsy moth are targeted specifically

while other collectible Lepidoptera escape injury.

Ecogen, using natural exchange of genes between bacteria, claims to have increased the insecticidal activity of Condor for gypsy moth by 7½ times. This is rearranging and concentrating the activity of a bio-control.

In a second product, Foil, the company claims to have combined the genes for production of two different toxins—one for the Colorado potato beetle and another for the European corn borer—into a single strain of bacteria. This is broadening the bio-control's range of activity.

Transgenic plants

When genes are incorporated into plants so that the plants produce an insecticidal toxin originally produced by the bacteria, the plants are called transgenic plants (Fig. 1, route 2). (Of course, a company that creates such a plant can patent it.) With transgenic plants, the genes from the bacteria are incorporated into the plant's permanent chromosomes.

Most transgenic work has begun on plants which are most easily genetically engineered: petunias, tobacco and tomatoes. Now progress is being made with plants less receptive to new genes: corn, rice and other grasses, cotton and soybeans.

There is another unique way to add the ability of a plant to produce an insecticidal toxin similar to that produced by bacteria. Genes from the bacteria are incorporated into micro-organisms that are always present in the plant's fluid transportation or vascular system. These bacteria are called endophytic bacteria. The plants that result from the gene transfer have a circulating insecticidal activity that can be described as a "systemic pesticide."

What is safe?

If we can make micro-organisms yield genes to other bacteria or plants, can the resulting bacteria or plants be safe for the landscape or for humans? Yes.

The toxins from bacteria, particularly BT, have been used for 30 years. The genes in BT which are responsible for the toxins, have been around a long time. So the use of the BT genes in another bacteria or a plant should not make any difference.

There are federal regulations for the release of genetically-engineered organisms. North Carolina has recently developed a comprehensive set of regulations that could serve as a model for other states wanting to regulate the production and use of genetically-engineered organisms. **LM**

THE IMPORTANCE OF ESTIMATING STRATEGY

One of the nation's most well-respected landscape consultants tells how not to make a wrong bid.

by Charles Vander Kooi

In landscape contracting, having an estimating strategy is extremely important. The word "strategy" is used because that is just what it must be.

This business, in many respects, can resemble a war. As the owners and/or managers of a construction company, you are the Joint Chiefs of Staff. You make plans to initially approach the battle called "getting and doing" construction jobs. That is an estimating strategy. Then, as the battle proceeds and you see the effects of the owners' budgets and other contractors' bids, you make adjustments to your own battle plans.

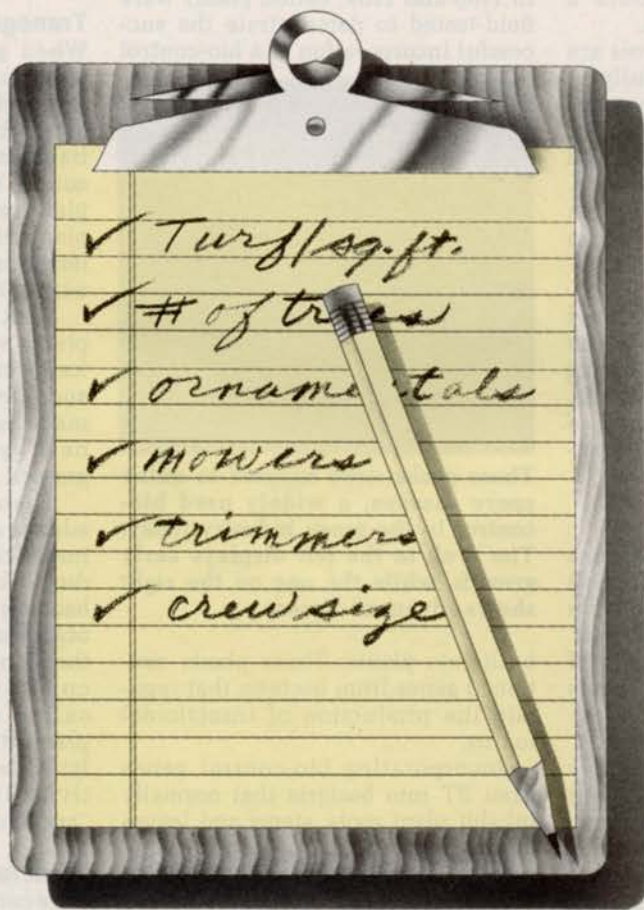
You can never establish an estimating strategy and then expect it to work for you year after year. There are constant changes in the dynamics of your company, not to mention the changing conditions of other contractors' companies and the economy. You can't expect one strategy to continue to work. The most successful companies re-think their strategy in a major way on a yearly basis, and they constantly monitor it after several bids.

Four principles

To help you understand the importance of an estimating strategy, I want to explain four things that a good strategy can do for your company.

First, it can give you confidence that every dollar spent from your checkbook is going to come back to you through the estimates and bids that you produce.

One of the most beneficial things about having an estimating strategy is



that no money falls through the cracks between what you pay out and what people pay your company. If this is not well thought-out from the beginning, certain costs to your company—such as those that do not occur on every job or those that are hard to pinpoint—will be the very items that you do not cover in your estimates and bids. A well thought-out strategy will allow you to carefully and completely go through each item in your checkbook and consider the best way to recover that cost on your estimates and bids.

The major consideration is whether to include the item as part of

job costs, labor burden or overhead. The decision should not be based solely on which is easiest for you (though that is a consideration), but also on putting it in a place from which it can be properly recovered.

Sometimes, mathematically it will not work to put certain costs in certain areas. There are contractors who lose tens of thousands of dollars every year because they have put things into a wrong category, or are combining certain things that should not be combined.

For example, estimating equipment costs has always been a great problem in construction. If it is considered as part of overhead, jobs that use very little equipment will be penalized and have to pay (through overhead) more than their fair share of your equipment costs. If you do what you should do and estimate your equipment costs on a job-by-job basis, then you must still put any equipment used for over-

head purposes (e.g. the owner's truck) into your overhead figures. If you don't figure your equipment costs as I have just mentioned, you will have money falling through the cracks.

Second, a good estimating strategy will compensate for the variables that exist from job to job.

One of the most important things that you must recognize is that no two jobs are exactly alike. Every job has different site conditions, different approaches and different costs, regardless of whether the materials are the same. Because of this fact, a good strategy will give you flexibility to compensate for the vari-

ables that exist from job to job. I have worked with contractors who have made money on one job at certain unit prices, but when they used those same money-making prices on another job they lost money. They knew things were a little different but did not know how to properly compensate for those differences. A good estimating strategy should give you the ability to compensate for those differences.

Third, a good estimating strategy will give you the ability to control your jobs after you get a contract. This business is no less than a two-punch business. Punch No.1 is putting out a good, competitive bid. Punch No.2 is getting the work done for the amount of money that you estimated in your bid. A good estimating strategy will give you the ability, right from the estimate, to make that estimate become reality in the field.

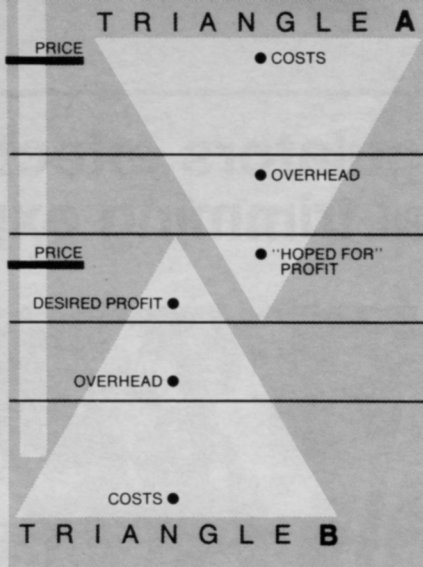
Fourth and finally, a good estimating strategy will give you the ability to make sound business/financial decisions. That's right! Your estimating strategy is one of the most important places to gather information for those types of decisions.

Our organization believes in setting up an overhead budget for a year in advance of the current year. We then set up overhead recovery percentages that will recover those costs based on how much work we anticipate we can successfully contract and complete with our workforce and the budgeted overhead. Those kinds of projections and plans give us a plumbline of where we think we are going. But things never work out exactly as we plan them. Therefore, a good estimating strategy will help us determine what changes in overhead costs, labor burden benefits or salary pay will need to be changed (and by how much) in order to remain profitable and competitive in our marketplace.

Wrong decisions

Many management decisions are based on emotions or on short-term situations. For instance, a company might want to hire additional people or pay benefits to its people or give them raises. Employees ask for these things and, based on feelings and without being able to explain why these things can or cannot be given, the request is granted or denied. Other times, a company might buy computers or other pieces of equipment without a system to measure whether those purchases are based on good, sound financial wisdom. A good strategy will give you that ability.

For example, let's say that you



want to hire another secretary. Everyone seems busy and it seems like you could use her services. That should not be the major reason to hire her, however. If you can't afford her, some of the things that she would do may either need to be done by existing staff or not done at all.

The greatest determining factor should be based on the following: you established an overhead budget that did not include her, and you are acquiring jobs based on that budget. The question is, will hiring her al-

low you to get enough additional work to cover the cost of her salary? Or, can you raise your prices enough so that by doing the same amount of work with an increased overhead charge you will still get your projected amount of work for the year? That is how an estimating strategy can help you make sound business/financial decisions.

Elsewhere on this page you will see two triangles. Triangle A is an inverted triangle and shows how some contractors go out and get jobs with whatever price has worked before. They then work to keep costs as low as possible, keep overhead as low as possible and hope that at the bottom there will be some profit left. The problem is that they have no idea just how low costs and overhead must be in order to make a profit. And if something changes in price or in their company, they have no idea what effect that will have on the bottom line.

Triangle B shows someone with an estimating strategy and system. The same triangle is turned over. They start with estimated costs and budget overhead and a reasonable profit. They then know what they must do in order to make a profit. **LM**

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Circle No. 112
on Reader
Inquiry Card

Plant growth regulators effective on trees to reduce annual trimming expenses

Recent tests have shown chemical plant growth regulators to be useful on trees.

Chemical manufacturers and utility industry consultants are enthusiastic that the regulators will greatly reduce annual trimming costs, which can total \$700 million.

The newest plant growth regulators are chemicals that inhibit the synthesis of gibberellin, the natural hormone responsible for plant growth, according to Paul Johnston, vice-president of Environmental Consultants, Inc. (ECI), of Southampton, Pa.

ECI began testing tree growth regulators in 1982 while developing methods to inject chemicals directly into trees under pressure. "If applied properly," says Johnston, "growth chemicals can reduce gibberellin production by as much as 85 percent. The chemicals don't totally shut off the production of gibberellin. (But) growth is dramatically reduced without harming the tree."

Mature trees must be trimmed every one to three years on average, depending on region, species and local growing conditions. The ideal growth regulator will slow plant growth and extend the time interval required to trim trees and shrubs without harming the plant.

New compound is working

Prunit is a new compound developed by Valent U.S.A. Corp. (formerly Chevron Chemical Company). It has shown "excellent growth control characteristics on 21 species of trees," according to Raymond R. Bruns, recently retired from Union Electric Co. of St. Louis. The tests were conducted in Missouri, Illinois and Iowa.

Bruns says field tests indicate Prunit can extend trimming intervals by two years or more in some tree varieties with "very little, if any, phytotoxicity problems."

In commercial applications, as described by Johnston, crews drill holes



The ideal growth regulator will slow plant growth and extend the time interval required to trim trees and shrubs without harming the plant, according to experts.

into tree trunks at selected spacings. Holes about $\frac{3}{16}$ inches in diameter are drilled from 2 to 2½ inches long into active sapwood at slightly downward angles. "The trick," says Johnston, "is

Tree species, location and weather conditions can affect the growth response of chemical growth control products.

to get the holes as close to the actively conducting xylem tissue as possible."

Pressurized injector probes then force the growth regulator into the tree.

Depending on the time of year, tree

species and growing conditions, Prunit can begin reducing growth in four weeks, Johnston says.

"Further field trials and evaluations are required to determine optimum injection site spacing rates, depth and angle of bore holes, timing of injection, and other factors for each tree species.

"If everything in the application process goes well," says Johnston, "you will get good results from trunk injection.

"In most tree species, we're typically seeing about a 50 percent reduction in branch and twig elongation the first year after treatment with Prunit. In some cases, growth control is well over 80 percent."

But the variables of tree species, location and weather conditions must be considered, for the effect they can have on growth response of Prunit and other chemical growth control products. Johnston says the trim cycle can be extended from two to five or more years.

Despite evidence that chemical growth regulators pose minimal health risks when used properly, Johnston says utilities have been slow in committing to a chemical growth control program.

Take note of the variables

"Utilities are beginning to compare chemical control costs with conventional mechanical trimming practices, says Johnston: "We're beginning to get enough data to project when trees should be treated, how long the growth response will last and how much trimming costs can be reduced."

Johnston estimates that a typical utility with a \$9 million, three-year trimming budget could possibly save as much as \$300,000 by using growth control chemicals to extend the trim cycle by one year.

If the cycle could be extended for three to five years, Johnston calculates a potential savings of \$840,000. **LM**

Better turf from improved breeding methods

Advances in the art of plant breeding and associated disciplines are meeting today's need for superior turfgrass cultivars, according to Dr. C. Reed Funk of Rutgers University.

Dr. Funk, addressing the Sixth International Turfgrass Research Conference in Tokyo this summer, said researchers today continue to strive for turfgrasses that exhibit increased pest resistance, improved stress tolerance and reduced maintenance requirements, and that adapt to problem areas.

Dr. Funk focused on three areas of turfgrass breeding that have received considerable attention recently: turf-type perennial ryegrass, tall fescue and *Acremonium* endophytes for improved insect resistance.

Perennial ryegrasses

Perennial ryegrass, an important cool-season grass for turf and forage use, will be used in Europe, the U.S., Great Britain, Japan, Australia, New Zealand and Canada to the tune of 30 million kilograms of seed in 1989, said Dr. Funk. It is best adapted to fertile soils and maritime climates having mild winters and cool, moist summers.

Perennial ryegrass in Great Britain has been used for forage for centuries, figuring prominently in pastures and more recently in high traffic athletic fields. Still, its lack of tolerance to temperature extremes limited its use in this country.

"A revolution in turf-type perennial ryegrass started in the United States in the mid-1960s when Howard Kaerwer and Robert Russell

developed and promoted NK-100," said Dr. Funk. This spawned Manhattan, Pennfine, Citation, Pennant and All*Star, he noted.

The early success of Manhattan and Pennfine led to a rapid expansion of turf-oriented ryegrass breeding programs in the U.S. and Europe, leading to turf with improved wear tolerance, stress tolerance, mowing quality, more efficient seed production and enhanced endophyte performance.

"Prospects for continued genetic improvement are great," said Dr. Funk, adding that greater cooperation among scientists around the globe and

advances in biotechnology are allowing researchers to make great strides in the development of good turf.



Advances in research are leading toward improved turf all around the world, Dr. C. Reed Funk has observed.

Tall fescue

Tall fescue, a tall, deep-rooted, long-lived perennial grass, is used extensively for pastures, conservation and turf, noted Funk. It has above average tolerance of acidic, alkaline, saline and poorly drained soils and is drought tolerant. It was introduced into the U.S. from Europe in the 1800s and early 1900s.

"The species was not widely used until after the development and release of Alta and Kentucky-31 in 1940 and 1943, respectively," said Dr. Funk.

A tall fescue breeding program be-

prove their stress and pest tolerance.

Endophytic fungi have been known to occur in the tissues of many grasses for more than 100 years, said Dr. Funk. And recent studies have revealed an "astounding diversity of fungal species existing within the tissues of many healthy plants."

Endophyte-enhanced turf

Many grazing animals perform poorly after consuming *Acremonium*-infected tall fescue and perennial ryegrass, prompting researchers to work toward eliminating the endophyte from those cultivars. However, improved insect resistance, persistence, and performance in many endophyte-containing plants make them ideal for turf and conservation, said Dr. Funk.

"The ability of endophytes to produce several biologically active toxins undoubtedly contributes to a broad spectrum of insect control," noted Dr. Funk. Instances of better summer survival, enhanced fall recovery and reduced weed invasion has been observed in perennial ryegrass, tall fescue, hard fescue, and chewing fescue turfs containing high percentages of endophyte-infected plants, he said.

"Enhanced resistance to harmful insects was undoubtedly responsible for some of this improved performance," notes Dr. Funk, adding, "improved stress tolerance may also have been a factor."

No adverse effects of endophytes in turf has been found, said Dr. Funk, and many types of endophytes exist in our major turfgrass species. Further collecting, studying and using these endophytes should make them even more useful in the future. Indeed, breeding programs have been initiated to transfer useful endophytes to elite cultivars and germplasm population of perennial ryegrass, hard fescue, tall fescue, chewing fescue and blue sheep fescue, he said.

"Utilizing desirable selected endophytes to enhance the persistence, performance, pest resistance, and stress tolerance of turfgrasses has considerable potential," said Dr. Funk.

—Will Perry

Better cooperation and advances in biotechnology is allowing researchers to make great strides in developing good turf.

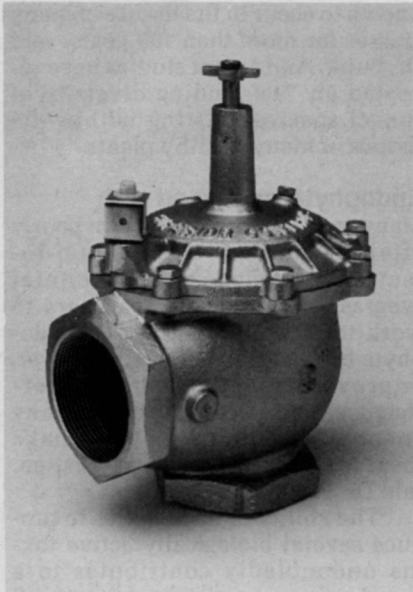
gan at Rutgers in 1961 led to the production of Rebel in 1980. That program was expanded in 1972 to incorporate cooperative programs throughout the country. "These programs led to the development and release of a number of useful turf-type cultivars, including Falcon, Olympic, Mustang, Arid, Rebel II and Houndog," said Dr. Funk.

Researchers at Pure-Seed Testing, Pickseed West, KWS and Rutgers University have developed cultivars with a significantly reduced mature plant height, called "dwarf-types." They exhibit good drought tolerance, said Dr. Funk, but work is needed to im-

PRODUCTS

This valve offers a different angle

The 950-A, a new, 3-inch angle valve has been added to Superior Control's 950 series of automatic brass valves. According to Superior, angle valves



have superior flow characteristics and are sought by irrigation designers, especially those outside the U.S.

A pressure-regulating version of the 3-inch angle valve, model 950-A DWPRS, is also available.

Circle No. 200 on Reader Inquiry Card

Improved rotary mower easy on turf, operator

Textron's Jacobsen Division has made some improvements in its Crew King mid-size rotary mowers. The Crew King now features a quick height of cut adjustment that can be done with-



out tools. New low profile caster struts give the operator a better view of the cutting path and are less likely to catch on low hanging branches and other obstructions.

The Crew King has a floating deck

design to reduce scalping. Smooth tread pneumatic casters have been added to virtually eliminate marking of soft or wet turf.

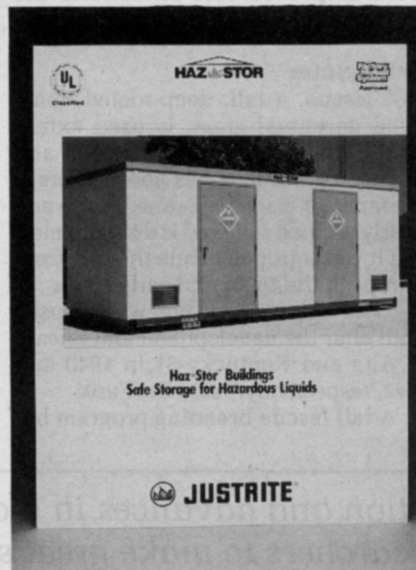
The polyethelene fuel tank is larger but lighter, for less weight and less refueling.

Circle No. 201 on Reader Inquiry Card

Safe liquid storage now with EPA-approved sheds

Haz-Stor hazardous liquid storage buildings comply with EPA regulations and model building codes. A new brochure is available which illustrates explosion relief panels, fire protection systems, explosion-proof lighting, secondary containment sump and other protective features.

Justrite Manufacturing says the Haz-Stor buildings are rugged and designed to provide effective and approved storage. They're delivered



pre-built to a plant site.

Circle No. 202 on Reader Inquiry Card

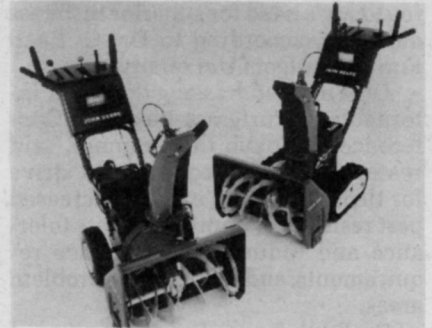
For winter, managers count on the magnificent seven

Track-drive snow blowers lead the new line of seven machines from John Deere. The Deere-Trax system is designed for greater traction and stability on sloped, gravel or icy surfaces. In hard-packed snow or icy conditions, the machines' weight can be shifted to the cutting edge and auger height can be lowered for maximum performance by raising the handlebars, then locking the variable weight transfer system to the desired position.

This feature is available on the 5-hp TRX24 and 8-hp TRX26. Other

models include the 5-hp TRS24 and 8-hp TRS26 wheel-drive units. The 8-hp TRS27 and 10-hp TRS32 provide greater snow removal capacity for deep snow areas.

All seven walk-behind machines



are powered by Tecumseh Snow King engines. All have an operator-presence safety system that allows one-hand control.

Circle No. 203 on Reader Inquiry Card

New forklift comes back from the drawing board

JCB Inc. of White Marsh, MD has introduced the improved model 930 rough terrain forklift. The body and chassis design now give operators new front fenders and steps for easier entry and exit. A new sloping hood design offers greater visibility to the rear of the unit. A new heavy duty fuel tank and hydraulic tank are easy to reach.

JCB has also made improvements in the operator compartment. Some new features include an improved instrument console, and hydraulic control levers angled toward the operator in easy reach. The door is wider, grab handles are bigger, and the Bostrum seat has been improved.

The improvements continue with the introduction of the 1000 Series Perkins, naturally aspirated engine, with key engine shut off and a new planetary drive axle. There are also two new mast features: a 37-degree hydraulic forward mast tilt for easier mast positioning from the operator's area when the mast is in the travel position; and outside mounted mast tilt cylinders for easier service access.



Circle No. 204 on Reader Inquiry Card

When good shots end up in bad lies on dollar spotted fairways, it can spot your course's reputation.

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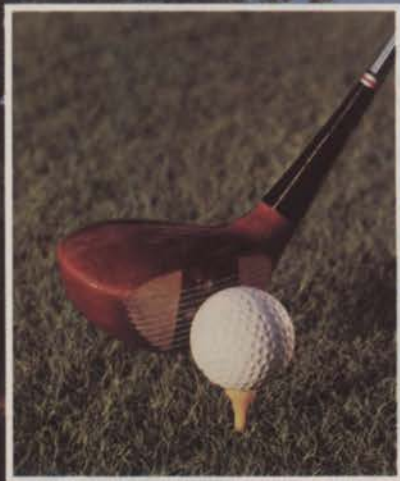
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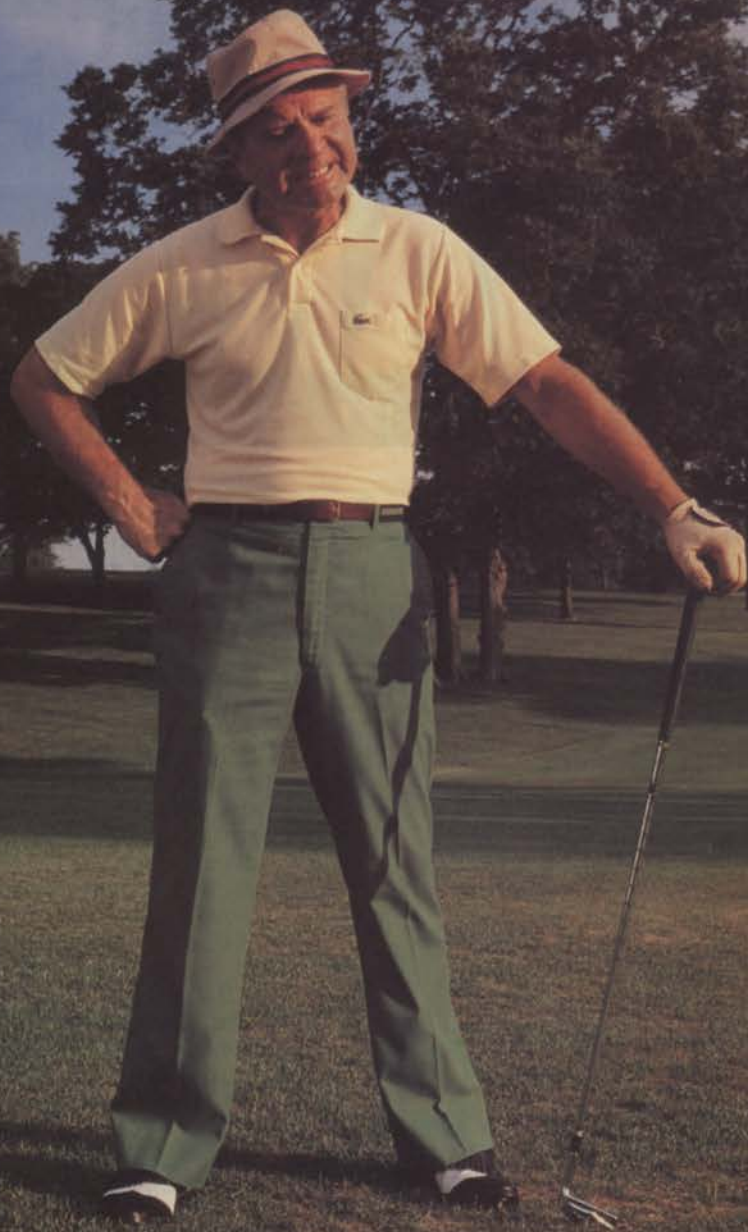
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**From
sweet spot**



...to dollar spot (!?!%!!)

Backpack blowers feature autostart and recoil

The RedMax Models EBA430 and EBA440 feature an auto-start and recoil system for smooth, easy operation.

According to RedMax, operators are able to start the blower by pushing a button rather than pulling a cord. The unit does not have to be removed for restart.

Equipped with 41.5 cc engines, the two models generate airflows of 600 cubic feet per minute. Each unit features a self-charging, battery-type autostarter



that is conveniently located for easy access.

Other features include a patented, force-ventilated backpad to keep the operator cool, rubber mounts that insulate the operator from vibration, and a low-

noise muffler.

A heavy-duty air cleaner is included.
Circle No. 205 on Reader Inquiry Card

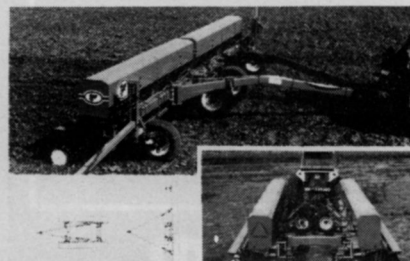
Folding drill for state-of-the-art, exact seeding

A new folding drill from The Tye Company of Lockney, Texas features a new clear-view, "wishbone" hitch. This enables the operator to see the drill during planting, and gives him a clear view of the road behind.

Tye says the hitch design eliminates the cumbersome center hitch used on most folding drills and planters.

The hydraulic system folds the drill quickly and easily to a 13.8 feet transport width which, according to Tye, is up to 2 feet narrower than most other models.

Ground clearance is 15 inches. Four lift-gauge wheels provide optimum flotation to assure positive depth control. Separate hydraulic lift and folding circuits require only two tractor remotes.



Circle No. 206 on Reader Inquiry Card

GENTLE GIANT

QUALITY ... DEDICATION

Quality and dedication. Sometimes these words are overused or misused. But not when referring to Big John, the tree spade Specialists. Big John builds and sells tree spades and that's all we do. We offer a full range of tree moving equipment with *built in quality through focused dedication*. We're confident you'll agree.

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BIG JOHN TREE TRANSPLANTER SALES

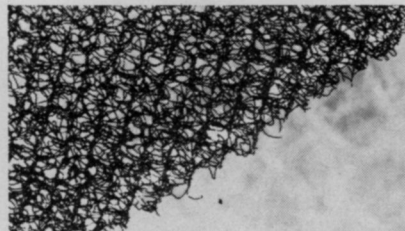
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Eliminate standing water, Improve turf drainage

Enkadrain H is a three-dimensional, 18-inch wide, compression resistant nylon mesh wrapped in a filter fabric that forms a high capacity drainage conduit.

Designed for standing water and wet areas on golf courses and athletic fields.

The one-piece prefabricated system



provides a consistent drainage and requires a narrow trench to install. The fabric filters out soil particles for effective drainage. After water passes through the fabric, it flows along the core.

Akzo Industrial Systems says Enkadrain H is less expensive and easier to install than traditional designs that use sand, aggregate or gravel for drainage.

Circle No. 207 on Reader Inquiry Card

CLASSIFIEDS

RATES: \$1.20 per word (minimum charge, \$35). Bold face words or words in all capital letters charged at \$1.45 per word. Boxed or display ads: \$100 per column inch-1x (one inch minimum); \$95-3x; \$90-6x; \$85-9x; \$80-12x. (Frequencies based on a calendar year). Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add \$15 to total cost of ad. Send ad copy with payment to Dawn Nilsen, LANDSCAPE MANAGEMENT, 1 East First Street, Duluth, MN 55802 or call 218-723-9505. Fax Number 218-723-9615.

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CONNECTICUT AND NORTHEAST: Selling or buying a green industry business? I'm a specialist in your field with over ten years experience and can locate buyers and sellers. Phil Nilsson (203)621-6199. 1/90

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LANDSCAPE DESIGN/SALES. LANDSCAPE MAINTENANCE: Leading Kansas City Landscape Company has immediate openings for talented, experienced, and aggressive persons in residential/light commercial design and sales, and in management of residential landscape maintenance. A.S. or B.S. in Horticulture or related fields preferred. Experience, organizational skills and a customer service attitude a plus. Competitive compensation and benefits package. Send a resume with experience and salary history to: **HERMES COMPANY, INC., P.O. Box 14336, Lenexa, KS 66215. (913)888-2400.** 12/89

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MANAGER/LAWN CARE DIVISION: The Panoramic Corp. is looking for an Agronomist/Horticulturist to develop and manage our lawn care division. The right person will have a thorough knowledge of landscape horticulture as it applies to Midwest (Chicago) region. If you are looking for challenge and growth and have the technical expertise and experience to back it up, we want to talk with you. A degree in horticulture, agronomics is helpful. Send resume and salary history to: Al Bofinger, 54 N. Eisenhower Lane, Lombard, IL 60148. 12/89

AREA MANAGER: Large East Coast commercial landscape and maintenance contractor needs well qualified Area Manager. Landscape-related degree preferred with 5 yrs. experience a must. Supervisory experience required. This is your opportunity to join an innovative and growing team. Send resume or call Ruppert Landscape Co., Inc., 17701 New Hampshire Ave., Ashton, MD 20861, Attn: Mr. Otero (301)774-0400. 12/89

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HORTICULTURE

FOREMAN / W Flower Garden Division

Longwood Gardens, Inc., a world renowned horticultural display garden, has an opening for an experienced person to supervise the flower garden division.

Candidates should have a BS degree in Horticulture with a concentration of course work in landscape design or a bachelor's degree in Landscape Architecture and at least 3 years of experience in outdoor floral display, design, installation and maintenance. Good planning, communications, design, scheduling, coordination and supervisory skills are required.

We offer an excellent starting salary and a fringe benefits package. To explore this outstanding opportunity, please mail your resume to: **Mr. Kiran Taunk, Business Division Manager, Longwood Gardens, Inc., P.O. Box 501, Kennett Square, PA 19348. EOE, M/F.**

*Longwood
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Well-established New Jersey Company is seeking the right individual to manage a division of our company. You must be well-organized, sales minded and have a pleasant personality. Minimum two year horticultural degree coupled with at least 3 years of managerial experience required. If you have the drive and ambition to join a young, aggressive management team, send your resume in confidence to LM box 473.

EOE M/F

LANDSCAPE MAINTENANCE - SUPERVISOR: Opportunity for experienced, highly motivated individual to join an established, award winning landscape company in the San Francisco Bay Area. Send resume in confidence to: Wayne Richards, Cagwin & Dorward, 8001 Binford Road, Novato, CA 94948. 12/89

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LANDSCAPE MAINTENANCE SALES

KT Enterprises, Inc., a commercial Landscape Management firm serving the Washington DC Metropolitan area, is looking for a salesperson with a three to five year proven track record in the commercial landscaping market. We offer a competitive salary and incentives plus major medical/dental. Please send resume to, and/or call our Personnel Director, Martha Sharlot, if you are interested.

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"The Landscaping Management Professionals"
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Springfield, VA 22151
703-764-1870

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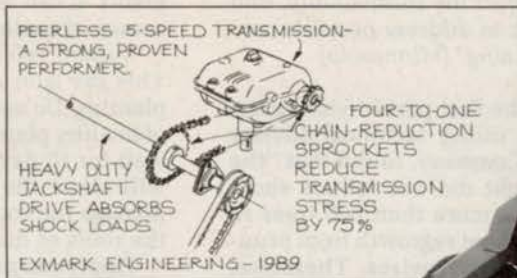
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PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D.

Line clearance in drought

Problem: *Should electric utilities reduce or maintain their current line clearance pruning programs during an extended drought period? The background for this involves utilities maintaining various distances between the energized wires and the encroaching trees. When trees become stressed, will continued pruning around energized wires affect the survivability, and what is the best approach to address people's concerns with this kind of pruning? (Minnesota)*

Solution: The answer to the first part of your question is yes. Greg Mazur, utility technical advisor from Davey Tree Expert Company, found that "the excessive heat and drought did not reduce shoot elongation," after studying more than 600 trees in northwest Wisconsin and shoot regrowth from pruning cuts towards the energized wires. Therefore, continue to prune the trees on your regular line clearing cycle.

As for the second part of your question, as far as we know there is no documented research data available for comments. However, the following comments might be helpful in explaining the situation to your concerned people. Drought has been, and perhaps will be in the future, occurring every now and then in many parts of our world. Many utility companies are conducting line clearing work throughout the growing season, year after year. But no severe effect attributable to pruning in previous years has been documented to date.

In all likelihood, drought has occurred many times in the past to pruned street trees without significant changes in survivability.

Our experience has been that minimum sunscald and/or dieback can occur in response to pruning but not widespread decline or mortality of pruned trees. We have seen a large number of established pruned or unpruned street trees decline. The problem was associated with abiotic stress factors, insect and/or disease activity. Among these, borer, canker and wilt diseases are considered to be the most destructive disorders. Often this type of declining syndrome can be coinciding with the pruning activity and then it becomes a concern to the public.

Pruning of plants like oaks and elms which are susceptible to wilt disease should be avoided during the insect vector flight period to minimize the disease spread. However, if these trees have to be pruned, application of a wound dressing compound might be beneficial.

Fumigant use on diseased trees

Problem: *How good is Vapam soil fumigant in managing the root transmission of Dutch elm disease and oak wilt disease? What is the best way to apply Vapam, and how near to the healthy tree can it be applied? (Michigan)*

Solution: Vapam soil fumigant can prevent root graft transmission of Dutch elm disease and oak wilt disease if it is done properly and the product performs

well. For best results, read and follow label specifications. Use only when ground temperature at 3 inches is above 60°F and less than 90°F. The soil is usually warm enough when the spring flowering shrubs such as forsythia are blooming.

Be careful when using Vapam around desirable plants. It can severely injure or kill any plants that it comes in contact with.

Vapam releases a gaseous fumigant in the soil. This gas later dissipates, leaving the soil ready for planting. Do not inject it within 10 feet of the dripline of healthy plants. After injecting Vapam, you should wait for 10 days to remove the diseased trees. This will allow the fumigant to spread effectively and manage the root graft transmission. Vapam will kill the roots of diseased trees as well as healthy trees.

Apply one part Vapam into 15 parts water (1 oz. per 1 pint water, or 8 oz. Vapam per 1 gallon water). One gallon of Vapam mixture will treat 64 ft. of line or 128 holes. Where feasible, a chemical barrier of Vapam should be placed between a newly-diseased and a healthy tree if they are growing within 40 feet of each other. With an electric drill and auger, or crowbar, make holes six inches apart and approximately 18 inches deep along a line midway between these trees. Pour in 1 pint of the Vapam mixture per hole and immediately replace the soil and tamp the opening closed. For convenience, marked ropes can be used to space the recommended number of holes in a desired line.

The turfgrass in the treated area will also be killed. These areas may require seeding only after the fumigant odor is gone. Tilling or cultivating the Vapam treated area will help speed up this process. Radish seeds can be planted to detect any residual effect of Vapam, 10 to 15 days after application. If plants are normal, the treated area is safe to plant a lawn.

Make sure to wear safety protective equipment and thoroughly clean all tools after treatment to avoid any injury from future use.



Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Management, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

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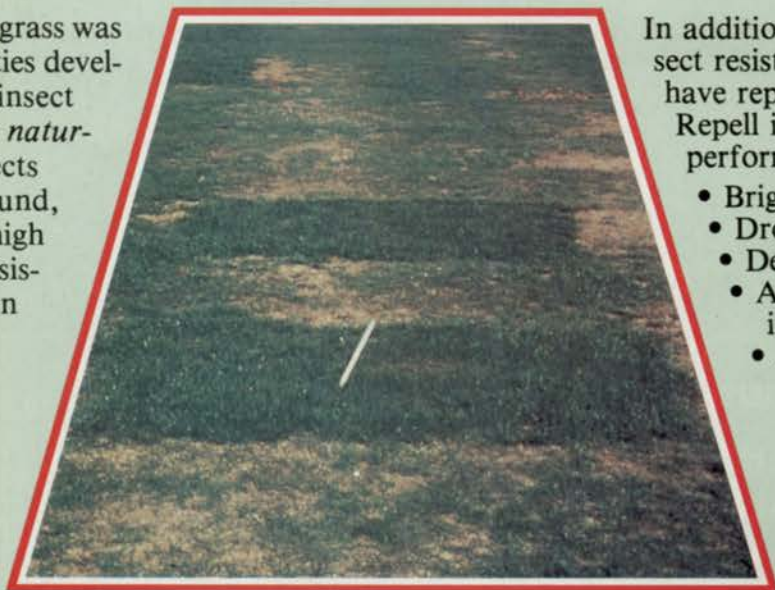
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