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INSIDE



ON THE COVER: THE ARCO OLYMPIC TRAINING CENTER, CHULA VISTA, CALIF., WON THE CLCA 1996 'BEN SLADE AWARD' FOR BEST MAINTAINED PROJECT. MANAGED BY LANDTRENDS, SAN DIEGO.

PHOTO BY IAN CUMMINGS

COLUMNS

6 OPENING SHOTS

12 ASK THE EXPERT

DEPARTMENTS

16 HOT TOPICS

47 INFO CENTER

47 SUPPLIERS CORNER

50 PRODUCTS

54 JOBTALK

58 CLASSIFIED

61 AD INDEX

62 GRAB BAG

THE VOICE OF THE GREEN INDUSTRY

LANDSCAPE management

FEATURES

24 COVER STORY: WHO'S MINDING YOUR SHOP?

Finally, somebody is doing something about the shortage of skilled turf/landscape care equipment mechanics and managers.

RON HALL

28 LM REPORTS: WEATHER MONITORS

New weather-watching systems help turfgrass managers keep a long-distance eye on the sky.

31 COOL-SEASON DISEASE CONTROL

Will anthracnose be a problem in the Northeast as it was last year? It's hard to predict, as different weather patterns bring different challenges.

GAIL SCHUMANN,
PH.D.

38 WARM-SEASON DISEASE CONTROL

Early recognition and proper identification are essential for successful disease management.

JANELL STEVENS-
JOHNK, PH.D.



44 RIGHT TREE...RIGHT PLACE

Trees improve our quality of life, but place them properly.

H.S. STEVENS

OS1 OVERSEEDING: KEEPING IT GREEN

Athletic field or golf course play does not stop when bermudagrass goes dormant, so overseeding is needed to protect the dormant turf. Here's how to do it right.

BILL KNOOP, PH.D.

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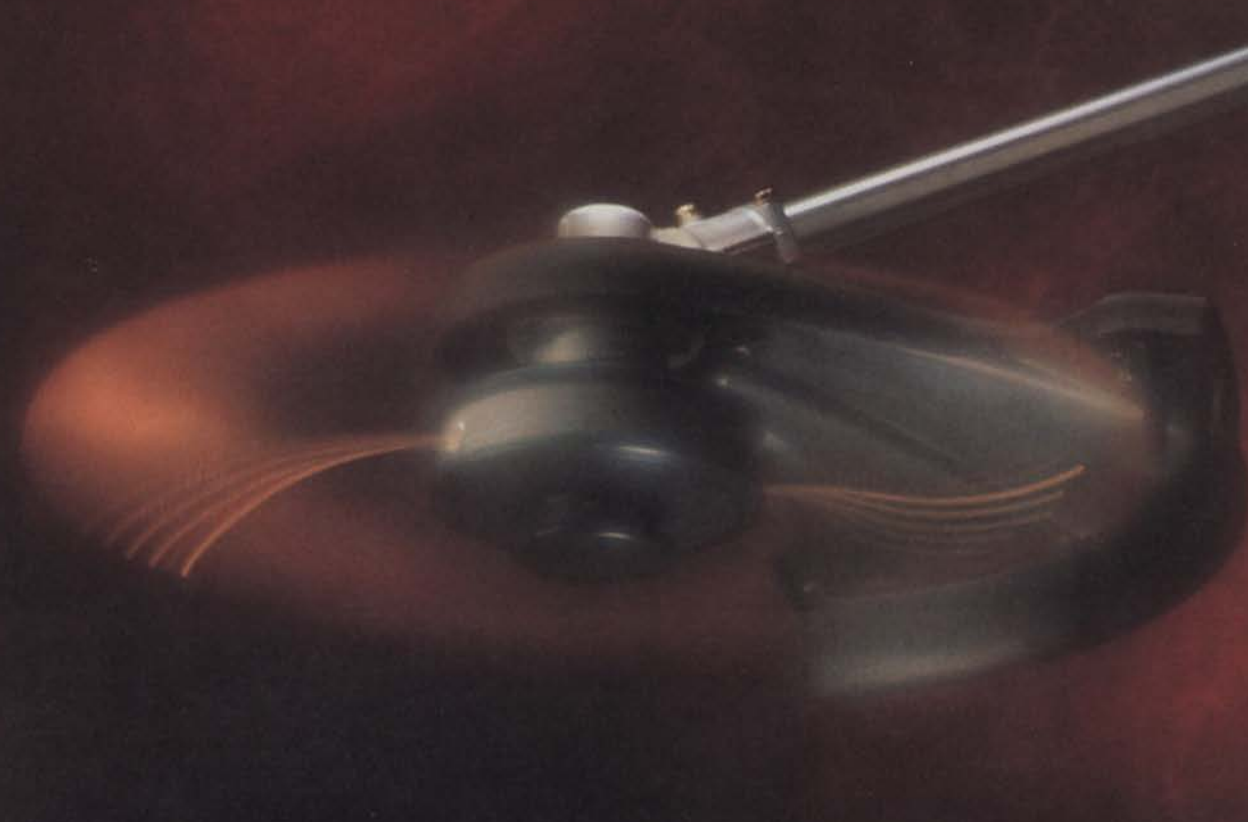
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Floods are the ultimate 'cause and effect' story



Terry McIver

TERRY McIVER
Editor-in-Chief

Any list of the wonders of this created world must certainly include the unpredictable and downright unstoppable forces of nature.

The late snowfall and subsequent flooding in North Dakota and Minnesota are this year's examples, along with the southern Ohio deluge of early March.

The water rises to reclaim the land for a time, and then recedes, leaving a clean-up job that takes weeks.

I viewed the aftermath of the St. Louis floods

a few years back, and thought that was the worst it could ever get. Lawn care pro John Loyet drove me around an industrial park left ruined by floodwater. Private jets parked at a nearby muni airport were lifted, carried along by the water, and then dropped. How much more ruinous this latest flooding is in comparison!

It's easy to talk about the floods as I sit high and dry in northeast Ohio. Here, floods are just a news story that happens

somewhere else. Spring's been chilly here, but the residents of Grand Forks, N.D., would gladly barter what happened to their town in April for a merely 'chilly' spring.

How bad was it? The Red River crested at 54 feet, in what is being called a 500-year flood, which means it was a flood so devastating that it doesn't occur but once in 500-years.

The school year in Grand Forks has ended; the town was evacuated; and flood watchers say a full assessment of damage won't be possible till the end of this month.

City residents blamed forecasters for under-estimating the height at which the river would crest. The difference between the prediction and what actually happened was only a matter of five feet, which some said meant little when you're

facing the power of a 500-year flood. Remember, we can all talk about the weather, but none of us can ever do anything about it.

I managed to get through to a few green industry professionals, to talk about the recovery.

► Steve Snortum, owner of Snortum Nursery, Granite Falls, Minn., said the flooding in that town was the worst he had seen in a mere 28 years. His company is located in a dry area, but he managed to take some pictures of water that had risen 18 feet and covered a walkway of a bridge. Sandbags were piled 10 feet high on a neighborhood street.

► Woody Woodson, club professional and manager at Montevideo Country Club in Montevideo, Minn., was looking at four holes under about four feet of water on April 24, but said he was confident that the Kentucky bluegrass turf would survive. The eight-man crew at MCC was rebuilding a dike when I called.

"It'll be a challenge, but that's life," said Woodson, who said he'd never seen anything like it in his 27 years in the business. Pumps at MCC were working at a rate of 100,000 gallons an hour, sending water back to the Minnesota River.

► George Sholy of S&S Landscaping, Fargo, N.D. and his crews were helping pile sandbags in Grand Forks prior to the final cresting. Fargo was ultimately spared the full force of the flood.

Sholy's caring attitude and that of others like him no doubt went a long way in helping those who were about to lose pieces of their lives to the force of an uncaring river. **LM**

Don't forget: Tell us how you got into the green industry, and where you are now, for LM's 35th Anniversary Issue. See our April issue, page 54 for our "Talkback" reader response page, or write us a letter. Send your green industry history to:

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EDITORIAL STAFF

Terry McIver **Editor-in-Chief** (216) 891-2709
E-mail: tmciver@advanstar.com
Ron Hall **Managing Editor** (216) 891-2636
E-mail: rhall@advanstar.com
Dr. Bill Knoop **Technical Editor** (903) 860-2410
E-mail: knoop@ntuvern.com
Vernon Henry **Group Editor** (216) 826-2829
Lisa Lehman **Art Director** (216) 891-2785
Lisa Bodnar **Graphic Designer** (216) 891-3101

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Sean Carr **Regional Manager**
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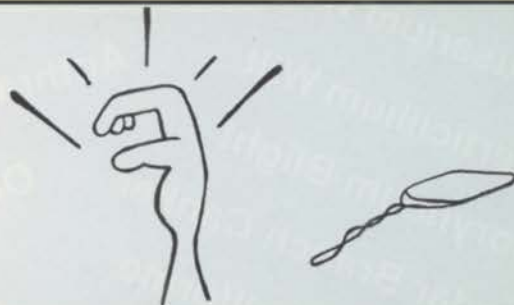
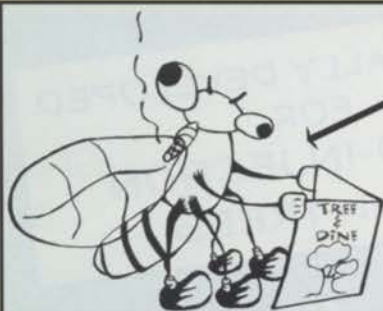
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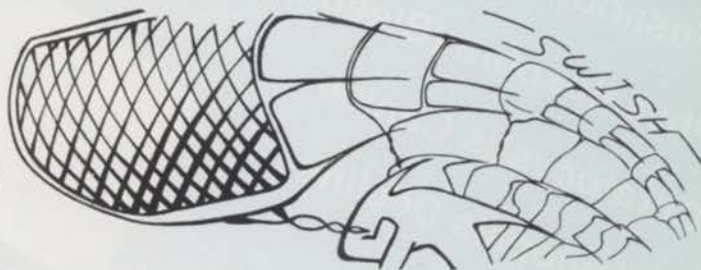
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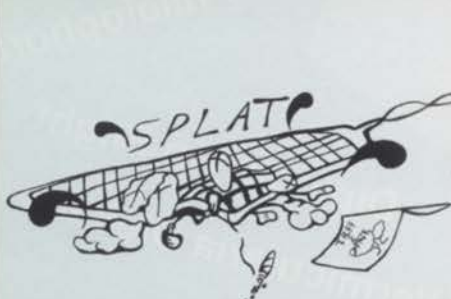
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Gypsum for calcium

I am somewhat familiar with gypsum, and its use as a deicing material. A local lawn care company is applying the gypsum over the entire lawn. Any idea why?

—CANADA

Gypsum—or calcium sulfate—is recommended when large amounts of calcium are desired without an increase in pH. Although gypsum releases a significant amount of calcium, the pH of the soil solution may actually be reduced slightly because of the release of sulfate.

The most common use of gypsum in the U.S. is the treatment of sodic soils which often result from contamination with salt water or deicing salts containing sodium. Sodium in low concentrations is toxic to plants and sodium ions disperse the mineral colloids, which then develop a tight, impervious soil structure. Calcium from gypsum replaces sodium on the exchange complex allowing excess sodium to be leached from the soil.

This replacement serves to flocculate the soil and increase its permeability.

The soil structuring ability of gypsum on sodic soils has led to the belief that gypsum will improve the structure of soils in general. However, gypsum has this effect only in soils deficient in calcium, particularly those with excess sodium.

Gypsum is recommended to minimize injury from deicing salt applications near turfgrass, shrubs and trees. If you are considering this, aerify the lawn

and then apply gypsum. This should help move the product deep down into the aeration holes and provide better results. Also, consider pre- and post-watering the areas to improve the performance.

Trees and flooding: a preview

Our June issue features an article by Drs. Rao, Beth Buchanan and C.J. Luley on the effects of flooding on landscape trees. For those of you currently experiencing long periods of standing water, we're including a preview of the article's main points. —ed.

Trees may be uprooted by water current, blown over after the soil is saturated, or be chronically weakened by the event.

Eventually, they will be predisposed to secondary factors such as insects and disease. Factors that will determine the severity of the flood damage include:

Season: flooding is less detrimental to woody plants during the dormant season than during the growing season. If flood waters recede before the growing season, the water might actually stimulate growth.

Duration of standing water: Most trees can withstand only one to four months of continuous inundation of the root crown.

Water level, movement and temperature: Tree mortality is higher when exposed to standing water as compared to saturated soils. Flowing water usually has higher oxygen content. Cold water holds more dis-

solved oxygen.

Sedimentation and scouring: If silt and sand deposits of three inches or more cover the tree roots, the roots may be deprived of oxygen. Trees that have evolved on flood plains like cottonwood, bald cypress, tupelo, and black willow can withstand moderate siltation.

Tree species and tree age: Very tolerant species are able to survive deep, prolonged flooding for more than one year. They include bald cypress, black willow, boxelder, and eastern cottonwood. Tolerant species are able to survive deep flooding for one growing season.

Somewhat tolerant trees survive flooding or saturated soils for 30 consecutive days during the growing season.

The somewhat tolerant species include American elm, American holly, honey locust, red elm, and water oak.

Intolerant species can't tolerate more than a few days of flooding during the growing season without significant mortality. They include, bitternut hickory, black cherry, blackjack oak, black walnut, and flowering dogwood. **LM**

Correction: the insect control article on page 28 of our April issue listed *Conserve SC*, a product soon to be available from DowElanco, as being used at a rate of .08 lb. to 4 lb. of active ingredient per acre. The correct rate is .08 to .4 lb. ai/acre. The product is expected to be available by mid-1997 for use against sod webworms, black cutworms and armyworms. —ed.



BALAKRISHNA RAO

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Spring snows hit Northeast, floods drown Midwest

by TERRY MCIVER / Editor-in-chief

The temperature in Cleveland peaked at 74 degrees on Sunday, April 6. In North Dakota on that same day, snow drifts reached as high as 20 feet.

On April 18, North Dakota's Red River had crested at 54 feet, and Grand Forks residents didn't know when, or if, they'd ever make it back inside their homes.

Weather was the lead story in the minds of many green industry professionals in the east, northeast and midwest, as un-spring-like conditions prevailed.

Scott Buitta of American Lawn Care, Norwell, Mass., said the two feet of snow didn't interfere with his scheduling, because he expected it to happen.

"Some of the commercial companies had already been out there applying product," says Buitta. "It kind of shows you their timing. They've been out there a month. I was expecting something to happen. Last year we had eight inches the same week."

The plows go back on

"We were all set for spring," said Michael Byrne of Byrne Brothers Landscaping, Inc., Essex, Mass. "We had taken off all the plow stakes on properties, and were scheduled to go to work on April 2."

Instead, the plows went back on, and Byrne's com-

pany had to handle a 32-inch snowfall.

"We had about 40 guys out shoveling," said Byrne, who teamed with one or two other companies to meet each others snow removal equipment needs, which was better than the municipal crews were able to do.

City crews in Boston were sharply criticized by residents for inept snow removal. The National Guard was called in to help remove fallen trees and utility poles, and residents were shoveling the streets to get to their cars.

"We thought we had enough plows," said Boston Mayor Thomas Menino.

Turf disease pressure?

As far as disease pressure on New England turf, Gail Schumann, plant pathologist at the University of Massachusetts, says disease will likely be minimal since the turf was briefly covered.

"I've had a couple samples come in where the frost seems to be affecting some of the *poa annua*, but it isn't killing the plant, because the crowns are alive. It will probably come back when we get a stretch of warm weather. But with the weather, none of us should be doing any predicting," says Schumann.

"Many in the Northeast are telling me that the bent-



AP/WIDE WORLD PHOTOS

grass came through winter well. Even though it was a fairly open winter, it wasn't extremely cold."

Town evacuated

North Dakota's troubles began with blizzards and super cold temperatures. Subsequent flooding hit parts of the Midwest on April 6 and continued for days. Fargo, N.D. was virtually shut down, as were state highways, due to blizzard conditions, and residents of Montevideo, Minn. were looking at a swollen Minnesota River ready to overflow its banks in chilly 40 mph winds.

Grand Forks, N.D., was evacuated during the third week in April.

"For the last couple weeks we've had our people out helping other people sand-bag," said George Sholy, of S&S Landscaping, Fargo, N.D. Sholy said many of his clients' properties were under water, but the worst damage

Play snowball! A grounds worker pushes a snow blower across the infield of Boston's Fenway Park on April 1, 10 days before the home opener.

was in Grand Forks, where the Red River crested at 54 feet.

Steve Snortum, owner of Snortum Nursery, Granite Falls, Minn., called the floods there "the worse since 1969.

"Bridges have washed out, the Salvation Army's here, and it's snowing so it's kind of bleak," said Snortum.

Thinking positive

On the upside, Snortum predicted future business activity from lawn renovations, even though the profit margin on the service is low.

Also, the floods will obviously delay landscape installation projects.

"Renovations will be needed due to the mud; the

cont. on page 18



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> HOT TOPICS

'Career Days' hits big numbers in Texas

DALLAS— Some students climbed trees. Others covered a parking lot with an irrigation grid. A few dozen tried their best to identify weeds and turf, while some made sales presentations to the pros.

It was all part of The Associated Landscape Contractors of America's 21st Annual Student Career Days competition, held at Richland College March 20-23.

A reported 550 students from 39 schools came in for the event, which each year tests the landscape and horticulture smarts of students enrolled in two- or four-year colleges across the country.

"This is definitely going to go down as one of the best Student Career Days we have ever had," said Career Days Chairman, Drew St. John, II, CLP, of St. John and

to a strong economy, a good central location and an enhanced awareness of ALCA and its curriculum programs across the country.

Students competed in 20 events that tested school teams on skills and ability to implement sound landscaping practices and principles, including design, sales skills and plant identification.

A look at the 'real world'

Mike McPherson of the Oregon Landscape Contractors Association helped judge the irrigation installation event.

"This gives you a chance to see how technical it can be," said McPherson. "It gives the students a good idea of what they're up against."

"Most of [the irrigation contestants] have a lot to learn. But that's what we expected," said another judge. "You can tell the people who have worked in the field from the ones who have had only book learning."

Mike Seneff, president of Plant Interscapes, attended the Sales Presentation competition, in which students were expected to "sell" a contract to a client, played by an industry professional.

"Most of the students took the presentations very seriously in terms

cont. on page 21

SNOW cont. from page 16

National Guard trucks driving across people's lawns; front-end loaders; and sand bag debris," said Snortum, whose business was not flooded.

"We normally begin to install landscapes about the second week in April. Right now we don't have a cash flow due to the blizzard and flooding. The one advantage to all this is that we have a great opportunity to get our garden store organized and the plants potted."

PLCAA director job a hot item

Jeffersonville, Ind.—Lots of people want to be executive director of PLCAA, headquartered in Marietta, Ga. Within several weeks of advertising for a new executive director, the PLCAA search committee had received 178 responses.

"Frankly, I was surprised at the number," says Larry Messina, chairman of the search committee and PLCAA president-elect. Messina says the committee is narrowing its list of candidates, and hopes to present its recommendations at the PLCAA board meeting May 16-17.

The search committee advertised the opening in the *Washington Post*, *Atlanta Journal-Constitution* and *Chicago Tribune* newspapers in addition to several trade magazines directed at association officers.

"We have some excellent people who have applied for the position. We feel confident that when we get down to our final decision we will have a very, very qualified person," says Messina.

Ann McClure, who had served as PLCAA executive director for six years, left the job in April to manage the International Gas Turbine Institute.

Green industry publisher dies at 76

CLEVELAND— James A. Nelson, who began *Weeds Trees & Turf* magazine—which was later renamed *LANDSCAPE MANAGEMENT*—died April 16 in a nursing facility in Lakewood, Ohio. Cause of death was a brain tumor.

Nelson began *Weeds Trees & Turf* and *Pest Control* magazines as part of his Trade Magazines, Inc. company, which also published books. Both magazines are now published by Advanstar Communications, headquartered in Cleveland.

[CLIPPINGS]



Ron, left, and Chris Kujawa of Kujawa Enterprises, were looking to hire 'just one good person' at Career Days. There were plenty of candidates to choose from.

Associates, Hattiesburg, Miss.

"We keep exceeding our expectations and goals. We had a 35 percent increase in participation over last year," reported St. John, who attributed the Career Days success

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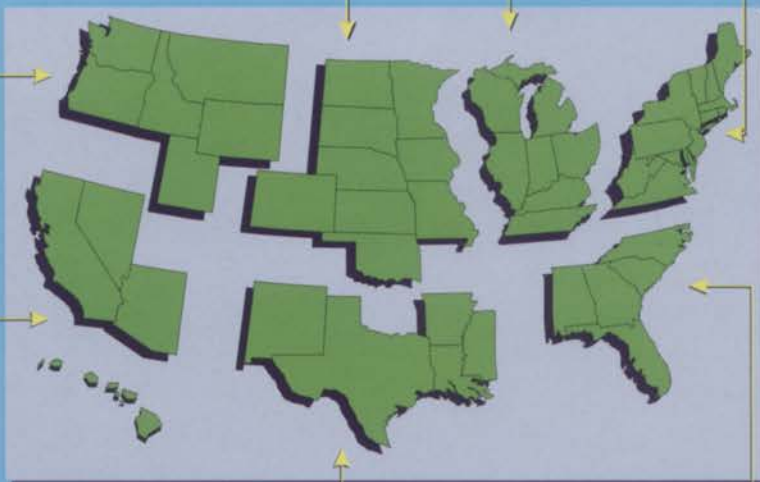


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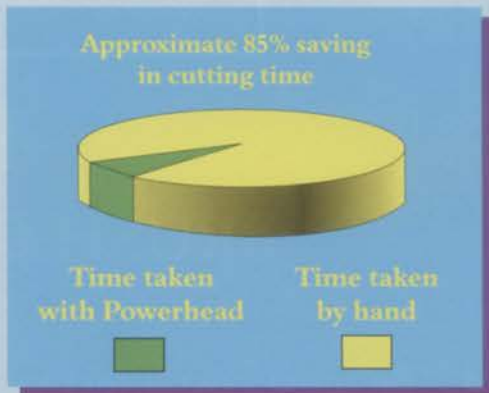
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Student Career Days contestants competed in 20 events, including a wood construction competition on an outdoor stage.

of their attire and politeness, and they seemed pretty well-prepared with the numbers," said Seneff.

"Those that seemed to do better were the ones who identified with the customer's needs and really gave the feeling that they were a partner with the customer."



Landscape/horticulture students met with prospective employers during ALCA Student Career Days.

Alexander Warren, horticulture instructor at Northwest College, Houston, said Career Days helps teachers learn what employers want from employees.

"What do we, as instructors, need to know to put people into the industry? That's what we have to be concerned about," said Warren.

Cal Poly San Luis Obispo took first place in the overall standings; Virginia Tech came in second; Colorado State University was third.

Interviews with companies

Prior to the competition, students looking for work in the green industry met with company representatives in a trade show setting.

Seventy-six landscape companies and industry suppliers donated time, money and materials to the four-day event.

During welcoming remarks, Chris Kujawa, KEI Enterprises, Inc., Kudahy, Wisc., announced the formation of the ALCA Educational Foundation, Inc.

"It's a 100 percent scholarship granting organization," explained Kujawa. "We've got more than \$100,000 in the bank, we've got some major donors, and some 5000-plus anonymous donors lining up left and right. The Toro Corporation has sponsored our first \$1000 scholarship, with a donation of \$10,000."

Kujawa said the increased amount in scholarship funding will enable ALCA to award larger grants to individual students.

—Terry McIver

'Ambassadors' tell turf story

The GCSAA/PLCAA/RISE "Ambassador" speakers program is in full swing, and as of April, 23 presentations on the benefits of turfgrass had been made to students and civic groups.

Jon Cundiff, president of Turfs Up Lawn Service, Lee's Summit, Mo., made a presentation recently to 2nd graders at Pleasant Lea Elementary School.

"We covered insects that were problems in our industry; the benefits of turf; why it's important to maintain turf; and why it's important to keep trees and shrubs healthy," said Cundiff.

Relate to audience

Tom Gray, CGCS, Franklin Hills Country Club, Bloomfield Hills, Mich., has used slide presentations during his talks to Lions and Rotary Clubs.

"I start with a slide of Augusta National. That grades the industry, because everybody tries to compete with Augusta," said Gray.

Gray gets questions on spikeless golf shoes, to moles, to fertilizer timing.

None of the audience members have expressed any hostility to chemicals. In fact, Gray said, he's had to emphasize to some overzealous diazinon users the need to use chemicals properly.

Steve Neuliep, superintendent at The Dunes Club, New Buffalo, Mich., has made presentations to club management and the Merrillville, Ind., Rotary Club.

"Things work out much better when you 'bring it home,' and use analogies your audience is familiar with," said Neuliep.

"You can sit up there and spout out scientific facts, but if you don't use analogies, and things people are familiar with, you leave them flabbergasted with data."

The "Ambassador" program is led by Deb Rudin of the D.A. Rudin Co., Peoria, Ill. and program manager Elizabeth Lawder of RISE, Washington, D.C.

—Terry McIver

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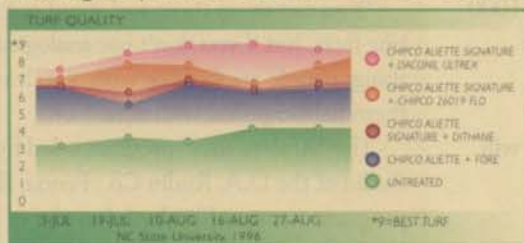
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
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Circle No. 139 on Reader Inquiry Card

Who's minding your shop?

Finally, somebody is doing something about the growing shortage of skilled turf/grounds care equipment mechanics and managers.

By RON HALL/ Managing Editor

If you've got a good mechanic in your golf course or landscape maintenance facility—keep him happy. If you've got a good mechanic that's also a good manager—keep him *really* happy.

The supply of good grounds care equipment mechanics is far short of demand, and the shortage of mechanics who can also manage a turf or grounds care maintenance facility is even greater. In fact, the word "mechanic" hardly seems an adequate title for these valuable employees anymore.

Turf equipment technician or manager, depending on the level of responsibility, are more accurate titles.

Last year 23 people graduated from the one-year Turf Equipment Managers program in Lake City Community College, Lake City, FL. Upon receiving their certificates they faced the welcome prospect of having 80 different employers seeking their services.

For good reason, too.

"Turf equipment has gotten so sophisticated with hydraulics, electronics and computers that the industry is screaming for skilled equipment technicians," says John Piersol, Chairman Golf Course Operations/Landscape Technology at Lake City CC.

Not just fix-it specialists

In fact, mechanical repair is not the number one function of a grounds care equipment mechanic anymore. Preventive

maintenance is. An equipment technician, at least a good one, maintains mowers and other grounds care equipment to minimize repairs and downtime. If the technician is spending most of his time rebuilding engines, says Piersol, he's probably not doing a good enough job on the PM side.

"The industry, and especially the golf industry, needs people who can design a shop, organize and set up a shop, keep a parts room, use a computer, establish a PM (preventive maintenance) program on each piece of

equipment, train an assistant mechanic, help train equipment operators and, yes, fix things too," says Piersol.

"That's asking a lot," he admits, especially since, until recently anyway, being a "lawnmower mechanic" carried little prestige, and brought few financial rewards. That's changing fast.



John Piersol: industry needs talent, skill.



Attended Advanced Turf Mechanics Program at SUNY Delhi in April: (l. to r.) Roger Baker, Gerald Dabien, Brian Tindal, Steve Lucas, Mike Marshall, Bud Bruce, and instructor Paul Zellner from Jacobsen/Textron. The Seminar is an annual event on Delhi campus in the NY Catskills.

Nice opportunities

Continued strong golf course construction is thinning the pool of trained, skilled grounds equipment technicians and managers. The starting salary for promising, if not particularly experienced, equipment technicians is in the \$18,000 to \$30,000 range. New hires with good organizational and managerial skills can increase their worth substantially in a few short years, says Piersol.

That's because not just any mechanic has what it takes to maintain and service turf and grounds care equipment, says Steve Lucas, veteran turf equipment specialist at the Weston Golf Club, Weston, Mass.

"I suppose you could get an automotive mechanic to step in, but he would be hard pressed to know how to adjust reels, or the proper greasing and maintenance schedules," says Lucas, former president of New England Turf Technicians Association.

"A turf equipment mechanic does so many different jobs, from welding and fabrication one day to painting the next, to working with a computerized irrigation system on another day. A golf course mechanic is a unique breed."

James Roche, National Service Manager, Scag Power Equipment, says the shortage of mechanically trained technicians is complicated, but also multi-layered.

Dealers feel the pinch

In addition to the need for skilled mechanics at the professional user level (golf and landscape maintenance shops), equipment dealers/distributors are also pinched for trained technical people. Turnover is typically high in dealers' shops. More troubling, there isn't a stream of young mechanically trained youngsters to fill the void.

"We as manufacturers are all building more sophisticated machinery every year, and it's getting more technical, like the automotive industry did. We need people to service this product," admits Roche

But, how many moms and dads aspire

Turf mechanics' Web page a 'hit'

You might call them two average working Joe's with a great idea, a Web site for turf equipment mechanics. But, actually there's just one Joe. His name is Joe Dawkins, and his partner is Scott Martin.

By day, they are turf equipment mechanics at The Falls Country Club, West Palm Beach, Fla. By evening they're in front of their personal computers, expanding and updating their Web home page (www.turftec.com) which dispenses turf equipment maintenance and repair information to other turf mechanics worldwide.

TurfTec is just eight months old but already registers about 1,000 "hits" a day. (A "hit" is recorded anytime, anybody accesses the site.)

"We found out that there is a big need for this kind of information," says Martin. "We wanted to provide a source for turf mechanics to get updated manufacturers' service bulletins."

While it hasn't been easy to convince equipment manufacturers or equipment distributors to provide them with service bulletins to post on their home page, cooperation is increasing, says Martin. That's because the two turf mechanics strive to keep the information on their site practical, accurate and impartial. For instance, in April TurfTec featured valuable maintenance information about products from Toro, Honda, Briggs & Stratton, Kohler and Tecumseh.

Since unveiling their home page in August 1996, Dawkins and Martin have been adding features like discussion pages for: power equipment, agronomics (thanks to Agronomist Michael De Pew), job classifieds, new product information and links to related sites.

"The web site is for anybody to use. We think it's to everybody's advantage to get this informa-

tion in the hands of people who can use it," says Martin. "I think most of the people who use it are glad that the site is run by two working turf equipment mechanics." R.H.



for their sons or daughters to grow up "to fix lawnmowers"? How many high school guidance counselors suggest careers in outdoor power equipment repair to students?

Indeed, how many counselors or students are even aware of such a career opportunity? Extremely few. But, equipment manufacturers want to change that.

A good place to start is with selected vocational/technical schools, believes Bruce Radcliff, director, customer education, Briggs & Stratton.

"We need to go out and identify those vocational schools that have an existing program that would fit the needs of the group," says Radcliff.



Ed Combest, right, coordinator and one of three instructors of Turf Equipment Management program at Lake City CC.



Between 80-100 employers are seeking the services of the 26 graduates of the 1997 Turf Equipment Management program, says John Piersol.

'A turf equipment mechanic does so many different jobs. . . He is a unique breed.'—Steve Lucas, Weston Golf Club

To that end, people like Roche and Radcliff, have begun working through the relatively new Engine & Equipment Training Council (EETC). One of the goals of the EETC, along with supporting an industry-sanctioned certification process, is to inform young people of growing career opportunities in the maintenance and repair of outdoor power equipment.

"Our initial response would be, to the best of the ability of the various OEMs (original equipment manufacturers), to supply the schools with information and product and anything else they would need to maintain a more viable program," says Radcliff.

Training needed

While the shortage of technicians is cause for concern, neither power equipment suppliers nor professional end users like golf courses or landscape companies have the resources to train a new generation of technicians themselves.

"Give us a person that understands how to use a volt and ohm meter, who understands basic hydraulics, and we will take it upon ourselves to train that person on using the diagnostic tools that are used on our products," says Rich Smith, commercial service education Manager, The Toro Company. "But nobody has the time to bring somebody in and teach them what they should have learned in high school or trade school."

The stakes are high. That's why equipment suppliers like Toro, John Deere, Jacobsen, Ransomes/Cushman/Ryan and others donate products to qualified trade schools like Lake City College and The State University of New York SUNY (State University of New York) Delhi, in the Catskill Mountains.

Sensing a growing industry need, Dominic Morales, Chairman of the Golf Operations Department at SUNY Delhi, fashioned Delhi's Turf Equipment Management program after Lake City's successful one-year program. (Both schools also offer more extensive Golf Course Operations courses. The Turf Equipment

Management program comprises the first year of study at both.)

"While the Lake City program is serving the Southeast, our program will be serving the Northeast," says Morales. "We're confident that our students will be very marketable because while we want to train good mechanics, we want to develop good managers too."

Morales says today's turf equipment technicians and managers need a higher level of training because of the increasing responsibility they shoulder.

"A riding greens mower can cost as much as \$15,000. A riding triplex fairway unit can be anywhere from \$25,000 to \$35,000. A good frontline rough mower is just as expensive," says Morales.

"A new golf course might have \$600,000 to \$700,000 in new equipment. And, if you count the maintenance facility too, the turf equipment manager could be responsible for managing over \$1 million in equipment and facilities," he says.

Asks Morales, with that kind of investment in equipment, would you as a golf course superintendent or a landscape business owner be comfortable with just a lawnmower mechanic? **LM**



Dominic Morales: Delhi program ready.



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The weather is the biggest variable turfgrass/landscape professionals face in their professions.

Consequently they must develop flexible management strategies to use weather to their advantage, when it's favorable. Or, to manage the turfgrass and/or landscape plants under their care in the most beneficial way when it's unfavorable.

Turfgrass professionals are beginning to use the new generation of weather monitoring, and weather measuring tools. "Weather" software brings in-the-field weather information to the turf/landscape manager's fingertips via personal computers. Data collected from weather stations and from sensors on-site provides real-time information like temperature, humidity, and wind speed. But they can do a lot more now too.

Weather 'snapshots' help

Managers can use these weather "snapshots" as the basis for their plant health decisions. Beyond that, these weather tools can predict and alert managers to conditions conducive to many weather-sensitive problems like diseases, weeds or insect pests.

A new, and increasingly popular weather aid is the contracted weather monitor-

ing service. This service accesses information from low-orbit weather satellites and makes it available to green industry professionals. Companies like Data Transmission Network provide subscribers with accurate and up-to-the-minute (almost) satellite images of approaching weather as well as more long-range conditions. (See *Weather Smarts* in January, 1997, LM.)

This information is site specific and gives managers "real-time" information needed to institute particular management practices in a more timely fashion. The following is a representative list of suppliers of weather-related products or services.

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Neogen Corp.

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Spectrum Technologies, Inc.

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Weather Metrics, Inc.

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Disease control in cool-season turf

by GAIL L. SCHUMANN, Ph.D./University of Massachusetts

Different years result in different disease problems. 1996 was a relatively cool and wet year in most northern areas, and the predominant diseases reflected that. The season began with a period of recovery from the se-

for many weeks, especially where late-season, excess nitrogen applications have prolonged the growth of the grass.

Snow molds are different

Fusarium patch, in particular, is more severe at high soil pH. Fall lime applications can exacerbate this disease. *Fusarium* patch is also different from

Typhula blight in that it is more likely to result in crown infection and the death of turfgrass plants. It can also become active with the first cool, wet weather of fall and last throughout cool, rainy springs even in the absence of snow. In the absence of snow, the primary symptom of

Fusarium patch is small, greasy patches similar to those caused by *Pythium* blight in the heat of summer. The fungus can easily be streaked by mowers causing added injury and confusing symptoms.

Tip blight not severe

A stress disease most commonly observed in hot weather appeared in early summer at our research field plots in 1996. *Leptosphaerulina* blight is usually a minor tip blight which is mowed away once drier weather conditions prevail. The prolonged wet weather in early summer 1996 seemed to favor



Raise height of cut to battle brown patch.

vere snow mold in many areas.

Deep, lasting snows

In the fall of 1995, long lasting snow fell on turfgrass that had not yet gone dormant in many sections of the Northeast. This created perfect conditions for snow mold fungi. These fungi prefer moist conditions and refrigerator temperatures. Two different diseases are commonly found: *Typhula* blight (also known as gray snow mold) and *Fusarium* patch (also known as pink snow mold), but both diseases are more severe when snow covers green grass in moist soil

FUNGICIDE ACTIVE INGREDIENTS AND EXAMPLE TRADE

Active ingredient	Trade names
azoxystrobin	Heritage (50WG)
captan	Captan WP, Captec
chloroneb	Proturf Fungicide V (6.25 G), Teremec SP (65WP), Terraneb SP
chlorothalonil	Chlorothalonil, Daconil 2787 (4F), Daconil Ultrex (82.5WDG), Daconil Weather Stik (6F), Daconil (5G), Echo (500F, 75WDG), Manicure (4F, DG), Thaloniil (90DG)
cyproconazole	Sentinel (40WG)
etradiazole	Koban (30WP, 1.3G), Terrazole (35WP)
fenarimol	Rubigan (1AS)
fenarimol + chlorothalonil	Twosome (4F)
flutolanil	ProStar (50WP)
flutolanil + triadimefon	ProStar Plus (50WP)
fosetyl-al	Chipco Aliette Signature (80WDG), Prodigy (80WDG)
iprodione	Chipco 26019 (50WG, 2F), Proturf Fungicide X (1.3G)
mancozeb	Dithane T/O (75WP), Dithane (WF, 4F), Fore T/O (80WP, 4F), Protect T/O (80WP, WSB)
maneb	Maneb Plus Zinc (4F), Maneb (75DF)
mefenoxam	Subdue Maxx (2MEC)
metalaxyl	Proturf Pythium Control (1.2G)
metalaxyl + mancozeb	Pace
myclobutanil	Eagle (40WSP)
PCNB	Defend (4F, 10G, 75WP), Engage, Lesco PCNB (10G), Penstar (75WP, 10G), Penstar FLO, Revere (75DG), Terraclor (75WP), Turfcide (400F, 10G)

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Table continued from previous page

FUNGICIDE ACTIVE INGREDIENTS AND EXAMPLE TRADE

Active ingredient	Trade names
propamocarb	Banol (6L)
propiconazole	Banner Maxx (1.24MEC), Banner (41.8GL)
thiophanate-methyl	Cleary's 3336 (50W, WSP, 4.5F), Fungo Flo, Fungo (50WSB), Proturf Systemic Fungicide (2.3G), Systec 1998 (4.5F)
thiophanate-methyl + chlorothalonil	Consyst (66WDG)
thiophanate-methyl + chloroneb	Proturf Fungicide IX
thiophanate-methyl + iprodione	Proturf Fluid Fungicide
thiophanate-methyl + mancozeb	Duosan (80WP, 80WSP)
thiram	Lesco Thiram (75WDG), Spotrete (75WDG, 4F)
thiram + triadimefon	Proturf Fluid Fungicide III
triadimefon	Bayleton (25DF, 1G), Accost (1G)
triadimefon + metalaxyl	Proturf Fluid Fungicide II
vinclozolin	Curalan (50DF, 4F), Touche (4F), Vorlan (50DF, 4F)

Note: trade names of products commonly available in the Northeast are included for convenience. No endorsement is implied, nor is discrimination intended against similar materials. Use of certain fungicides is restricted in certain states or areas. Each product has specific use rates and intervals. Read and follow label specifications.

SOURCE: DR. SCHUMANN

it, leaving some bentgrass areas with a reddish look similar to anthracnose.

Anthracnose at low heights

Anthracnose was by far the most common complaint in the Northeast in the summer of 1996. This stress disease is com-



Snow mold can last in rainy spring.

mon when excessive moisture combines with factors which slow the growth of the turfgrass. Although it is more common on annual bluegrass, it can also be found on bentgrass especially at low mowing heights and in compacted, nutrient-deficient soils. Superintendents who skipped spring core aeration reported increased problems with the disease, so they should consider spring coring.

Anthracnose is probably one of the most misdiagnosed turfgrass diseases. A certain di-

agnosis requires observation of the tiny hair-like structures (setae) produced in the fruiting bodies of the causal fungus. In recent years, the crown rot form of anthracnose has become more common. This is probably related to the fact

that stresses continue to increase in modern golf turf with longer playing seasons, greater number of rounds, lower mowing heights and increased compaction. Even when a fungicide effectively stops the growth of the fungus, recovery will be slow,

if it occurs at all, for plants with anthracnose crown rot.

Red thread may persist

Lawn care professionals continue to struggle to control red thread. The fungus that causes red thread prefers cool conditions, but can remain active throughout the year at moderate temperatures in prolonged wet weather. In past years, applications of nitrogen fertilizer seemed to reduce the disease to acceptable levels, but some turf managers now

cont. on page 36

FOLIAR DISEASES- CULTURAL AND CHEMICAL MANAGEMENT

These diseases all begin with infection of the leaf blades. Minimize the time water remains on leaf blades through dew removal, proper irrigation timing, and pruning of landscape plants for air movement.

Diseases generally worse under low nitrogen conditions

Disease	Cultural control	Fungicidal control
Anthracnose	Reduce compaction, raise mowing height.	azoxystrobin, chlorothalonil, cyproconazole, fenarimol, propiconazole, thiophanate-methyl, triadimefon
Dollar spot	Reduce compaction, raise mowing height.	mancozeb, maneb, myclobutanil, PCNB, proiconazole, thiophanate-methyl, thiram, triadimefon, vinclozolin
Red thread	Reduce compaction, irrigate.	azoxystrobin, chlorothalonil, cyproconazole, fenarimol, flutolanil, iprodione, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, triadimefon, vinclozolin

cont. on page 34



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FOLIAR DISEASES- CULTURAL AND CHEMICAL MANAGEMENT

These diseases all begin with infection of the leaf blades. Minimize the time water remains on leaf blades through dew removal, proper irrigation timing, and pruning of landscape plants for air movement.

Diseases generally worse under LOW nitrogen conditions

Disease	Cultural control	Fungicidal control
Rust	Reduce compaction, irrigate.	chlorothalonil, cyproconazole, mancozeb, maneb, myclobutanil, propiconazole, triadimefon

Diseases generally worse under HIGH nitrogen conditions

Disease	Cultural control	Fungicidal control
Brown patch	Raise mowing height.	azoxystrobin, captan, chlorothalonil, cyproconazole, fenarimol, flutolanil, iprodione, mancozeb, maneb, myclobutanil, PCNB, propiconazole, thiophanate-methyl, thiram, tyriadimefon, vinclozolin
Snow molds: Fusarium patch (pink) Typhula blight (gray)	Allow turf to go dormant, remove snow where practical, avoid lime apps where fusarium is a problem.	for fusarium only: mancozeb, thiophanate-methyl typhula blight only: chloroneb; flutolanil; both snow molds: azoxystrobin, chlorothalonil, cyproconazole, fenarimol, iprodione, PCNB, propiconazole, triadimefon, thiram, vinclozolin
Bipolaris and <i>Drechslera</i>	Mow at height recommended for turf species.	azoxystrobin, captan, chlorothalonil, iprodione, mancozeb, maneb, myclobutanil, PCNB, propiconazole
Leaf spots	Avoid surface drainage; do not mow or irrigate when disease is active.	azoxystrobin, chloroneb, etradiazole, fosetyl-AL, mefenoxam, metalaxyl, propamocarb
Yellow patch (cool-season brown patch)	Improve drainage.	azoxystrobin, flutolanil, propiconazole

ROOT DISEASES

Cultural practices which enhance root growth will reduce the effects of these diseases including aeration, improved drainage, and higher mowing heights. Fungicides are most effective when used preventively.

	Notes	Fungicides
Necrotic ring spot	Try brief mid-day irrigation in hot weather, use resistant cultivars.	Preventive: azoxystrobin, cyproconazole, fenarimol, myclobutanil, propiconazole Curative: thiophanate-methyl
Pythium root rot	Improve drainage, raise mowing height.	Fungicides that are effective for Pythium blight may be helpful, but check labels for legal uses.
Summer patch	Maintain 5.8-6.0 soil pH in root zone, raise mowing height in hot weather.	Preventive: azoxystrobin, cyproconazole, fenarimol, myclobutanil, propiconazole, triadimefon Curative: thiophanate-methyl
Take-all patch	Maintain 5.8-6.0 soil pH in root zone, most common in newly planted bentgrass.	Preventive: azoxystrobin, fenarimol, propiconazole, triadimefon



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cont. from page 32

find that fungicides are necessary in severe cases.

Gray leaf spot in warm temps

The hot, stressful weather in the summer of 1995 led to the destruction of perennial ryegrass fairways in the mid-Atlantic states. *Pyricularia grisea* causes gray leaf spot of both ryegrass and tall fescue in hot weather and appears to be a new threat to these turfgrasses.

Gray leaf spot was reported in Kentucky in late August of 1996, but the rela-



Dollar spot in Kentucky bluegrass. Note mycelium in turf.

tively cool season probably prevented major epidemics. Turfgrass managers should learn more about this potentially damaging disease if 1997 brings hotter weather.

Rust in high, moist turf

The last weeks of August in the Northeast brought a surprising dry spell of weather which slowed turf growth. Even though there was little rainfall, some days were foggy and moist for many hours. This resulted in severe rust outbreaks, especially in lawns and other turf areas that are not mowed frequently.

Rust is easily diagnosed by the presence of pustules of powdery orange spores. These begin to show up 10 to 14 days after spores have infected the leaf blades. This explains why rust is uncommon on frequently mowed turf. The leaf blades are mowed away before the rust has a chance to develop. Rust may weaken plants, but rarely kills them. In northern areas, the spores will not survive winter, so the turf should begin spring with a fresh start.

Fungicide news

Some new fungicides and new formulations of fungicides are available for the coming season. When new formulations are produced, it is important to read the revised labels carefully for new application recommendations and new rates. For example, *Daconil Weather Stik* is formulated at a 6F rate, which has a higher concentra-

tion of the active ingredient, chlorothalonil, than *Daconil 2787* which is a 4F.

There are now five DMI (sterol-inhibitor) fungicides available—cyproconazole (*Sentinel*), fenarimol (*Rubigan*), myclobutanil (*Eagle*), propiconazole (*Banner*), and triadimefon (*Bayleton*). It is important to know the chemical group or family of all fungicides you use. Repeated

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use of fungicides from the same chemical group can result in fungicide resistance. **Banner Maxx** and **Subdue Maxx** have been reformulated from emulsifiable concentrates, which are oil-based, to microemulsion concentrates. **Banner Maxx** has some new diseases added to its label including take-all patch. **Subdue Maxx** has a new active ingredient, mefenoxam, which

is an isomer of the previous ingredient metalaxyl. **Chipco Aliette Signature** (fosetyl-AI) has also been reformulated to allow more compatible tank-mixing with other fungicides.

Azoxystrobin (Heritage) is a newly registered fungicide with a different chemistry from existing fungicides. University research reports have shown excellent con-

Anthracnose is probably one of the most misdiagnosed turfgrass diseases.

A correct diagnosis requires observation of the tiny hair-like structures (setae) produced in the fruiting bodies of the causal fungus.



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trol of many important turfgrass diseases including anthracnose, brown patch, red thread, snow molds, and summer patch. **Heritage** also has activity against *Pythium* blight which is unusual in a broad-spectrum fungicide. Turf managers should be aware that this fungicide, like many current products, has potential for resistance with repeated use and does not control dollar spot. At this time, it is registered only for golf courses, not lawn care.

Aeration, drainage a good defense

It is always difficult to predict potential disease problems for the coming season. Many midwestern states have had record snowfall, while the Northwest has received record-breaking storms of rain and snow. In many parts of the Northeast, it has been a mild, almost non-existent winter. The groundhogs in those areas seem to be right in their predictions for an early spring. If the weather warms up quickly, we may see early problems with summer diseases and more time for potential heat stress. Some of our most difficult diseases to control are stress-related. Concentrate on spring aeration programs and improving drainage where it is needed. Try to give the turf optimal growing conditions to help it withstand any potential weather-related stresses that may come later on. **LM**

The author is an associate professor of turfgrass pathology at the University of Massachusetts. Charts and photographs courtesy Dr. Schumann.

Warm-season DISEASE CONTROL

Fungal diseases in turf pose significant problems and have economic importance. Before beginning your warm-season disease control program, review the following list of the various symptoms.

By JANELL STEVENS JOHNS, PH.D.

Diseases play a major role in determining the success or failure of turfgrass. Early recognition and proper identification are essential for successful disease management.

Proper variety selection, fertilization, site maintenance, and cultural practices reduce disease pressure and increase the effectiveness of pesticide applications. Pesticides alone cannot control most diseases. No amount of pesticide controls plant disease if good cultural practices aren't in place.

Too often, a single disease is dealt with, while a single plant species or cultivar may be attacked by many diseases throughout its growing season. Before accepting recommendations of cultivars, cultural practices, and pesticides, consider the impact these recommendations could have on other diseases occurring throughout the season.

Symptoms, factors, strategies

Fungal diseases are the most significant turfgrass diseases and have economic importance due to the threat they pose to large areas of turfgrass.

The following list of turfgrass diseases outlines symptoms, environmental factors favoring disease and management strategies for the most common southern turfgrass diseases.



Dollar spot: most severe in hybrid bermudagrass, above, and zoysia.

Brown Patch

(Rhizoctonia solani)

In cool-season grasses, brown patch primarily causes a blight, or dieback, of the leaf tip. In warm-season grasses, brown patch fungus attacks the base of the leaf sheath. On closely-mowed turf, patches are roughly circular. And under high humidity, a "smoke ring" of water-soaked dark leaves and fungal mycelium may be present around the outer margin of the diseased area. On higher-mowed turf, smoke rings usually aren't present and patches often have irregular rather than circular shapes.

Brown patch is a common summertime disease of cool-season turf, yet it occurs during transition periods in warm-season turfgrasses. Extensive damage can occur during cool, wet periods prior to winter dormancy or breaking spring dormancy. Brown patch infection takes place long before symptoms are evident. Careful timing of preventive fungicide applications is critical.

Management strategies

- 1) Use minimal nitrogen applications since nitrogen increases susceptibility.
- 2) Improve soil drainage.

- 3) Apply deep and infrequent irrigation.

- 4) Drag, pole, or mow early in the morning to speed leaf drying and reduce disease activity.

Dollar Spot

(Sclerotinia homoeocarpa)

Dollar spot is most severe on bermudagrass and zoysiagrass. It appears as small, circular, straw-colored spots about the size of a silver dollar. On grasses maintained at higher mowing heights, patches are larger and irregularly shaped. Grass blades die from the tip back and have straw-colored spots shaped like hourglasses with distinctive reddish-brown to purplish margins.

Dollar spot occurs when it is warm and humid. Nitrogen-deficient turf has more severe damage, especially if the turf is drought stressed before high humidities or rains occur. Several fungicides control dollar spot, but don't rely only on sterol inhibitors which can lead to resistance.

Management strategies

- 1) Avoid drought stress by irrigating deeply during early morning hours so foliage dries quickly.
- 2) Maintain a balanced fertility program.

Gray leaf spot

(*Pyricularia grisea*)

Leaf spots first appear on St. Augustinegrass as tiny brown spots with purplish margins. As spots enlarge, they become diamond shaped. Lesions may completely consume leaves and girdle stolons resulting in a scorched appearance. Gray leaf spot occurs during hot humid weather. It is more severe in newly-established turf and in shady locations with poor air circulation.

Management strategies:

- 1) Irrigate early in the morning to allow foliage to dry quickly.
- 2) Avoid excessive nitrogen applications during hot, humid weather.

Rust

(*Puccinia* spp.)

Rust infects zoysiagrass and overseeded ryegrass. From a distance, affected turf has a yellowish to reddish-brown appearance. Red, black, orange, or yellow pustules are found on diseased leaves. Rust damages poorly-nourished turf or turf grown under low mowing heights. Prolonged periods of overcast weather or shaded environments favor disease. Generally, rust-affected turf needs no treatment and can be effectively maintained with good cultural practices.

Management strategies

- 1) Maintain a balanced fertility program.
- 2) Apply deep and infrequent irrigation.
- 3) Increase mowing height and frequency.

Helminthosporium complex; Leaf spot / melting out

(*Bipolaris sorokiniana*, *Exerohilum rostrata*)

Bipolaris sorokiniana causes leaf spots and crown and root rots of bermudagrass and zoysiagrass. In spring and fall, distinctive purplish-brown spots with tan centers appear on older leaves. During warm, wet weather the spots increase in size to encompass the entire width of the blade, causing a dieback from the tip. Disease progresses to crown and root rots during the summer. Once the crown is invaded, called "melting out," spots with purplish margins can be seen on the stolons.

Exerohilum rostrata causes a

leaf spot on St. Augustinegrass and bermudagrass. However, these diseases are rarely severe and can be managed culturally.

Management strategies

- 1) Use resistant varieties.
- 2) Mow frequently at proper heights to reduce leaf spot phase.
- 3) Avoid high nitrogen fertilization.
- 4) These fungi produce many spores when the thatch layer is frequently wet, so irrigate deeply and infrequently.

Pythium-cottony blight, grease spot, crown and root rot

(*Pythium* spp.)

While more of a problem on cool-season grasses, *Pythium* spp. also may cause root rots in warm season grasses. Root-infecting *Pythium* spp. generally are more severe in shaded areas, low spots or near surface water where air circulation is poor. Root rots occur during or following long cool periods when soils are excessively wet.

Management strategies:

- 1) Irrigate early in the day to avoid moist foliage at night.
- 2) Improve drainage and increase air circulation.
- 3) Fungicides generally are not used in lawn care for *Pythium* blight control. However, they are considered necessary in golf course management. To avoid the build-up of fungicide resistant fungi, rotate fungicides and apply in tank-mix combinations whenever feasible.

Spring dead spot

(*Leptosphaeria* spp., *Gaeumannomyces graminis* var. *graminis*,

Ophiostroma herpotricha)

Spring dead spot occurs on bermudagrass grown in transition zones. Hybrid bermudas are more susceptible than other types. The longer the period of winter dormancy and the colder the temperature, the more damage spring dead spot can cause. Circular patches of bleached, dead grass appear as the turf breaks dormancy in the spring,

Patches may range from a few inches to several feet in diameter. Turf is sunken in affected areas. Patches may reappear and expand over the years.

Management strategies

- 1) Avoid excess nitrogen applications, especially in the fall just prior to dormancy.
- 2) Manage thatch and promote vigorous root growth.
- 3) Few fungicides are labeled for this disease and may be of limited use in certain states.

Take-all Root Rot (Patch)

(*Gaeumannomyces* spp.)

Most warm-season grasses are susceptible to take-all root rot, sometimes called bermudagrass decline. Take-all root rot fungus generally is active during the rainy season. However, symptoms often don't appear until the affected turf experiences stress, such as high temperatures and dry weather.

Patches are irregularly shaped

program.

- 5) Preventive fungicide applications may slow disease development.

Fairy rings

(caused by various soil-inhabiting fungi)

Fairy rings are caused by many fungi that grow in thatch and soil. They may appear as circles or arcs of dark green, fast-growing grass. Nutrients are released as fungi consume dead organic matter. Fairy rings also may appear as circles or arcs of dead grass. The massive build-up of fungal mycelium forms a hydrophobic barrier preventing water infiltration. This causes the turf to suffer from drought stress. Fairy rings may persist and increase in size over many years.

Fairy rings are difficult to control due to the impermeability of infected soil. The fungi grow deeply in the soil, making chemical control generally ineffective. Symptom suppression is the most practical management approach.



Rust in a zoysiagrass lawn. The disease thrives in under-nourished turf.

Management strategies

- 1) Core aeration, deep watering, and proper fertilization make symptoms less obvious.
- 2) Use wetting agents to improve water infiltration.
- 3) Remove soil to a depth of 18 inches and replace with fresh soil or use a soil fumigant to sterilize the soil.

Nematodes

Nematodes are microscopic unsegmented roundworms. A small group of nematodes can damage

and plants in affected areas have short, rotted root systems. Plants are easily pulled or lifted from the ground. Nodes and stolons become infected and show a brownish discoloration and rotting.

Management strategies

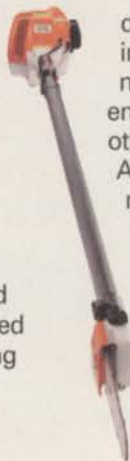
- 1) Improve surface and subsurface drainage.
- 2) Prevent thatch build-up.
- 3) Avoid overwatering.
- 4) Maintain a balanced fertility



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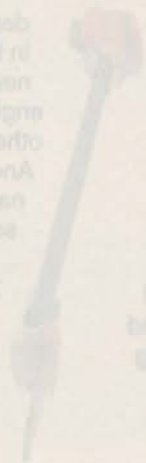
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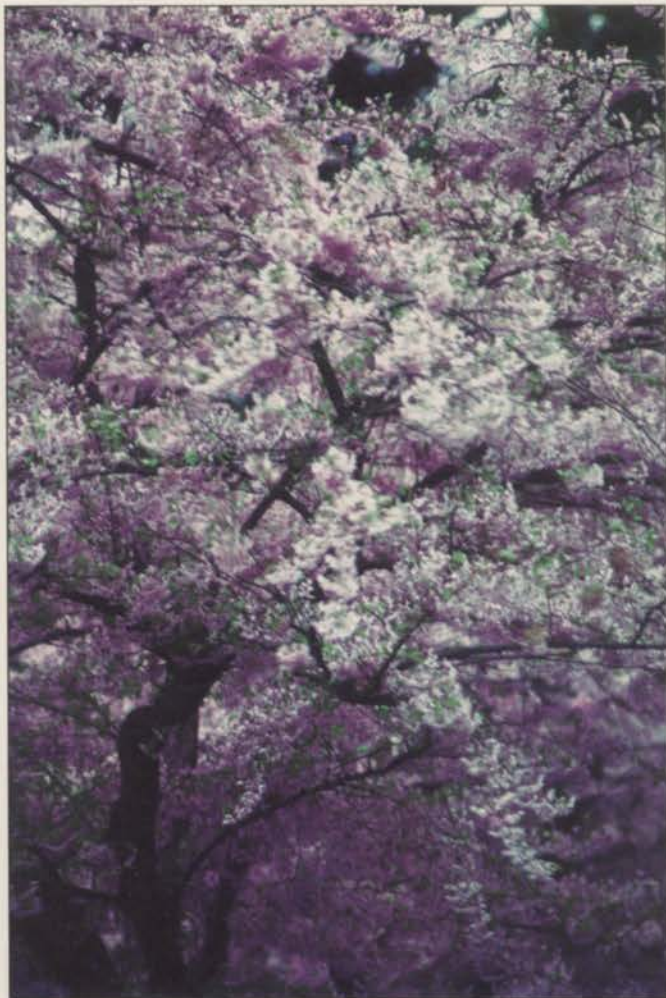
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Circle No. 108 on Reader Inquiry Card



Right tree... *right place*

Whether we see them at home, at work, or on a drive through town, trees improve our quality of life. But place them properly, with consideration to the trees' mature size, lifespan and best growing environment.

by H. S. STEVENS

Shade trees make our homes and neighborhoods more attractive, reduce heating and air conditioning costs, and increase property values.

► When shopping centers and office buildings are landscaped with shade trees, both employees and customers feel more welcome and at ease.

► City planners recognize their value in "softening" the feel of business areas, making downtowns more attractive to tourists and to new businesses.

► And it is a proven fact that hospital patients whose windows look out on a green scene recover faster than patients who can view only the next brick wall.

► Yet, all these benefits are lost if we fail to plant the right tree in the right place. Drive down almost any street in almost any city and you will see trees that are dying prematurely from disease or insect problems; trees that have outgrown their surroundings and trees that are weak and unsightly because they are in the wrong climate or wrong type soil. Most of these problems could have been prevented by putting the right trees in the right places.

When recommending, selecting or planting trees, there are 10 factors to consider.

1) **The purpose for which the tree is intended.** Deciduous trees, planted on the south side

of a home or other building will block sunlight in the summer and allow it to enter during the winter months, keeping the building more comfortable year around and reducing both heating and air conditioning costs.

Evergreen trees planted on the north side of a building act as a wind break and can further reduce heating costs during the winter. A row of evergreens, placed behind a row of dense shrubs, makes the most effective noise barrier along streets or thoroughfares.

2) **The mature size and form of the tree.** For one story buildings, select a tree whose mature height will be no more than about 35 feet. You don't want the tree to dwarf the

building. Taller trees are better for two story homes.

The form of the tree is also important. A broad, low-hanging tree may be perfect for a park or yard, but out of place too near a building or along a driveway. On the other hand, a slim, upright tree would be suitable for lining the driveway, but provide little shade for a sunny deck or patio. Foliage density is another consideration. Do you want dense shade or dappled shade? Will grass or other plants be grown under the canopy of the tree?

Choose the type tree accordingly. For example, it will be easier for turf to grow in the lighter shade of a Lacebark elm than in the dense shade of a

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Circle No. 102 on Reader Inquiry Card

Northern red oak or Southern magnolia.

3) Lifespan. In most cases, fast growing trees are also short lived trees.

Although fast growers will provide significant shade in a comparatively short period of time, they will also mature, decline and die more quickly. A homeowner doesn't want to have a tree removed just when he or she is planning to retire and enjoy sitting under it.

4) Hardiness. In the north, hardiness is a matter of how low winter temperatures can become before tree damage oc-

pollution. Some trees do best in sandy soil; others prefer alkaline soil. Some require acid soil; others need neutral to slightly alkaline soils. Because iron and zinc can be tied up in alkaline soils, trees native to acid soils will become chlorotic and unsightly when planted where the soil pH is high.

In cities, soil compaction can be a major problem. Rain-fall tends to run off rather than soak into the root zone of the tree. And trees near streets or planted in wells in shopping mall parking lots suffer not only from lack of moisture, but

make them undesirable in certain places or situations. Roots of certain willows, elms, and maples are sewer cloggers and should always be planted away from sewer or water lines. In the south, large leaved trees can put on excess foliage during rainy spring weather, then compensate by shedding leaves all over the lawn as soon as the weather becomes hot and dry. Some shallow-rooted trees can crack sidewalks. The fruit of certain female trees, such as ginkgo or Russian olive, can be extremely messy on sidewalks or driveways. Consider all of these characteristics when deciding where trees should be placed. Even the acorns of some of our most beautiful oaks can be a nuisance under certain circumstances.

7) Susceptibility to insect and disease damage. Insect and disease problems are intensified when there are concentrations of one family of tree in any given area. The increase in losses from oak wilt during the past few years is a prime example. Dutch elm disease has wiped out thousands of American elms, and sycamores in Texas are dying from anthracnose and blight. Arizona ash is a poor risk because of borers. In areas where cotton was a major crop, cotton root rot is a major problem for cottonwoods and Bradford pears. Be sure that the trees you plant are not subject to the particular insect and disease problems that may be prevalent in your area, and avoid concentrated planting of any one species.

8) Be aware of local landscape ordinances. Many cities are writing or rewriting land-

scape ordinances that prohibit the planting of specific species of trees and offer incentives for planting certain other species. Lists of acceptable varieties are usually included in the ordinance.

9) Obtain current, local recommendations before planting. It is impossible for any book, magazine or other source to provide a list of trees that will grow well throughout any particular region of the country, whether it be north, south, east or west. There are too many variables within each region. Soil type, drainage, and other factors can vary considerably within a comparatively small area. And don't assume that the same trees that were highly rated a few years ago are still recommended. Because of new insect or disease pressures, trees that were considered good a few years ago may no longer be acceptable.

Obtain a current recommended variety list for your particular city or locale from your nearest Cooperative Extension Service office, then make your selections from that list based on the factors outlined above.

10) Buy trees from reputable nurseries. The best variety of tree has little chance of success if it is improperly dug or mishandled at the nursery.

LM

The author, a former horticulture instructor based in Lancaster, Texas, writes a weekly gardening column for the Dallas Morning News.

Insect and disease problems are intensified when there are concentrations of one family of tree in any given area. The losses from oak wilt during the past few years is an example.

curs. In the south, both winter cold and summer heat are important considerations. Trees native to northern states are not affected by southern winters, but can easily succumb to the heat of southern summers. And trees on the northern edge of their adapted range may do well during average winters, but be severely damaged by unusually low temperatures or extended periods of below freezing temperatures. Be sure the trees you recommend or plant are reliably hardy in your area, and will survive severe as well as average winters.

5) Environment. Environment includes soil type, condition and pH; available moisture; and the level of air

from poor aeration, as well. When planting in confined areas, choose varieties that tolerate that environment, and set out small rather than large trees. Younger, smaller trees adapt more easily to unfavorable conditions and have a much better chance of survival.

Urban air pollution can add to the problem. Some species of trees, like ginkgos, for example, can withstand the smoke, fumes and stress of urban conditions; other cannot. For long-term success, it is imperative that we match the requirements of the tree with the environment in which it will be planted.

6) Characteristics. Some trees have characteristics that

Tomorrow's landscape trends are on the way now



Ron Hall

RON HALL
Senior Editor

Dr. Gary Knox, at a recent conference, offered some trends he sees influencing the landscape industry. His comments echoed what my wife increasingly talks about. Knox is an associate professor in the Department of Environmental Horticulture at the North Florida Research & Education center. My lovely wife of 28 years, Vicky, is a gardener.

She subscribes to several slick (and costly) garden magazines; her favorite cable network is the Home and Garden cable television channel; and,

she spends hours each week tending her garden.

Perennials. Roses. Ornamental grasses. Vines. She collects, plants and fusses over them all.

She's creating "an English cottage garden." To that end, a few years ago, she acquired four wooden pillars that a neighbor discarded after rebuilding his porch. I used the pillars, under her careful eye, to construct a huge columned entrance to her gardens which I refer to as the Colossus of Rose Ar-

bors—but that's another story.

One Sunday in April, while Vicky was away for the day, I got itchy to do something. My attention wandered to the garden, *her* garden. I started splitting sedum and replanting them. A few here. Uhm, a few over there looks nice.

This was not a good idea. When she'd discovered what I had done, she offered convincing reasons why it wasn't a good idea. I promised never to garden without her supervision again.

Knox says during the 1980s the public:

- ▶ began demanding more color in its landscapes. He uses the term "Disneyfication."
- ▶ became aware of native plants.
- ▶ discovered the concept of low maintenance.

These trends continue, especially the use of perennials in our landscapes. But our lifestyles are

[LANDSCAPE/GROUNDS]

PAGE 6 L ▶

Santa Barbara crew likes tall fescue

PAGE 10 L ▶

Tips for 60-hour stadium weeks

PAGE 16 L ▶

Theft and fire can ruin your day

PAGE 21 L ▶

Rescue your fields with volunteers

PAGE 24 L ▶

Moving, replanting a big, big tree

changing. For instance, many of us seem to have less free time. Larger numbers of us are live in downsized homesteads like condos and townhouses. And, trend watchers use the word "cocoon" to describe our growing desire to stay at home to recreate and entertain.

These changes are, generally, good for the landscape industry, believes Knox.

What does Knox see as hot for the landscape industry for the remainder of the 1990s?

- ▶ Landscaped areas as "outdoor rooms".
- ▶ Speciality gardens. Wildlife gardens. Water gardens.
- ▶ Native plants, those looking more like domesticated plants. He calls them "refined" natives.
- ▶ Heirloom plants. "Good things from grandmother's garden," explains Knox.
- ▶ Trellises and vines. Maybe even bamboo.
- ▶ Garden furnishings. Statues. Terraces. Fountains.

These are things my wife and all of her friends now talk about. Most of her friends don't have the time to garden. They will hire the landscape professional that talks their language. **LM**

Comments? Phone Ron at (216) 891-2636; fax him at (216) 891-2683 or E-mail him at rhall@advanstar.com



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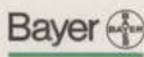
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Two facts stand out about employee training in the lawn care industry.

1) Most companies do a poor or half-hearted job of it.

2) Those firms who believe in and concentrate on training are by far the best in the business.

Wow! What a revelation. Aren't both statements true in virtually every industry?

Yes they are. The problem with ours is that we still don't seem to recognize what many other industries have known for a long time.

We still struggle with, ignore, or avoid raising the abilities of our employees.

Here's what we lose when we don't adequately train employees:

► We send new employees a message, a clear message that we don't care about them, or about the quality of work they do. They are a piece of machinery. If we don't care, why should they?

► We send a message to our customers. Remember, our employees

are often the only link between our company and our customers. If our employees doesn't know what they are doing, if they can't answer questions or conduct conversations with a customer, if the employees' appearance and demeanor are less than professional, this all reflects on our industry, and on us business owners.

► We send a message to those who oversee and regulate this industry. An Indiana State Chemist field officer once told me that his single biggest complaint is that many lawn care technicians cannot tell him what they are applying. They don't know. Nobody has taken the time to tell them.

In Indiana, we have tried to address the training of new employees with a trade-sponsored Technician Training Program. It's purpose is to

give new employees a basic training course in lawn care.

A more comprehensive program is the Certified Turf Professional program offered by the Professional Lawn Care Association of America (PLCAA) in cooperation with the University of Georgia. To learn more about this contact PLCAA at (770) 977-5222 or (800) 458-3466.

Even without proper training, some of our employees are ambitious and tough enough to make it. It's just as vital to provide these people with additional training as it is to train new employees. These "veterans" can become leaders and supervisors. But they won't continue to be effective if they're left to stagnate. The industry changes, and so should they.

Also, these are the people that allow us to expand if a growth opportunity presents itself. But, we can't expand if we can't spare a good person from our existing operation. A business must have experienced and resourceful backup people.

The industry needs people that are trained beyond being required to listen to yet another round of weed or insect control updates, and getting their certification credits. There is a lot more to this business, and we, as owners and managers, must insist that our technicians learn this too.

This should include continued education in business management and supervision, areas that are really lacking in most of our training programs.

If you know of a good source for lawn/landscape employee training in subjects like people management, purchasing, quality control, or small business accounting, please let me know at (317) 846-7131. □

We should expand our ideas about training



BOB ANDREWS

Contributing Editor

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Santa Barbara school crew likes its fescue

by DON DALE

Mike Bishop's brush with greatness occurred when Bill Clinton and 20,000 Clinton supporters trampled over the turf at Santa Barbara City College during a rally in 1996.

Afterwards, it took this grounds supervisor and his crew a lot of work to repair the turf, but he didn't mind.

"That was the icing on the cake, when the Clintons came out here," recalls Bishop. "One of the first things the President said was how beautiful the campus is."

Santa Barbara City College sits on the bluffs overlooking the Pacific Ocean. Students gather and contemplate life and mid-terms on its rolling hills.

The turf at the college is wall-to-wall fescue, including the athletic fields. "Triple Crown" tall fescue is used; it's a three-variety mix from Stover Seed located in Los Angeles. The mix is equal parts of Veranda, Olympic II and Empress tall fescue.

"It's a great grass; it does really well out here," says Bishop. In the mild, wind-swept climate, the turf is very easy to maintain,

even though it is irrigated with treated wastewater.

"Fescue is really a durable grass," says Bishop. "It does well in coastal areas." Bishop doesn't have to worry much about fertilizing most of the 40 acres of turf around the grounds, thanks to the nutrients in the tertiary, reclaimed water. The athletic fields, however, are kept well fed, with three applications of a 16-6-8 Scott's Supreme fertilizer to give it recuperative growth.

There are also two acres of high-use turf areas on the coastal bluffs that receive two or three applications each year.

To repair the area trampled during the Clinton rally—because even tall fescue can take only so much punishment—Bishop and his crew topdressed with 20 or 30 tons of washed plaster sand. The sand is washed to remove salt.

"Extra water was also added, though with heavy winter rains, we didn't have to irrigate much more than usual."

Fescue 'zips' through

The washed plaster sand is expensive (\$17/ton) but Bishop says it's a must because other types of sand contain salt that retard turf growth. The fescue just 'zips' through the good sand, Bishop says.

The football field receives a similar top-dressing if money is tight.

"Before the season," explains Bishop, "we'll resod the playing area if we have enough money." If funds are lower, he gives the field an application of 200 tons of the washed plaster sand, at a cost of \$3400, including delivery.

Either way, the field is prepped after the previous football season by having a tractor grader level the damaged field—which sees lots of action from college and high school football. If funds to resod are not there, the treatment is begun during



Mike Bishop says a three-variety mix of tall fescue thrives at Santa Barbara City College.



Crew chief Nacho Garcia, left, and Ricardo Valenzuela do such good work that most irrigation installations at SBCC are done in-house. A 12-person crew keeps the college green.

the winter, since it takes months for the grass to recover.

Resodding is done, when the money is available, six weeks prior to the season.

The sandy loam of the Santa Barbara bluffs is perfect for the fescue, says Bishop. He has the turf dethatched twice a year in high-visibility areas, and he mows once a week in summer, at a height of 2½ inches.

Water watchdogs

The city's "water enforcement police" are always out, says Bishop, and that means sensible scheduling and periodic sprinkler adjustments. The treated water is a potential health hazard, and the water police will shut the system down if they see puddles of standing water.

The scrutiny over water use intensifies in times of drought.

Along with tree modifications, a current trend at the college is toward more "intensive" landscaping, such as small planters in tight areas around buildings. Bishop says this is where you know you have a good crew, because that type of landscaping requires a lot of meticulous hand labor.

12-man crew a 'can do' bunch

Bishop says he has a "terrific" grounds crew, and for that reason he agrees to let them handle jobs that might ordinarily be contracted out, such as irrigation installation.

"It's actually better for the crew to do that," Bishop says, because they are determined to do a quality job, and they know exactly where all water lines and valves are located for later work.

"An in-house crew buys into the job and takes it on as its own," says Bishop, who adopts that philosophy on all campus projects.

His crew has a great attitude about its work, and crew members put their hearts into every irrigation-related project. His ir-

Tree care tricky with wind, wastewater

The tree maintenance program at Santa Barbara City College is "in a state of flux," says Mike Bishop. Many non-natives are being replaced with native trees.

This particularly applies to eucalyptus trees which are intrusive and have brittle limbs that tend to fall in high wind. Bishop works with Jerry Sortemme, head of the college horticulture department, and a landscape architect to select appropriate species.

Trees must do well on treated wastewater. *Agapantha* and *raphyolyptis* are not native, but are used because they grow well in the reclaimed water.

Oaks are a preferred tree, but they don't mix well with turf.

"It's easy to overwater oaks," says Bishop. Sortemme is using an oak restoration area on a hillside as a teaching project. □

D.D.

► Towering eucalyptus trees will eventually be removed from the SBCC campus.



rigation specialist and crew leader, Nacho Garcia, encourages the crew to strive for excellence and to take pride in a good job.

Crews are divided into zones. "Some guys stay with the landscaping and planting, and others prefer to stay in routine maintenance, such as mowing, edging and weed-whacking."

Current projects include planting 650 natal plums (*carrisa grandiflora*) around parking lots.

Cross-training works

"We cross-train our crews," says Bishop, who has been with the college for six years. Cross-training enables crew members to fill in on other duties when needed. Every crew member, for example, is checked out on new equipment.

Bishop holds in-house training sessions monthly, and crew safety is held to a high standard.

The 12-man crew is half Caucasian, half Hispanic.

"Because of the safety of the students on campus, it's important that the Spanish-speaking employees have a proficiency in English."

Bishop is especially glad to have an understanding business manager, Dr. Charles Hanson, who has been helpful in getting the best and safest equipment possible.

That equipment includes Shindaiwa trimmers ("a great trimmer"); Honda commercial mowers ("quiet and reliable") and Echo PB4600 leaf blowers ("blower noise is a big issue around here").

"It's gone full-circle," says Bishop. "Dr. Hanson's bought us better equipment, and that's helped to improve morale and productivity." □

Writer Don Dale is based in Willcox, Ariz.

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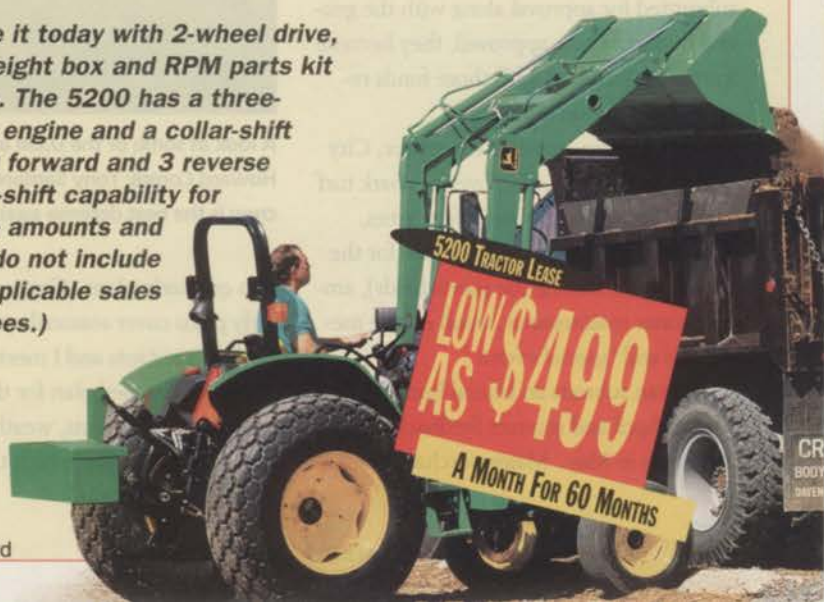
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How to handle the 60-HOUR WEEK

Three busy field managers rely on detailed budgets and creative scheduling when the work week gets long and hectic.

by STEVE AND SUZ TRUSTY
Athletic field managers who oversee multiple-use fields have found it's to everyone's benefit to be detailed in their scheduling and budgeting to keep a cool head in the summer heat.

Dale Getz, Athletic Facilities Manager, University of Notre Dame, Notre Dame, Ind., oversees 78 acres of athletic fields. These range from the game fields frequently featured on television to practice, intramural and "pick-up" game fields.

Five-year plan

The Notre Dame Athletic Department's annual budget is based on recommendations from the executive vice president's office in accordance with the master five-year plan. It's Getz's responsibility to develop an overall five-year plan for his areas of responsibility and an annual budget with appropriate fund allocation within those boundaries. Budgets for special projects, such as the two new soccer and lacrosse practice fields just built, must be submitted for approval along with the general budget. Once approved, they become a separate line item with those funds restricted for use on that project.

Tom Curran, grounds supervisor, City of Pompano Beach, Fla., oversees park turf maintenance, playground safety, trees, shrubbery, flower beds, irrigation (for the entire city, including the sports fields), amphitheater maintenance, small engine mechanics and "special events."

Curran submits an annual budget in March/April and receives feedback on adjustments in May. Major purchase re-

quests, such as equipment, are submitted at the same time, but separately. They must include details, such as what unit will be taken out of service when the new one is purchased.

Weekly reviews with crew

The Notre Dame program is derived from the annual upgrade of a five-year budgetary and facility auditing plan. Every sport and facility manager develops a general plan for each year and then breaks that

will use to dole out assignments. On Monday the entire staff meets to review the weekly plan. This feedback session allows us to clarify details and gives the supervisors the information they need to better allocate personnel."

Spring at Notre Dame is a busy time for fields, the toughest of the season. The schedule accommodates 30 home baseball games; 28 softball games; six to eight men's lacrosse games; six women's lacrosse



A look at some of the U.Cal at Berkely Memorial Stadium crew, from left: Mark Lucas; Howard Comre; Tony Santarelli; Miguel Vasquez; Paul Kokorowski; Tim McCystle. A great crew is the best defense against busy schedules.

into quarterly plans. Getz says his quarterly plans cover seasonal cycles.

"My assistants and I meet each Friday to develop a detailed plan for the following week based on events, weather forecasts, special projects, etc. which the supervisors

games; and one or two outdoor track meets between April 1st and May 10th.

In addition, there are the practices for all these sports; spring football practice and one football game; intramural games; and special events.

Crew 'work centers'

Bob Milano, Jr., Sports Turf Manager, University of California, Berkeley, oversees six significant event facilities: Memorial Stadium; Witter Rugby Field; Strawberry Softball Field; Evans Baseball Diamond; Hellman Tennis Complex; and the Edwards Track Stadium. He also is in charge of several practice fields, recreational fields, tennis facilities, and a synthetic turf field.

Milano has two "work centers" for crews, at Memorial Stadium and at Evans Baseball Diamond.

"I work from a master plan, then break the workload into manageable blocks," says Milano. "We hold staff meetings every two



The Milwaukee Brewers crew handles the tarp.

PHOTO COURTESY DAVID MELLOR

weeks. Staff members provide input to a prepared list, including projects that coaches have requested or that the staff sees, and we negotiate priorities."

Quarterly plan

"I develop a detailed quarterly plan following the annual budget guidelines," explains Curran. "Then I'll meet with the supervisors on Thursday or Friday of each week to plan and prioritize the following week based on activities scheduled, projects in process and anticipated weather conditions. The supervisors set the daily priorities and make specific assignments from the weekly plan."

Getz manages a full-time staff of 14 with five seasonal full-time personnel added in both the spring and fall seasons.

"I generally assign our year-round people to a specific sport and facility, with enough time spent on the other venues to give them flexibility when necessary. This focus allows them to develop 'ownership' of the field and a good working relationship with the coaches and assistant coaches.

They can respond more quickly to coaches' requests and often come up with their own suggestions to improve the field.

Plugging in 'repeaters'

"We usually have two or three 'repeaters' in our seasonal full-time personnel which helps to trim training during the rush of the season," adds Getz. "These people can be plugged into the schedule whenever need is the greatest."

Milano has a full-time staff of eight, with three part-time staff members.

"For the most effective client service, we assign our full-time staff members to specific sports and facilities. The employees take responsibility for 'their' fields and develop a sensitivity to the coaches' needs.

"Two of our part-timers are students; the other is a retired employee. Schedules are negotiable for the part-time staffers, but they

know upfront that work hours will be heaviest on evenings and weekends. It's a good match with the students' class schedules."

Curran oversees a full-time staff of 23 within the 56-person Public Works Department. From the end of May through July, this staff is boosted with college student part-timers. Flexibility is important, says Curran, when crews handle from 25 to 30 special events each year.

"Our foremen need autonomy to work this into the regular schedule; with that, comes an equal degree of accountability."

Work from the averages

Notre Dame staff members work an average of 55 to 65 hours per week during the "crunch" periods. Getz juggles the

Tips to cutting long weeks

"There will never be enough resources to accomplish everything," admits Bob Milano, Jr. of the University of California, Berkeley.

"Give your 'clients' (staffers) the opportunity to set the priorities when there is no pressing safety or field integrity issue," Milano says. "Explain that while they have x, y and z on their needs list, you only have the current resources to do two of them. Ask if they want x and y, x and z, or y and z.

"It makes tight budget and labor allocations more palatable and helps them realize that you are sensitive to their needs.

"I try to get out and see my prime clients on their turf at least once a month, usually spending a few minutes with them at the facility before or after a practice. This is a simple chat, with no paperwork, so it's not a burden to them. I check up on how things are going and ask if there are any specific problems or upcoming needs that they want to have addressed. This eliminates most problems while they are still easy to manage and helps keep the lines of communication open."

Dale Getz says Notre Dame's program of hiring seasonal, full-time personnel has become an "excellent" recruiting tool.

"It gives us the opportunity to evaluate potential full-time staff members under our actual working conditions and it gives them a chance to determine whether they like the job and working here," he says.

"Avoid the micro-management syndrome," suggests Tom Curran, grounds supervisor, City of Pompano Beach, Fla., who gives these final tips:

- ▶ hire good people;
- ▶ train them well;
- ▶ give them the tools and guidance needed to do the job;
- ▶ let them do it. □



Special events, such as concerts, add to the schedule and demand cool heads.

budget to provide for overtime pay. "I try to estimate what the overtime budget will be during the annual planning session," he says. "But with heavy play schedules, erratic weather and special needs within the various sports, it's difficult to arrive at accurate predictions."

Milano's staff averages 48 to 50 hours per week. Full-time staff members are salaried and paid once a month.

"Department policy doesn't allow for overtime pay," says Milano. "Full-time employees earn extra time off at the rate of 1½ hours for every hour over 40 worked during a week. Our part-time personnel are paid hourly, but we keep their workloads well below 40 hours per week."

Curran must authorize, justify and of course, document overtime pay.

"I build some overtime into the budget and projected schedule for projects I know will require it, such as the Easter Special Events," says Curran. "But I keep unscheduled overtime to a minimum and clear any large blocks of overtime hours with the Director of Public Works in advance."

Plan ahead, be prepared

"Planning is essential," adds Getz. "Obviously, weather plays a huge role and plans will change, so we must be flexible; but we can only accomplish our goals by knowing what needs doing and when, and staying a little ahead of the curve."

"You need to be prepared and do your homework," says Milano. "By accurately documenting how existing resources—including labor—are allocated and showing the specifics of what could be achieved with more, you at least have a chance of getting them." □

The authors are partners in Trusty & Associates, a consulting firm located in Council Bluffs, Iowa. Steve is Executive Director of the Sports Turf Managers Association

Plan, communicate and have fun!

Working a long home stand can be exhausting on the Milwaukee Brewer's ground crew. Report time can be as early as 6:30 a.m. to remove the tarp before the sun heats up the turf underneath. If the game goes to extra innings, or there is a rain delay, the crew won't clock out till about 1 a.m.

Due to inclement weather and/or set up, take down, and repair from events such as concerts, it is not unusual for my boss, Gary Vandenberg, members of the crew and myself to work between 80 to 90-plus hours in seven days.

Here's some tips to survive the schedule:

1) Not only do you need to be able to handle the long hours, you need to make sure the crew can, too. I have a supportive boss, Gary Vandenberg, and a wonderful wife and family who keep me going.

2) Try to lead by example. Be organized, and look at the hours as a challenge. Take pride in your work. Realize that you are only as good as the people around you.

3) Respect others. Be creative in getting employees motivated. We work hard to prevent burn-out, or what the crew might call "Stadium Brain."

4) Proper scheduling helps manage the budget, and allows crew members to balance and plan their lives outside of work.

5) Make daily work schedules thorough and well-planned. Each job can effect another, whether on that day, the next day, or weeks away. Prioritize each job and keep track of how much time it takes to accomplish well. Attention to detail helps prevent jobs from falling through the cracks.

6) Communicate! Encourage crew members to ask questions and/or suggest ideas. Teamwork makes all our jobs easier.

7) Equipment: match it to the task at hand. Good equipment and regular, preventive maintenance reduce downtime, which can add needless hours to a full day.

8) Watch the weather. We use the D.T.N. Weather System. It's another 'tool' that helps with scheduling, tarp work and chemical applications.

9) Consider hiring interns. Our crew is made up of veterans, newer hires and college interns. Interns want to learn, and their desire to learn influences other employees.

10) Have fun, and enjoy what you do. You will if you build a solid overall management program; it's to everyone's advantage. □

David Mellor, Milwaukee Brewers

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Circle No. 161 on Reader Inquiry Card

Equipment theft can spoil your day

by TOM SKUZA

Equipment theft and vandalism are business profit killers.

It can happen to you. Insurance industry statistics indicate that one of eight contractors will suffer a theft or vandalism claim in the next year. Theft

losses of self-propelled construction equipment is expected to exceed one billion dollars in 1997. The FBI states that one of every five contractors will suffer either theft or vandalism to their equipment in the next five years.

A theft or act of vandalism to your equipment represents

much more than the loss of your property. You lose the production that you expected from the equipment. You also spend valuable time dealing with claims adjusters. Also, you will probably be dealing with depreciation or less favorable lease terms to replace the lost piece. The profit that you expected and counted on will shrink or disappear.

Take some simple steps to decrease the likelihood of this happening to you.

▶ **Pre-project planning is essential.** This applies for jobs of all levels of cost. Review the



Tom Skuza says you can lessen your chances of being a theft victim if you protect your job site and equipment.

job with your key people. Do a pre-project inventory of all equipment necessary to complete the job. Don't take unnecessary equipment to the job. Unless you know what's really on the job site, and what comes back, how do you know when something's gone?

▶ **Secure your job site.** This includes the general public, other trades-

men and even your own employees. If possible, have employees and others park away from the job site. It's pretty easy for somebody to stick

cont. on page 19L

Playing with fire with your coverage?

by JAMES E. GUYETTE/ Contributing Editor



Schwarz: keep coverage up to date.

Eric D. Schwarz thought he had full insurance coverage on his business, Eric The Tree M.D., Franksville, WI.

He didn't. And the fire that destroyed his place of business last November revealed serious gaps in his coverage. He estimates the fire cost him \$60,000. "We're never going to get it back," he says.

There are two theories about the cause of the fire that leveled the shingle-roofed pole barn. It may have started when two 500-amp outlets overheated and ignited nearby chemical containers. The other suspect is a woodstove.

"Everything in the building was lost. The plows warped and the fiberglass tankers melted to the ground. There was nothing left," says Schwarz.

Inspect coverage carefully

Some equipment was so new that it had not been recorded and covered by insurance.

"We bought new chain saws and a pressure washer. We bought it in November and we figured, 'It's almost December, what's going to happen in just one month?'"

The fire caused Schwarz to look at his coverage more carefully, including the importance of business interruption insurance. "It would have at least given us some cash upfront," says Schwarz.

Schwarz says he's more aware of proper coverage of much-needed smaller items like tools. (Insurance experts say that small pieces of equipment or tools can be insured as "miscellaneous," with a blanket limit.)

"When we started adding things up we found out that our tool boxes were taken for granted. That \$200 tool box was worth nothing. We had to eat that cost," explains Schwarz. The same with saws, pruners, hoses and other small pieces of equipment or tools.

Schwarz admits that he had worried mostly about "the big-ticket stuff" previous to the fire. Even so, the truck that his company bought for \$15,000 six years ago now costs \$18,000 for him to replace.

Schwarz had counted on plowing and firewood deliveries to generate winter cash. He told clients of the fire. Many were understanding. Several other landscaping firms offered the use of some of their equipment. These kindnesses, plus the lack of a huge snowstorm, helped Eric The Tree M.D. survive the winter. □

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- SAVED ALL TREES TRANSPLANTED by U.S. Corps Of Engineers, FOR CAMOUFLAGE, WORLD WAR II.
- TWO WEEKS DIFFERENCE IN HYDROMULCHED GRASS STAND, ALONG FREEWAY BANK FOR EROSION CONTROL. — Maryland.
- SAVED ALL CELERY TRANSPLANTED IN 17 LARGE HOUSES, before and after one without, IN WHICH ALL LOST. — California.
- 1200 TREES WITH 4" CALIPER TRUNKS BARE-ROOTED IN DESERT JUNE. NO LOSS. — Tucson, Arizona, City Parks Department.
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◀ **38 EXTRA INCHES GROWTH ABOVE FERTILIZERS-ALONE. SEVEN MONTHLY USES.** Tucson, Arizona, City Parks.



◀ **TREE-SAVING RECORD OF 1/2 CENTURY.** California Polytechnic State University, Cal. Capitol, Cal Tech, U. of Cal., Cal. State U.



◀ **SAVED GIANT CACTUS TREES** authorized moved to desert botanic garden. Reported planted all famous and "world's biggest" Nevada hotels. Pushes back Africa desert.

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- Point with pride to ALL your jobs.
- Build demand for you.
- Protect and save essentially 100% of all plant material.
- Predict healthy, active, uniform and beautiful "super-normal" plants.

► Fire damaged everything around the landscape business of Eric, The Tree M.D., including trees and other nursery stock.

cont. from page 16L

something like a backpack blower into the trunk of their car if it's right there.

► **Make somebody responsible.** A foreman or supervisor should be accountable for tracking valuable equipment and tools at a job site. The responsible employee can also make sure that keys are secured and removed from all equipment at day's end. Return as much equipment as you can to your yard. Make sure all equipment that is left on the job site is secured or stored in a locked trailer.

If you don't have an enclosed trailer, put eye bolts on your trucks and cable the equipment to it. Some contractors weld lockable covers over the ignition switches of tractors and backhoes.

Don't leave equipment on open trailers, particularly in unfenced or unguarded areas.



What's to keep somebody from driving off with the trailer and all the equipment? Try to store your equipment in a well-lighted area.

► **Make your equipment identifiable** by some identifying mark and/or by painting it with your company's distinctive color.

► **Inform your local police department** that you will have certain equipment at a job site, and ask the police for suggestions about protecting it.

► **Tell your insurance car-**

rier whenever you buy new equipment you want insured.

► **Maintain equipment and keep accurate maintenance records** to improve your settlement by demonstrating the above-average condition of your equipment. □

—Tom Skuza spoke at the 1997 Metropolitan Detroit Landscape Association Convention about job site theft. He is with Baker-Hopp & Associates (Insurance), Harper Woods, MI.

Prevention tips from school of 'hard knocks'

The fire that destroyed his landscape headquarters was a costly education, says Eric D. Schwarz. To help others from going through what he did, Schwarz offers these suggestions:

- locate chemical storage away from maintenance structure;
- keep the plant holding area away from any buildings;
- consider business interruption coverage;
- conduct annual facility fire inspections;
- periodically review policies to make sure all valuable equipment is recorded and covered;
- keep up-to-date records of all equipment and inventory, including photographic or videotape records of vehicles, equipment and other inventory.
- keep a backup computer disc copy, off site, of all company employee lists and business records. □

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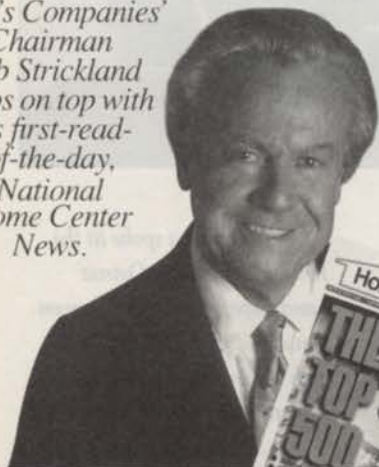


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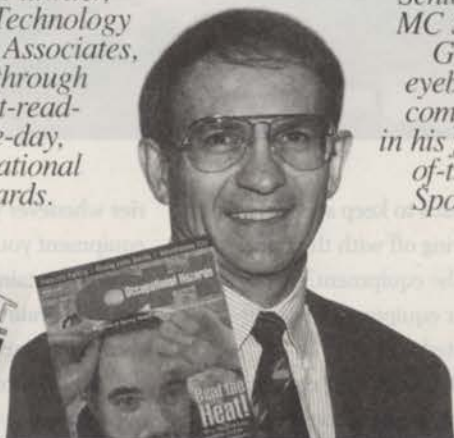
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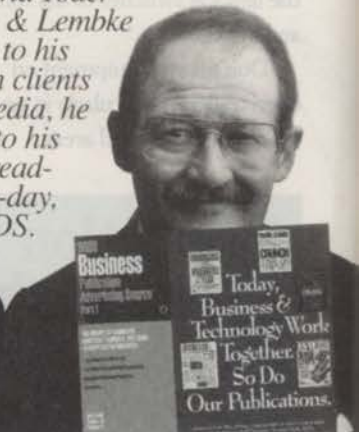
*Director
Irwin Winkler gets
informed with
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of-the-day,
The
Hollywood
Reporter.*



*For well-groomed
Judy Guido and Ed Laflamme,
their first-read-of-the-day is
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Management.*



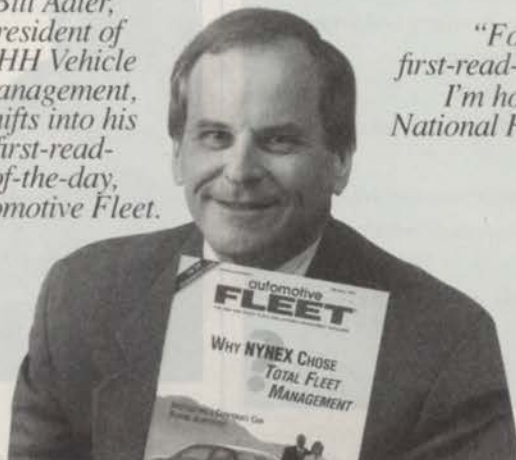
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of Anderson & Lembke
speaks to his
high tech clients
about media, he
turns to his
first-read-
of-the-day,
SRDS.*



*Talkative
Montel Williams
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*"For my
first-read-of-the-day,
I'm hooked on
National Fisherman."*



Volunteers welcome!

Helpful parents and others can help with fund raising and field maintenance, and have fun doing it.

by DAVID MINNER
Players, parents, boosters and other supporters of the athletic program can provide substantial support for athletic

field management. Usually they just have to be asked.

Let them choose between fund raising and maintenance on the field. Fund raising efforts are usually more effective

4-way cooperation guides sports field traffic

Managing a sports facility requires communication between the facility administrator, coach, band director, and grounds manager.

Administrators in charge of college budgets should keep in mind that proper traffic control on an athletic field costs nothing in terms of dollars, and offers the most effective means of reducing dangerously worn areas on game and practice fields.

Understanding your role as a user of the field is a first step in communication.

Coaches must take an active interest in scheduling practice activities and preventing excessive turf wear. The coach and the grounds manager can work together to develop improved grass areas specifically for drills that are conducted off the game and practice fields.

Band directors should have practice field markers painted on another grass area or in a parking lot. Areas should be situated so that practice can be viewed from above, as if you were in the bleachers.

Band practice on the game field should be limited to once per week and only when the soil is dry enough to resist compaction in marching paths. No activity (band, football, or field maintenance) should be conducted on the field while there is frost on the grass.

Grounds managers should realize that they are caring for a multi-use facility rather than just a football field. Every effort should be made to accommodate all groups that have activities on the field. Each group should take responsibility for the condition of the field. Each group can be viewed as a potential resource for funding field maintenance expenses. Extra use requires additional labor, equipment, and resources. Contributions should be requested from the band and athletic booster club.

D.D.

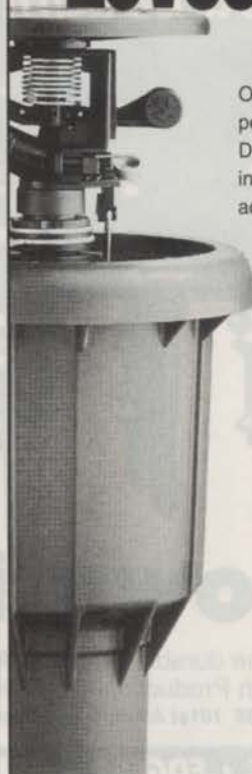
when they are working towards purchasing a tangible item, such as an irrigation system, core aerator or mower. Items like sand topdressing, seed, and fertilizer are less attractive as fund raising projects.

Players, and sometimes parents, are usually receptive to working directly on the field. Provide ownership in the field by allowing each player to work at the position they play. Immediately after or between games players can make necessary improvements in a matter of five to 15 minutes. Pitchers and catchers can easily rework the mound and home plate by

adding and tamping clay. First and third can rake, level and repair the skin area around their respective bases. Second and shortstop can broom soil from the grass to prevent lips. Outfields can spread a mixture of seed/sand/soil into divots to fill in thin areas. Fields that are routinely managed with players seldom need severe renovation. I've actually found that players enjoy working on the field and parents take pride in seeing their kids assume the extra responsibility. **LM**

David D. Minner is associate professor of horticulture at Iowa State University

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Need a bank loan?



Here are some time-tested strategies to convince your local banker that your green industry company deserves a chance to grow even more.

by ROBERT A. WOODS

Your company is growing, entering new markets, developing new services.

You need money. Cash is tight. Where do you go to find money to grow?

While there are numerous financing choices for small and medium-size, owner-managed businesses, most company owners go to see a local bank first.

There are specific steps you can take to increase your chances in dealing with banks

and other lenders. But you have to get your banker excited about your company. Only then can the banker sell it to the loan committee.

Speak banker's language

Bankers are always on the lookout for solid companies to loan money to. That's their job.

But, most loan proposals that come across a bankers' desks appear to shout to the banker:

- ▶ "Reject me for lack of documented financial information."
- ▶ "Reject me for lack of a specific plan to pay you back."
- ▶ "Reject me for not demonstrating how the bank's money

can actually help my business earn additional profit."

Numbers talk

When you put your financial information together what kind of story did it tell? You or your accountant probably rounded up the company's past few years annual financial statements along with possibly an interim statement and submitted these to the bank. Unless you are in an exceptionally strong financial position (and if you are, you would not be applying for a loan) the information you gave the bank is probably not enough to tip the scales in your favor.

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You are judged solely on your financial performance as you have given it to the bank.

You can legitimately make the story you tell the bank substantially stronger by doing two things with the financials:

- ▶ "Recast" your previous years' earnings.
- ▶ Include *pro formas* in your loan submittal package.

Recast earnings are simply redoing your financial statements to show what your business could have earned, its maximum earning power, in any given year. As a private business you try to minimize taxes. Taxes are based on income so it's only natural that you tried to keep your income reasonably low. But low income is not what your banker wants to see.

Show true profits

Adjust your income statement to show what your profit could have been if the company hadn't paid for your car and insurance. Adjust for everything that was not an absolutely necessary business expense. Look for expenses that could be eliminated, even though you might not choose to eliminate them, and still allow you to successfully run your company.

Look carefully at your salary and the salary of any relatives on your payroll. As the owner you can take as much cash as you want out of the company. But if what you are taking in salary and bonuses exceeds normal standards for your industry your company is showing less profit than it is actually making.

Profits=smart

The first thing bankers look at is the annual profit shown on

your financial statements. This is the benchmark of your success in their mind. Nice profits equals smart business person. Low profits equals dumb business person. Get your profit as high as you can before you meet with the bank.

For example, you are taking home a salary of \$125,000 when \$75,000 is more in line with what other owners of similar size companies in your industry are making. More power to you, but if you add this \$50,000 of "excess" compensation back into your profits your bottom line is going to look a whole lot better.

If all this sounds suspiciously like keeping two sets of books or like a lot of work, relax. It's perfectly legal since all your income is being reported. You are just showing what happens if you move income and expenses around on paper. As for the work involved, all that is usually required is a few adjustments on the expense side of the ledger.

After you have recast your earnings to put your historical financials in the best possible light it's time to look to the future. What are you giving your banker that shows him or her what is going to happen to the company's finances over the next three to five years? What are you giving the bank to show how you are going to use their money other than vague references to "needing working capital"?

Bankers want to know specifically what you are going to do with additional funds. You have to show the bank exactly how you are going to use its money to make more.

Pro forma a look ahead

A *pro forma* projects your financial statements out over the next three to five years, depending on the term of the loan you are requesting. Lenders want to see a documented, believable future that puts their money to good use and shows them how they are going to be paid back. Show the banker how you are going to use the money to increase profits by opening up new markets or by offering expanded products or service.

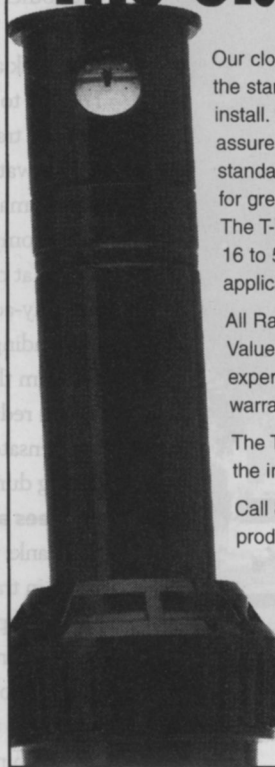
Watch out for projections that are wildly optimistic or differ markedly from industry averages. Bankers have a copy of *Annual Statement Studies* published by Robert Morris Associates on their desks. It de-

tails the operating ratios of companies in every industry you can imagine. If other companies average 35 points gross margin you won't impress the bank by telling it you plan to achieve 60 points.

Pro formas use income, balance and cash flow statements to demonstrate your future financial performance. Tie all these numbers together to build a future that shows the bank that you are in command of your business.

—Robert A. Woods, chairman of the Woods Capital Corporation, Park City, Utah, helps owners of small and medium-size businesses obtain financing for their companies. He can be reached at (800) 892-7707.

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BIG TREES easy to transport

by JASON COX

Until recently, real estate developers relied on small, easily managed trees for landscapes. These trees often took decades to assume the finished look the developer had in mind at the beginning of the project.

Thanks to improved technology and equipment, mature trees, whether on-site or miles away, can be used in almost any setting to enhance a landscape.

Full mature trees give depth and scale to a landscape, and increase environmental

"usability." Their shade cools a hot summer sun. They offer privacy, increase property value, complement architecture and provide a habitat for wildlife. With grown trees, there's no second-guessing their ultimate shape and height.

The right contractor

Trees are perishable, so develop procedures to increase their survival chances after the move.

► Make sure the contractor has a **proven track record**. Companies should have extensive experience in moving trees of the size and specie that you want.

► Does the contractor **know the area**? Trees imported from locations near the project site typically adapt faster to the micro-environment and are likely to encounter similar soil types. They also preserve the ecological integrity of a project and blend well with other features of the landscape.

► Ask about **follow-up care**. The key to ensuring the survival of recently transplanted trees is proper watering, which is often the site manager's responsibility. Good companies offer extra services that can increase the survival of newly-acquired trees. Mulching and sanding prevent evaporative loss from the top of the rootball. Crown reduction pruning can compensate for any root loss occurring during the transplant.

Big trees a specialty

Thanks to dramatic improvements in transplanting technology, a few companies offer giant tree relocation services. With equipment designed to accommodate trees ranging up to 36-inches in caliper and weighing more than 400,000

Three methods

New spade for massive trees

Environmental Design/Instant Shade, a Houston-based contractor, recently developed 14-foot and 16-foot tree spades capable of transporting rootballs measuring up to 30 cubic yards. The most affordable way to transplant giant trees is also the most versatile. With this technique, trees can be relocated from sites many miles away.

Roundballing

For on-site transplants, roundballing is a viable option. With this method, the rootball is hand-dug and wrapped in burlap and wire. The technique permits the transplant of trees larger than those that would be available with traditional and upgraded spades. Trees are ultimately crane-set into their final setting.

Boxing

Like roundballing, boxed trees are hand-dug and crane set, but instead of burlap and wire, steel plates are fastened to the rootball for overland transport. This is the method of choice for distant project sites that need giant trees.

J.C.



With the 'boxing' method, steel plates are fastened to the rootball for overland transport.

pounds, a developer is limited only by budget and imagination. In terms of economics, larger trees are a more cost-efficient amenity than other commonly-used alternatives, including hardscapes and waterscapes.

Typically, it's less expensive to relocate trees than it is to destroy what's already in place and replant new trees. Giant trees, however, need extra consideration when being moved. □

The author is with Environmental Design, located in Houston.

PGMS lists show topics

The Professional Grounds Management Society has finalized its list of seminar topics to be presented at the 1997 Green Industry Expo.

The list of 18 subjects covers a variety of landscape management related duties, from athletic field management, to design, plant care and fungicides for disease control in turfgrass.

A presentation on "Team Building" will cover the best ways to encourage crews to work together for a common goal.

Dr. Alex Shigo will cover tree care and general plant care. Business consultant Dr. Larry Helms will cover "Running a Business."

Turf restrictions amended in Nevada

The Nevada Landscape Association has reached a compromise on landscape restrictions proposed by the state's regional water commission.

The original Water Management Plan had called for:

- ▶ no turf on new commercial properties;
- ▶ no turfgrass on slopes greater than 10 degrees;
- ▶ 25 percent maximum amount of turf allowed in multi-tenant developments.

Michael King, NLA president, said he consulted with Dr. James Beard, professor emeritus, Texas A&M; Dr. Dale DeVitt, water, plant and soils specialist at UNR; and Debbie Schoenberg, chairman of Sierra Nevada Landscape Architects; and more than a dozen nursery/landscape companies, for help in revising the restrictions.

King would like to see the state adopt a performance-based water use program based on evapotranspiration (ET) rates.

"This has been a proven method in other cities where I have collected information, and it is a win-win situation in those cities; for the water purveyor, the landscape industry and conservation," said King, who added that a water conservation program based on performance would secure the water needed for Nevada landscapes. □

Other topics in the PGMS list of presentations include:

- ▶ Being a Success in Landscape Business
- ▶ Landscape Design Imaging
- ▶ Sports fields
- ▶ Planting Depths for Woody Ornamentals.

"We have purposely planned education sessions at the Conference to meet the stated needs of the full range of grounds professionals," says PGMS President Steve Wharton.

The Green Industry Expo is to be held Nov. 15-18, at the Charlotte, N.C. Convention Center. The GIE is a joint show presented by PGMS, the Professional Lawn Care Association of America and the Associated Landscape Contractors of America.

For more information on the PGMS program, call (410) 584-9754. □

GIE moves equipment demo to day 1

The Outdoor Equipment Demonstration usually held as the wrap-up event of the Green Industry Expo is going to be the lead event of the event in 1997.

The try-before-you-buy gathering will be held Sunday, Nov. 16, from 1 to 5 p.m. at Renaissance Park in Charlotte, N.C.

The GIE show runs Monday and Tuesday, Nov. 17-18 at the Charlotte Convention Center.

"The early start for the Outdoor Demo should attract more participants," says Trade Show Manager, Eleanor Ellison, who expects attendance at the outdoor event to triple. □

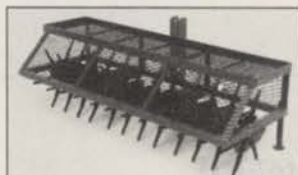
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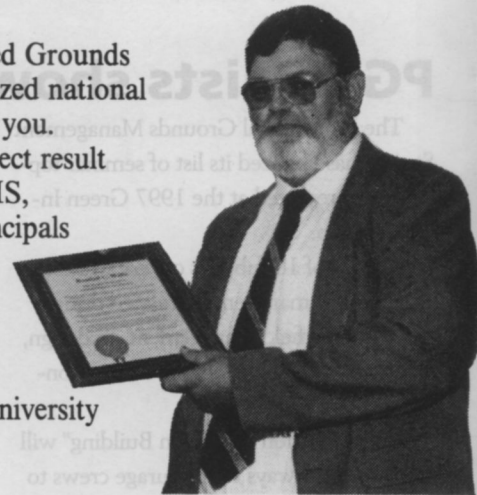
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 - training manuals
 - discounts - rental cars, books
 - membership directory
 - awards
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*Conferred by PGMS, grounds manager certification is a program of developing and administering a program of voluntary peer review to establish acceptable competence levels, and to help the grounds professional attain his personal goals.

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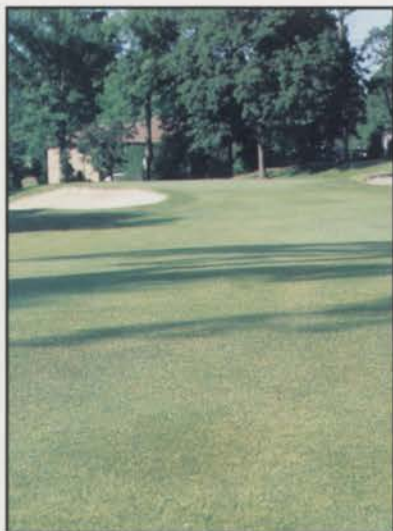
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Week 1



Week 2



Week 3



Week 7



Week 8



Week 9

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Week 4



Week 5



Week 6



Week 10



Week 11



Week 12

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that it eliminates all need for rinsing to make disposal easier, too. Plus the superior sticking and staying power of our Super Weather Stik formulation for exceptional broad-spectrum control of some 70 diseases that attack turf, ornamentals, and trees. And the fact that there's never been a documented case

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Since being named supervisor of the Duke University Golf Club engineering and mechanical repair department, I have developed a streamlined and affordable system for our golf maintenance operation.

We have *three mechanics* in the shop, because a great preventive maintenance schedule insures you will have equipment that runs properly from top to bottom.

Our system is recovering the cost of three mechanics many times over, and has created great results on the course.

Most golf courses have 50 to 100 machines, and employ one or two mechanics. They also try to use untrained workers in the shop to help the lead mechanic.

There is no way one mechanic at an 18-hole golf course with a full maintenance schedule can perform preventive programs; make emergency repairs; maintain repair logs; purchase products; keep the books; and clean the work area, all in a five-day work week. Some part of the overall program will suffer or simply won't get done.

When mechanics are over-worked, they're always playing 'catch-up.' Morale is low as preventive maintenance is increased, and the grounds crew doesn't like the machines they run.

The Duke University Golf Club suffered from what I call "The Alamo Syndrome." The mechanics were working against impossible odds.

Here's how to break out of the syndrome. We did it in one year:

- 1) Start with a clear, well-defined mission statement.
- 2) Establish your work philosophy and plan a work schedule that includes an extra, trained mechanic in the shop. As part of the schedule:
 - ▶ Design and follow an effective preventive maintenance schedule.
 - ▶ Ask your tractor rep for help on PM sheets.

Why your shop needs three mechanics



Norman Weaver

NORMAN WEAVER
Guest columnist

[GOLF]

PAGE 4 G ▶

Texas Star leads rec center plan

PAGE 10 G ▶

Nutrients, irrigation affect disease

PAGE 12 G ▶

Indian River club a 'natural' success

PAGE 16 G ▶

Super's lifetime at Ledgemont

▶ Give each piece a number. Include blowers, cutting tools, pressure washers, everything.

▶ Set up your files based on the numbering system, and log the work daily to include time and cost of parts.

3) Present this plan to your general manager, greens committee, or whomever else holds the purse strings.

As a result of our program, morale is high and we're never behind in our work. Our records are clear and concise for fast reference, and the equipment looks and performs better for more years. Superintendent Eric Shields no longer has to wonder whether or not equipment will be ready on time, and I'm looking forward to saving more than \$100,000 over the next three years.

That's what proper equipment maintenance is all about! **LM**

Guest columnist Norman Weaver is supervisor of golf course engineering and mechanical repair at the Duke University Golf Course, Durham, N.C.

What's your opinion on the "state of the shop" at golf courses today? Have any solutions or suggestions of your own? Write to LM at 7500 Old Oak Blvd. Cleveland, Ohio 44130. Phone us at (800)225-4569 x 709; fax us at (216) 891-2675; or E-mail to: tmciver@advanstar.com

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Texas Star course leads REC CENTER PLAN

Just 10 minutes from DFW airport, the 200-acre Texas Star is one part of a blueprint that is expected to give the City of Euless a boost.

By TERRY MCIVER / Editor-in-Chief

The Texas Star Golf Course debuts this month in Euless, Texas, as part of a planned recreational complex that will feature the 200-acre golf property and 90 acres of baseball, soccer and softball playing fields.

Texas Star was designed by Keith Foster, once a student of Art Hills, now in his sixth year with his own design company, headquartered in St. Louis.

The course is owned and operated by the City of Euless, a suburb of Dallas. "This project is huge relative to the game of golf and the impact it will have on the

city," explains Foster.

"They're also building a convention center that will benefit the community and the region. It's quite enormous when you consider all the potential," says Foster.

"The city has always wanted a great golf course that will be an asset."

Foster also designed the well-known Quarry Golf Club in San Antonio, which, he says has become the leading public course in the state.

Texas Star is 200 acres of golf and golf only, with not a home development in sight. The course has been cut into a site reminiscent of the Texas 'hill country,' and features dramatic changes in elevation and rock outcroppings.

"Our goal was to create a golf course that looks like it's always been part of the land, and capitalizes on what the site has to offer," says Foster.

Jon Snider, superintendent at Texas Star, is a Texas A&M graduate, whose previous assignment was at The Cliffs Country Club near Graford, Texas.

"Jon was the perfect fit," compliments Foster. "He has been exceptional to work with throughout the entire process."

The number 13 at Texas Star displays the turf varieties used. Greens are Pennncross G-2; aprons are Tifway 419 Bermudagrass; taller grasses beyond the apron combine little bluestem, weeping lovegrass, switchgrass and western wheatgrass.

Texas Star at a glance

Designer: Keith Foster

Size: 200 acres; 7000+ yards, par 71.

Superintendent: Jon Snider


Assisted by: Jesse Hunt

Mechanic: Walter Braswell

Irrigation expert: David Quiroga

Turf: Tifway 419 bermuda; Pennncross G-2 bentgrass; tall fescues; about 30 acres are planted in native grasses: little bluestem; switchgrass; western wheatgrass; weeping lovegrass

Snider plans to employ a peak-season staff of 20, and 12-14 year-round workers, "depending on whether or not we overseed. At this point in time, we're not plan-



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'Our goal is to create a golf course that looks like it's always been part of the land, and capitalizes on what the site has to offer.'—Keith Foster, architect

ning on overseeding our fairways. That's a year ahead, when we reevaluate and change things," says Snider.

"If this year is any indication of the coming growing season, we may not see much dormancy. We were still mowing at Thanksgiving 1996, and we started to mow again in mid-March. We never went fully dormant. We were only down about three months."

New bentgrass, natives

Tees and fairways are sprigged with Tifway 419 bermudagrass. Greens are seeded with the new Penn G-2 variety, known for its improved density and close mowing tolerance.

"There are accent grasses used in rough areas, kept at 5-6 inches in height, and in some shaded areas we're going in with tall fescue," Snider explains.

Mowing equipment at Texas Star includes Toro walk-behind greens mowers and Jacobsen 3810 fairway mowers.

"As a city, all of our equipment purchases went out on bid. So we have a variety of equipment," explains Snider.

Equipment maintenance will be up-to-date, but for now, the office trailer/pump house serves as maintenance headquarters.

"Fortunately, we have a really nice pump house," laughs Snider.

Computerized maintenance records

"We're trying to do as much preventive maintenance as possible in less than ideal conditions," says Snider. "We plan to go to a computerized system that records hours of use for each machine, and transmits the information to the computer screen, such as recommended intervals for oil changes and all preventive maintenance."

The irrigation system combines a Toro OSMAC irrigation system with Flowtronex variable-speed pumps.

The greens are planted on a sandy loam/peat mix that drains just as it should.

Bunkers are the same calcareous sand, minus the peat, from the Brazos River.

"It's used by the city's fleet service center. They take care of the rest of the equipment used by the city departments."

Barricade is the only product labeled for rescuegrass, which we have in several areas.

"We are in a flood plain, and Hurricane Creek, which runs through the property, comes out of its banks. In those areas we've had lots of weed seed deposited, and had a heavy infestation of the rescuegrass there. Along with some other areas, we're going to window treat with the Barricade and then broadcast the Pendimethalin everywhere else."

Organic products are also on Snider's list of treatment methods.

"We've used quite a bit of Houactinite, a processed sewer sludge. We've gone out in spring with 750 pounds per acre; we went into the fall last year with a good, heavy dose. The course greened up quicker and stayed green longer."

"I can't totally attribute all the green up to the Houactinite, because we're putting a pound of nitrogen on these new sprigs every week, trying to push them up to the end of October. We were fortunate through winter with the freezes and what have you, that we didn't lose any grass."

The present 12-man workforce includes nine Hispanic workers, which provides a certain communication challenge.

To jump the language barrier, Snider is using a Spanish language CD ROM to teach himself

Spanish, and relying on the help of the Hispanic workers.

"They teach us, and we teach them," he says.

"Our irrigation technician is fluent in Spanish. He carries a radio with him at all times. If we do get caught in a communication problem, we call him and he translates on the spot." □



Jon Snider, left, says he and his Hispanic work team help each other get over the language barrier.

Snider anticipates Texas Star will host 40,000 rounds per year, "and we're going to limit it to 40,000," he insists.

"If we have to start turning away people, that's when we'll go up in price."

A round of weekday golf at Texas Star, with a cart, is priced at \$47. Prime time and holiday play costs \$59.

Weed control in flood plain

"We've gone out with an application of Barricade already this year for the summer annual weeds," says Snider, "and will probably go back with Pendimethalin in the fall, with window applications of Barricade."

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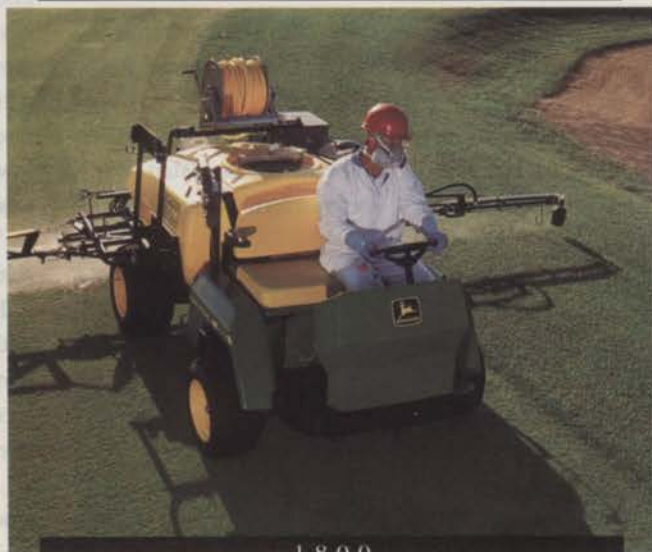
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Nutrients, irrigation affect turf disease

by BRUCE AUGUSTIN, Ph.D.

Turfgrass managers control the variables associated with fertilization—the N source, the amount applied and timing.

Quality turf needs fertilizer. Nitrogen is the most important of the 17 elements essential for turf. It provides for leaf growth and green

color. Nitrogen requirements vary by turfgrass species and cultivar.

Turfgrass managers can control variables associated with turfgrass fertilization—the ni-

trogen source, quick release versus slow release, pounds of N applied per year, amount applied per application.

The amount of applied N effects turf growth and disease development. Limited turf growth occurs under low nitrogen fertility. Only a few turf diseases will develop because of low, inadequate nitrogen levels.

Lush growth a target

The majority of diseases result from too much N causing lush leaf growth and plants with reduced disease tolerance, particularly when the turf may be under environmental stresses.

A single application of large amounts of N can also pose problems. It creates lush leaves that are predisposed to pest attack. Infections occur as the growth effect from nitrogen begins to wear off and the rate of leaf elongation slows down. To

avoid this, either apply smaller amounts of quick-release or use slow-release nitrogen fertilizers.

In general, highly maintained turf like golf greens with a low height of cut, require more nitrogen than a typical home lawn. Nitrogen also has to be applied more frequently in smaller amounts per application on a golf green than on a home lawn. Different turfgrass species and the ability of the underlying soil to hold nutrients contribute to the rate and frequency of fertilization. Golf greens are fertilized at ¼ to ½ pound of nitrogen every three to four weeks while a home lawn gets one pound of nitrogen every two to three months.

Potassium a help

Potassium is one of the few other nutrients directly identified with disease development in turf. Adequate levels of potassium in the soil make turf more tolerant to stress and pests. High potassium levels may not eliminate turf diseases but they reduce disease severity. Inadequate potassium nutrition makes turf more susceptible to diseases like spring dead spot of bermudagrass.

A casual relationship has been noted with phosphorus with turf diseases. Turf grown on phosphorus deficient soils has shown an increased susceptibility to pythium and root rot



Fairy ring disease can appear in all turfgrasses.

DISEASES THAT BECOME SEVERE UNDER LOW NITROGEN LEVELS

anthracnose
 cercospora leaf spot
 dollar spot
 red thread
 rust
 take-all patch.

DISEASES THAT BECOME SEVERE UNDER HIGH NITROGEN LEVELS

brown patch
 copper spot
 curvularia blight
 fusarium patch
 gray leaf mold
 gray snow mold
 leaf spot, melting out
 necrotic ring spot
 pink snow mold
 powdery mildew
 pythium blight
 stripe smut
 summer patch
 yellow turf
 yellow patch



Brown patch in St. Augustinegrass. The disease likes high N content.

diseases. These observations have been made primarily on sand/soil-based golf greens.

The role of pH

Other soil factors have indirect influences on turf disease development. Take-all patch, summer patch, and pink snow mold are more severe under pH conditions. Adjusting the soil pH minimizes disease severity. Ammonium sulfate as an acidifying nitrogen fertilizer source to lower soil pH reduces the severity of these diseases.

Turf irrigation

Turf requires about 43 inches of water per growing season. The eastern United States and the Pacific Northwest usually have adequate annual rainfall. Even so, rainfall is unpredictable and irrigation is sometimes a necessity to keep turf green. Too little moisture causes turfgrass to wilt and, eventually, go dormant.

Too much moisture can lead to disease. Irrigation rates

and frequency depend on the weather, turf species, soil and turf management level. For instance, periodic wetting and drying of turf provides conditions favoring some turf diseases, such as *Helminthosporium* leaf spot complex in early summer.

Nighttime irrigation has been thought to increase disease. Irrigate at 4 a.m. to 6 a.m., when wind is at a minimum, for greatest efficiency. Sunlight will then dry the turf.

Dry spots

Localized dry spots are often misdiagnosed as disease or insect problems. The turf turns brown and dies in patches when the soil dries out beyond the wilting point.

Non-ionic surfactants or wetting agents give short relief.

Weather effects

Regardless of management practices, the weather ultimately dictates disease severity. Most turfgrass pathogens are

SUGGESTED NITROGEN FERTILIZER SCHEDULES

Turfgrass species	Lbs. N/1,000 sq. ft. per year	Number of fertilizer applications/year
Bahiagrass	2-3	2-4
Bentgrass		
Greens	4-8	6-10
Fairways	1-4	2-5
Bermudagrass		
Greens	8-12	8-14
Fairways	2-5	3-6
Athletic Fields	2-5	3-6
Home Lawns	2-4	3-6
Centipedegrass	2-3	2-3
Fine Fescues	2-4	2-3
Kentucky Bluegrass		
Fairways	3-5	4-6
Home Lawns	2-4	2-5
Perennial Ryegrass		
Fairways	3-5	4-6
Home Lawns	3-5	3-5
Overseeded Greens	4-6	5-8
St. Augustinegrass	4-6	4-8
Tall Fescue	2-5	3-4
Zoysiagrass	2-4	3-5

always present in the thatch or soil. For example, the *Rhizoctonia* organism is routinely found in turf samples submitted for diagnosis. Turfgrass pathogens cause disease symptoms under optimum plant susceptibility, temperature and moisture conditions.

Disease control

There are two basic approaches to the application of fungicides—preventive or curative. Effectiveness depends on the disease organism and the mode of action of a given fungicide.

Curative fungicides take care of easy-to-control diseases such as brown patch that cause primarily cosmetic damage.

Difficult-to-control diseases such as summer patch or *Pythium* are typically treated on a preventive program. □

Bruce Augustin is product service lead for Zeneca Professional Products.

A 'natural' success

Superintendent Robert K. Ellis works with Indian River Club golf and residential community to preserve and enhance native coastal Florida environment.

By RON HALL/ Managing Editor

There's a hole at Indian River Club golf course known as "Temptation." It's named that for good reason. Even a high handicapper might be tempted to think, "hey, let's go for it." The ribbon of turf-grass winding to the green is inviting. Too inviting, never mind the water and bunkers.

All 18 holes at Indian River Club have names appropriate to their personalities. "Patience" is an undulating Par 5; and "Scrub Jay", a challenging combination of golf hole and wildlife preserve where you'll find Florida scrub jays, now legally protected as a Threatened Species by the U.S. Fish and Wildlife Service.

Golf Course Superintendent Robert K. Ellis says the descriptive names are just a tiny part of the uniqueness of Indian River Club.

More significant, says Ellis, is the marriage of this relatively new golf and residential community with

its native Florida environment. He describes this relationship (and his part in it) as a continuing experiment in stewardship.

"It's a learning experience," explains Ellis. "Everything we do here is."

The 300-acre Club gets its name because it's located on the southern boundary of Indian River County just outside Vero Beach. Indian River County is best known for its citrus, but golf has become pretty important here too. The county of 90,000 people boasts 17 golf courses, 11 of which are private. Construction on the Indian River Club course began January 1994, and it was ready for play in February 1995.

The developer of Indian River Club is Jeff Reynolds, a former cable television company owner. He and several limited partners initiated the development convinced that preserving and enhancing the natural environment would improve the quality of life for home owners and club members. This commitment—at least to the extent they've dedicated themselves—sets their club apart from other similar communities, they believe.

In 1996 Audubon International honored Indian River Club with its highest recognition, designating it

This wooden cart bridge forms a design element on this hole. Note the grass stabilizing the bank of the waterway.



as an Audubon Signature Sanctuary. It was only the third new golf and residential community so honored. Even so, Robert K. Ellis, golf course superintendent, sees the Club as a work in progress.

Always in progress.

The design works

Ellis joined the Club early in the golf course's development. He was delighted at the opportunity, he says, particularly as he learned more of the developer's commitment to "doing the right thing." He was selected, he believes, in part, because of his experience with three other golf course construction projects. Ellis is a graduate of Lake City Community College (Golf Course Operations) in northern Florida, and a native of Lakeland, Fla.

He says he sought suggestions from fellow Florida superintendent Tim Hiers. Hiers' experiences at Colliers Reserve Country Club in Naples, Fla., has inspired other superintendents to become involved with the Audubon program, says Ellis.

The Indian River Club superintendent also praised golf course architect Ron Garl, Lakeland, Fla., for the care he took in blending his design into the property's unique characteristics.

"The architect and I were friends before we came here," says Ellis.

"I thought it was wonderful that they got a Florida architect that knows native Florida."

Garl adopted a cooperative approach laying out the course. In a sense, the project called for that. Four distinct landscapes—a mature pine forest, an oak hammock, a Carolina-style savannah, and an ancient elevated coastal sand dune—comprise the terrain on which the Indian River Club is built.

So conscientiously did Garl, with input from Ellis, shape the holes that, golfers can still easily identify and experience all four landscapes, with much of their native charm. Equally important, from Ellis's viewpoint, the course is manageable with a well-thought-out IPM program.

Wise use of turf

Just 85 acres of turfgrass cover the Indian River Club course which also contains more than 50 acres of lakes, marshes and wetlands (both natural and man-made).

The tees, fairways and roughs are Tifway 419; the greens and collars are Tifdwarf bermudagrass. Both are overseeded during winter. Emerald zoysiagrass is used on several shaded tee complexes, while St. Augustine is the preferred grass for homeowner lawns.

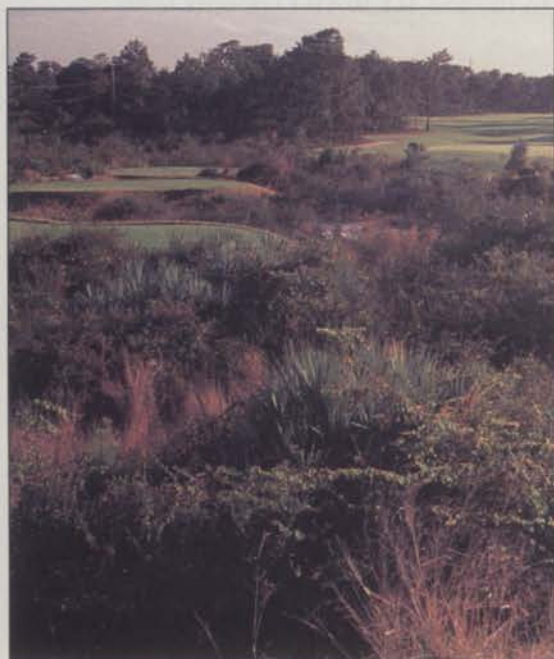
Ellis says native grasses such as sand cordgrass, seashore dropseed, fakahatchee grass and muhly grass minimize maintenance on hard-to-maintain areas such as steep lake banks and tee slopes, and out-of-play areas not needing supplement irrigation.

The superintendent manages a golf course maintenance staff of 13, in addition to Assistant Superintendent Jeff Rennert, two mechanics and an office assistant. The Club's landscape supervisor is Barry Wade. He manages a six-person staff.

Hole 5, looking back to 6 is built along an ancient coastal dune, and is a habitat for the threatened Florida scrub jay.



Superintendent Robert Ellis, above, collaborated with Architect Ron Garl in preserving a uniquely Florida environment.



As beautiful as the golf course is, it's just part of the total Indian River Club experience. All of the community's homes border the golf course, and many are tucked into locations screened from play by native vegetation. The mature plant material also provides them with a surprising amount of privacy.

"We're trying to get the homeowners involved with our programs by minimizing the amount of turf. By using the natural flora we're able to keep these areas native with low maintenance," says Ellis. "It saves a lot of costs, and look what it does for conservation efforts."

Indeed, much of the vegetation surrounding some of the holes on the golf course came from areas cleared for construction. Crews relocated about 700 native sabal palms, 100 small oaks, 12 specimen oaks (some upwards of 75 feet tall), and numerous amounts of palmetto stands and other various native plantings.

While this work continues, it's not always successful, admits Ellis. Generally, about ⅓ of the relocated native material survives. "That's pretty good. It's certainly better than stripping and clearing sawy this good material."

At Indian River Club, they don't discard what's unique about the coastal Florida environment. They find a way to preserve and enjoy it. □

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Super builds, rebuilds in lifetime on course

When Tony Caranci arrived at Ledgemont 40 years ago, he was in it for the long haul. He's made a history of improvements to the Seekonk, Massachusetts course.

Anthony Caranci, Jr. was working on the third green at Ledgemont Country Club when he heard about the death of President Kennedy.

In fact, most of Caranci's most vivid life memories are tied to the golf course.

And it's a considerable life: 40 years at one golf course, located in Seekonk, Mass.

During that time, Caranci has rebuilt most of the greens and tees at least once, recontoured the fairways, installed all drainage systems, built cart paths and planted nearly every tree on the course.

"I guess you could say this golf course has been my second home," says Caranci.

"I can think of a lot worse places to spend your life. I'm proud to say that over the years, we've made this course into a country club."

Caranci freely shares the credit for the golf course's continued improvement and development with his assistant of 25 years, Bill Sherman.

Swampy conditions

"I started rebuilding the greens right after I came here in 1956," recalls Caranci. "The course was very swampy and the greens were flat and pancake-like. It was not a test of golf."

"I started on the second green, enlarging it and putting in rolls, and we put in one or two new greens each season for many years."

With little money to work with, Caranci raised his Penncross sod himself, sprigged it in May and pushed for growth all summer. He also selected most of the trees from the woods, root-pruned them and planted them on the course the following year. Caranci



Caranci built a career at Ledgemont CC.

tried to make each hole different, beginning by tipping the second green "like a pie plate," elongating the tee on the first hole to create space and making the fourth hole a water hole for more golf drama.

Clay soil a challenge

"We have the world's worst soil here," asserts Caranci. "It's heavy clay, and rocky. We had to get rid of \$60,000 worth of rock, which we used to build a

practice tee. We also put drainage in on every hole, and continue to add it each year. At first, we just put cart paths on the extra wet holes, Numbers 2, 11 and 13. But now, I have two left to finish and then the cart paths will be continuous."

Wet conditions, combined with the heavy clay soils on the Ledgemont course lead to disease problems each year, as heat and humidity rise. Caranci knows he will find brown patch and rhizoctonia each

cont. on page 20G

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GOLF COURSE PHOTO BY JOHN R. JOHNSON

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First, Fore handles tough diseases like brown patch, pythium and slime mold, while offering the same level

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systemic control and with Subdue for unbeatable knockdown of pythium. Plus, use Fore with Prostar® to get even wider disease protection.

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TURF & ORNAMENTAL FUNGICIDES
The foundation of good disease management.



cont. from page 16G

summer on most of the course. He uses ProStar fungicide to control the diseases, as suggested by Dr. Noel Jackson of the University of Rhode Island.

Caranci himself has taught turf management seminars for the University of Rhode Island and University of Massachusetts.

Caranci says the fungicide controls the disease problems very well on greens, tees and fairways.

"It lasts for a good 28 days, giving us control that is twice as long as any other product we've used."

Fewer applications is another benefit to the fungicide program.

Aerification, IPM

Caranci and his 12-person crew try to follow an Integrated Pest Management approach, and look for chemicals without restricted use designations.

Greens, tees and fairways are aerified twice each year, and pest control products are usually used on a curative rather than preventive basis. Each year, they overseed with one ton of a Penncross/bluegrass seed mix. In addition, they use a dragmat to spread and smooth the clippings.

The course features a variety of trees that Caranci has planted over the years, including Bradford pear, crabapple, dogwood, forsythia, lilac, and weeping birch.

LM

Ekas of Saxon Course wins GPGCA service award

The Greater Pittsburgh Golf Course Superintendents Association has given its Christian Morup Award to Frank Ekas, Sr.

The Morup award is the association's highest honor, and is given annually to the person who "exemplifies the dedication, professionalism, and integrity of the turfgrass profession."

Ekas, 74, is owner/operator/superintendent of Saxon Golf Course, which he originally built in 1962 and owned in partnership with Bud Klingensmith. Today, Saxon is a 27-hole layout, and is considered to be one of the best public golf courses north of Pittsburgh. □

More courses for youth needed, says ASGCA

The American Society of Golf Course Architects is happy that Tiger Woods is making such a positive impact on the game of golf. Now, says ASGCA, more courses are needed to meet the anticipated need.

"Woods is leading an army of youngsters onto the golf course. He's introducing them to a game that until now was virtually foreign to kids, especially minorities," reports the Association. "Unfortunately, there's not always a place for these young converts to play."

"Despite the fact that about 425 new municipal or daily fee courses opened for play in 1996, we're still short of affordable golf facilities in virtually every major market in the U.S.," says Denis Griffiths, ASGCA president.

Griffiths encourages golf course architects to make a greater effort to design courses that cost less to build, and will therefore cost less to play. He also suggests that the practice of some public courses limiting players' minimum ages to 14 or 16 may change.

The ASGCA has a library of literature for those interested in developing new course or remodeling existing ones. Address for the Society is 221 N. LaSalle St., Chicago, IL 60601. □



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Pesticides, golf cars in Calif. GCSA news

The ban on city pesticide use in San Francisco may expand to cover city easements and property leased by the city, reports the GCSA of Southern California. This could include property that has city utility lines running over it. Advocates of the ban are determined to expand it, reports the Association.

Also, the use of golf cars on public roads and highways in California is being addressed in new legislation. □

Keeping it green

All playing fields can benefit from overseeding, which protects the dormant bermudagrass and enhances winter color.

by BILL KNOOP, PH. D./
Technical Editor

Bermudagrass is a great grass for the South. It is used for everything from home lawns to athletic fields. The only problem that some find with bermudagrass, and many do not consider it a problem, is that it is brown and dormant during the winter. Most of us would rather see green turf all year.

In the South, outdoor sports are played nearly all year. Play does not stop just because a bermudagrass field goes dormant. But if play continued, the field would soon be reduced to bare soil. All athletic fields, from putting greens to backyards that host the neighborhood football, benefit from overseeding. It's not just a question of looking

green, overseeding protects the dormant bermudagrass. Some spring sports such as baseball may never be played on a green field unless the field is overseeded. Any field used for late fall, winter or early spring sports should be considered for overseeding each year. A good green turf is a safer field for play than a bare field. An actively growing, overseeded field can tolerate a lot more wear and tear than a dormant field can.

Perennial ryegrasses, rough bluegrass (*Poa trivialis*), and bentgrass are often used for overseeding. Sometimes even one of the fine fescues such as red fescue may be used.

Perennial ryegrass superior

Most research projects have focused on the use of

cont. on page OS4



Slit seeders: a blade cuts through the bermudagrass turf and seed is placed at the soil surface.



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Highly recommended for use on athletic fields, playgrounds, golf courses, home lawns — any area where a fast-starting, attractive turf is desired — *Cutter* is very compatible with other cool season turfgrasses.

In fact, *Cutter* — along with *Express* and *Edge* — will lend its enduring pedigree to a new generation of perennial ryegrass blends this fall, with the introduction of *Futura 3000*.

For all fine turf situations, turn to *Cutter* — living, breathing proof that good breeding endures.



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Circle No. 127 on Reader Inquiry Card

Timing, nutrition & selection

The challenge for the golf course superintendent or landscape manager who overseeds cool-season species into warm-season species, is to provide proper care for both types of grasses.

Remove excess thatch layer

Thatch reduction is an important first step. Reduce excessive thatch that is greater than a half-inch. The amount of thatch produced in turf is determined by certain management practices or the variety of warm-season species used. Remove excess thatch beginning in July, so that the grass plant can recover quickly in summer.

Thatch can be removed by verticutting, aeration and top-dressing.

Watch temperatures

The best results are produced when soil temperature is 72 degrees F at about a two-inch depth; daytime air temperatures are 80-85 degrees F and nighttime temperatures are at 60 degrees F.

Of course, special events may require you to overseed earlier or later.

If you overseed early, there will be strong competition from the bermudagrass that is still actively growing. Disease pressure will also be strong, which will increase the need for fungicides or seed coated

with a fungicide. A cold snap may also occur, which would hinder seed maturation.

Nutrition: nitrogen & phosphorus

These two nutrients need to be readily available in the soil for the new seedlings. Phosphorus should be a monoammonium (MPA), which has a lower salt index.

Fertilizer applications should be light and frequent, on a two- to three-week cycle, until the turfgrass stand has filled in.

Fertilizer applications should be focused on either the cool-season species or the warm-season species, depending on the time of year.

Seed quality tips

When choosing a cultivar, consider the following:

- 1) Seed cleanliness; free of *Poa annua*, bentgrass and off-type grasses.
- 2) Seedling vigor, for strong, quick establishment.
- 3) Germination: fast and uniform.
- 4) Resistance to major diseases.
- 5) Adaptation: to high or low mowing, and fertility.
- 6) Seed standards for ryegrass:

- ▶ pure seed minimum: 97.00%
- ▶ other crop, maximum: 00.50%
- ▶ weed seed, maximum: 00.50%
- ▶ inert materials, maximum: 3.00%
- ▶ germination, minimum: 90.00%
- ▶ no noxious weeds from any state

Irrigation specifics

Keep seedlings moist, but not in a flooded condition. Irrigation cycles are important, especially during the main part of the day, from 10 a.m. to 4 p.m. Repetition of the cycles and time depends on soil, temperature and wind. If the areas are flooded, the disturbed seed may float, which will result in an uneven turfgrass stand. □

—by Rick Elyea, Turf Seed, Inc.



Elyea: disease pressure concerns with too early overseeding.

About perennial ryegrass

Used in Southern overseeding in combination with other grasses.

Average germination: 3-7 days

Growth habit: bunch-type

Seeds/pound: 25,000-28,000

Blade width: 2-4 mm.; red base at crown; glossy underside

Overseeding rates: up to 30 lbs./1000 sq. ft.

Strengths:

- Improved mowing, less leaf shredding
- Rapid germination and establishment, fully established within 6 weeks
- Excellent repair capability
- Improved vigor
- Excellent wear tolerance
- Contains endophyte for natural insect resistance
- Improved density
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- Low thatch tendency

Fertility requirements: medium to high. Performs best with 4 lb. N/1000 sq. ft. per year.

Recommended varieties: Palmer II; Prelude II Repell II; Yorktown III. □

—Source: Lofts Seed, Inc.

Choose the right variety

To obtain the best results when overseeding, you need to choose the appropriate species and variety for your particular needs.

Over the past 20 years, perennial ryegrass has been the most popular species for overseeding warm-season turfgrasses, and for several reasons.

These include:

- quick establishment;
- attractive, dark green color;
- good wear tolerance.

Possible transition trade-off

Some of the new, prostrate growing, heat tolerant varieties, such as Top Hat, produce exceptional turf quality, particularly under close mowing regimes. There are, however, trade-offs with some of these varieties in that they may not transition out as well, especially in more northern areas. Other varieties, such as Derby Supreme, are more erect-growing and are easier to mow out in the spring.

Poa trivialis is a species that is becoming more popular for overseeding. It is used alone, primarily on golf greens, and in mixtures with perennial ryegrass for fairways and other turf areas.

Poa trivialis, unlike perennial ryegrass, can be cut very close as a seedling. The smaller seeds of *Poa trivialis* also mean that less aggressive renovation of your bermudagrass is required prior to overseeding. Another benefit of *Poa trivialis* is that it transitions quite easily. *Poa trivialis* is not the best grass to use for overseeding high traffic area, because it does not have the wear tolerance of perennial ryegrass.

Chewings fescue is another grass used for overseeding, almost always in a mixture with other species.

Chewings fescue varieties, such as Enjoy, add density to an overseeded turf. They also transition well. □

—Steve Johnson, senior research scientist, International Seeds, Inc.

cont. from page OS1

perennial ryegrasses for overseeding and, as a result, one or more of the perennial ryegrasses are commonly used.

Perennial ryegrasses produce a superior overseeding than the less expensive annual ryegrass.

Quick germination the key

The ideal turfgrass used for overseeding germinates quickly, grows at reasonably low temperatures and then dies when the weather gets warm enough for bermuda to begin growing again.

Since the newly overseeded turf must be watered fairly frequently for good seed germination, seedling diseases may develop in warm weather. Consider using a fungicide at the time

The heavier the overseeding rate, the greener the turf, but the harder it may be to get rid of in the spring. The final seeding rate is usually based on experience.

of overseeding, or the use of seed pretreated with the proper fungicide.

The final choice of a turfgrass or of turfgrasses for overseeding is mostly based



Walk-behind spreaders are used to cover 'tight' areas, such as tees or around greens.

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Characteristics

- | | |
|----------------------------|--|
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| BrightStar | Tops 1994 NTEP ryegrass trials / Extremely dark color / Dwarf growth habit |
| Charger | Good low fertility and cool weather performance / Improved disease resistance |
| Charger II | Dark, dense, dwarf turf ranks high in winter overseeding trials. Experimental code 2QM. |
| Catalina | Low growth profile and reduced clippings / 78% endophyte / Tested as GH-94 |
| Citation III | Excellent heat and wear tolerance / Improved disease resistance / Rich, dark green color |
| Manhattan 3 | Very dense growth habit / Rich color / Good mowing qualities / Contains endophyte |
| Navajo | Dark green, disease resistant turf / Excellent for overseeding / Good shade tolerance |
| Quickstart | Heat tolerant / Establishes quickly / Disease resistant / Excellent for overseeding |
| Roadrunner (2ET) | Dark blue-green color ideal for winter overseeding and permanent turf / Contains endophyte |
| Sunrye (246) | Dark green color / Dwarf growth habit / Contains endophyte / Disease resistant |

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Circle No. 153 on Reader Inquiry Card

WINTER OVERSEEDING

GRASS SPECIES	GREENS	TEES	FAIRWAY/ GROUNDS	ROUGHES	OUT-of-PLAY AREAS
Perennial ryegrass	50 [250]	40 [200]	30 [150]	20 [100]	10 [50]
Chewings fescue	40 [200]	30 [150]	30 [150]	20 [100]	10 [50]
Creeping bentgrass	4 [20]	4 [20]	4 [20]	2 [10]	2 [10]
Redtop	3 [15]	3 [15]	3 [15]	2 [10]	2 [10]

When mixing two species with different recommended seeding rates, always choose the higher of the two seeding rates. Then, calculate the weight of each component by multiplying the seeding rate by the percentage (as a decimal) of each component. For example, if a recommendation calls for a 90:10 mix of tall fescue and Kentucky bluegrass for roughs, use the overall seeding rate of 8 lb. per 1000 sq. ft (40 grams per square meter). Next, multiply 8 lb. x 0.9=7.2 lb. of tall fescue (36 grams) and 8 lb. x 0.1 = 0.8 lb. of Kentucky bluegrass 94 grams.

Note: all seeding rates are in lbs. per 1000 sq. ft.

[number in brackets is seeding rate in grams per square meter]

on experience. The LANDSCAPE MANAGEMENT Pocket Seed Guide, published each July, contains the National Turfgrass Evaluation Program variety test results. Review these results and then select the turfgrass or blends of turfgrasses that tend to do the best. Most often, mixtures of several varieties are used.

Overseeding rates

When selecting an overseeding application rate, there are several factors to consider. There are not any absolutely ideal overseeding rates. A lot depends on the area's use. Turf that's heavily used during the winter, such as putting greens or athletic fields, will need heavier seeding rates than areas just requiring winter color. The easy answer to the question of rate is not to use any more than necessary.

Generally the higher the application rate, regardless of turfgrass variety, the harder it

may be to get rid of the following spring. The goal is to establish enough cool-season turfgrass plants to get the job done, but not so many that those plants will severely compete with the bermudagrass stand as the bermudagrass comes out of dormancy in the spring.

The larger the seed, the higher the application rates. If a perennial ryegrass or a blend of perennial ryegrasses are used, the rate used to overseed a putting green or a tee may be between 15-20 pounds per 1,000 sq. ft. The minimum rate for large areas such as athletic fields or golf

course fairways is 200 pounds per acre. More often than not, the rate may be two or three times the minimum. Home lawns, lawns around businesses and apartments usually fall into the 5-10 pounds per 1,000 sq. ft. range.

Smaller seeded turfgrasses such as that of *Poa trivialis* or bentgrass are seeded at much lower rates. The seeding rate for *Poa trivialis* is usually $\frac{1}{2}$ or less that of perennial ryegrass, and the rate for bentgrass is usually in the one to three pound per 1,000 sq. ft. range. It is not unusual for mixtures of various cool-season turfgrasses to be used. Which grasses are included in a mixture and how much of each are in these mixtures is usually based upon the experience of the user.

The heavier the overseeding rate, the greener the turf, but the harder it may be to get rid of in the spring. The final seeding rate is usually based on experience. The



Bermudagrass is close-mowed prior to overseeding.

What's So Special About Special FX ? It's 1/3 Intermediate Ryegrass !



When budgets get tight, you don't have to give up winter performance. Special FX comes up quick, and gives you an overseeded fairway that rivals many 3-way perennial ryegrass blends.

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Overseeding trials in California and Arizona also confirmed that while Special FX had comparable color and texture to some 3-way perennial ryegrass blends, it also had excellent transitional qualities due to the presence of the intermediate ryegrass.

For a copy of the University of Florida, University of Arizona, or Bermudagrass Triangle Research Center trials, please contact Turf Merchants.

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Please call for a copy of the complete trial results.

Early/late fertility program works for Tucson manager

If there's one thing overseeded rye grass needs in Tucson, Arizona, it's lots of fertilizer. So says Murray Dew, owner of Catalina Landscape Maintenance.

Dew overseeds about 45 commercial properties every winter, including malls and apartment complexes, and the turf he produces is exceptionally thick and green. There's only one way to keep it that way: fertilize early and late.

"We fertilize every four to six weeks during the growing season," Dew says, and he starts soon after germination.



If he plants a plot early (in Tucson, that's in October) he begins to broadcast granular fertilizer right after the first mowing. If he plants late, i.e., after mid-November, he won't fertilize until after the second mowing.

"If we have an account that has a lot of shade, we overseed them early," he says, because those October plantings can occur during hot weather.

Dew likes Dis-Per-Sol with iron. He starts adding iron at about the third cutting, to give the turf a deep green color, and keep it there.

Catalina Landscape Maintenance employee Robert Chapell at an apartment complex overseeded by Murray Dew's crews. Dew plants 20 to 25 pounds of seed per 1,000 square feet.

cont. on page OS10



Harrowing bermudagrass around a golf bunker.

goal should be to use the lowest rate possible and still get the desired results.

Application timing

It is nearly impossible to pick the best time to plant an overseeding. If it's planted too early the chance of a disease may increase and competition from bermudagrass may be a problem. Planting too late could result in a complete failure because of low temperatures.

While the turfgrasses used for overseeding are cool-season turfgrass and are capable of withstanding low temperatures, they must grow to some stage of maturity before the cool temperatures arrive. While there are no guarantees, one rule of thumb to

follow is to overseed about two months before the average date of the first frost in your area. We certainly can't predict the weather two months in advance, but six to eight weeks of favorable weather for cool-season turfgrasses and unfavorable for warm-season turfgrass will allow the overseeding to mature enough to survive freezing temperatures.

No two years are alike, but your experience and the experience of others in your area will help to pin down the best time to overseed.

Preparation for overseeding

The basic goal is to get the cool-season seed down to the soil surface. As with all seedings, it is desirable to get the

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to us. We've found that the Seed Research perennial ryegrasses have excellent seedling vigor and tiller-out more quickly. We understand that it's due to the high levels of endophyte present in the components of Champion G.Q.”

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Ed Miller
Director of Golf Course Operations
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Early/late *cont. from page O58*

Dew uses a couple of techniques to determine whether he needs to add fertilizer. One is to examine the grass to see if blades are thin; the other is to ask his crews to tell him if the grass is mowing too easily. Either test will alert him before the turf becomes weak.

It takes two weeks for regular fertilizer to kick in, Dew says, so he likes to keep well ahead of the curve. Yellow streaks can appear in plots—from missed broadcast applications, soil conditions or poor water penetration—and he hates that.

So he fights yellow streaks with foliar applications of Deep Green. He adds urea at one pound per 100 gallons to the foliar spray, and gets great results long before a granular fertilizer would take hold.

"It greens it up within 48 hours," he says.

Tucson is a difficult place to keep rye in good condition, says Dew, who had a landscaping business in Phoenix before he came here. Winter weather can range from cold and rainy to hot and dry. The results can be poor turf, and that is exactly what clients pay a lot of money to avoid through overseeding.

"A lot of these are high-end rental units," Dew points out, and overseeded turf has to last up to six months.

Another tip he uses to keep good rye appearance is to seed "a little heavier than most." He plants 20 to 25 pounds
cont. on page O512

seed in direct contact with soil. Any seed that germinates and is not able to extend its root into the soil will not live long. Some bermudagrasses such as the hybrids used for golf course greens tend to form a very dense surface. It might be hard to get seed down to the soil. A light thinning with a vertical mower or dethatcher might help.

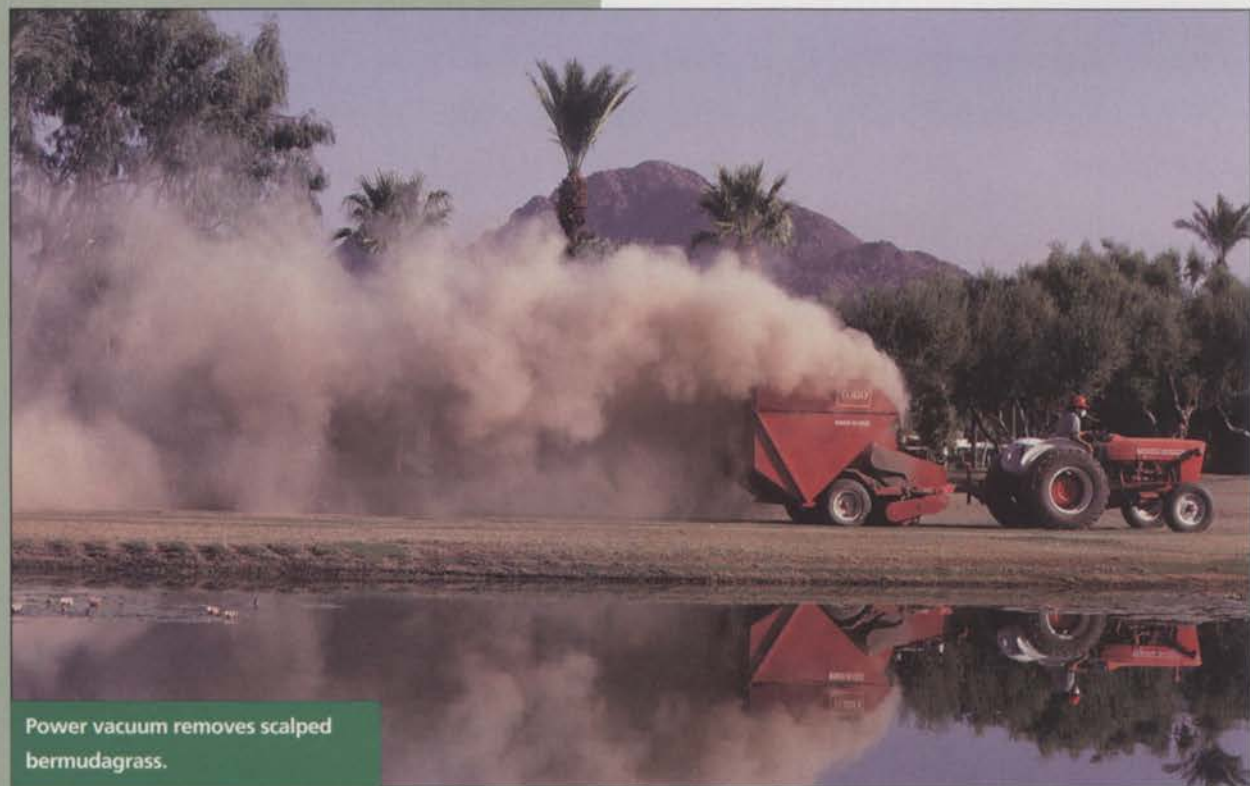
Scalping has been a technique used to reduce the density of bermudagrass greens. There is a fair amount of evidence that at least in some parts of the south this has contributed to the over-winter of bermudagrass. All in all, vertical mowing or dethatching seems to be the best way to prepare putting greens or tees for overseeding.

Bermudagrass, such as common, that tend to be more open in their growth

The worst enemy of an overseeded bermudagrass green is a long, cold, wet spring. Its best friend is an early, hot summer.

form may not need any special preparation before overseeding.

All types of seeders have been used to overseed. Rotary spreaders cover a large area fairly quickly but when it's desirable to have a straight edge between the seeded and the unseeded areas, drop spreaders are used. Slit seeders which use a blade to cut through the bermudagrass turf so the seed is placed at



Power vacuum removes scalped bermudagrass.

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Where Great Grass Begins

Early/late cont. from page OS8

of seed per 1,000 square feet. He has to charge a little more for the extra seed, but his clients like the results.

Irrigation is a constant worry too, Dew says. That's particularly true around apartment complexes that have contrasting plots of shaded and open turf.

"It's a tough call there," he says of those jigsaw plots of turf. His crews program the irrigation controllers at most properties, and they are taught to give sunny plots double the water that shady plots receive.

That amounts to four or five irrigations a week on sunny turf. Because Dew relies on great looking turf to keep his business up in a highly competitive field, he will actually irrigate to suit the cool plots and then hand-water the hot plots to bring them up to where they need to be.

"We've got to constantly check it after we mow," says Dew, who employs about 50 people. His crews are alert to weather changes, because Tucson can go from 40 to 85 degrees in a day's time. That can dry out rye grass very quickly.

Another problem that can develop is that if an area is oversprinkled, the extra water will leach fertilizer out of the root zone. This can destroy Dew's first principle for good overseeded turf, so he is very conscious of how water scheduling is affecting his fertility program. □

—Don Dale

the soil surface have been found to be very effective. Another effective overseeder is a machine that uses a series of air streams to direct the seed down into the turf. The speed of the air stream drives the seed down to the soil surface. This type of machine is shielded so that a straight line is produced and because of its design, overseeding can even be accomplished during a rain storm if necessary. There are also machines that can apply dry seed and mulch at the same time. Their small size makes them ideal for seeding home lawns.

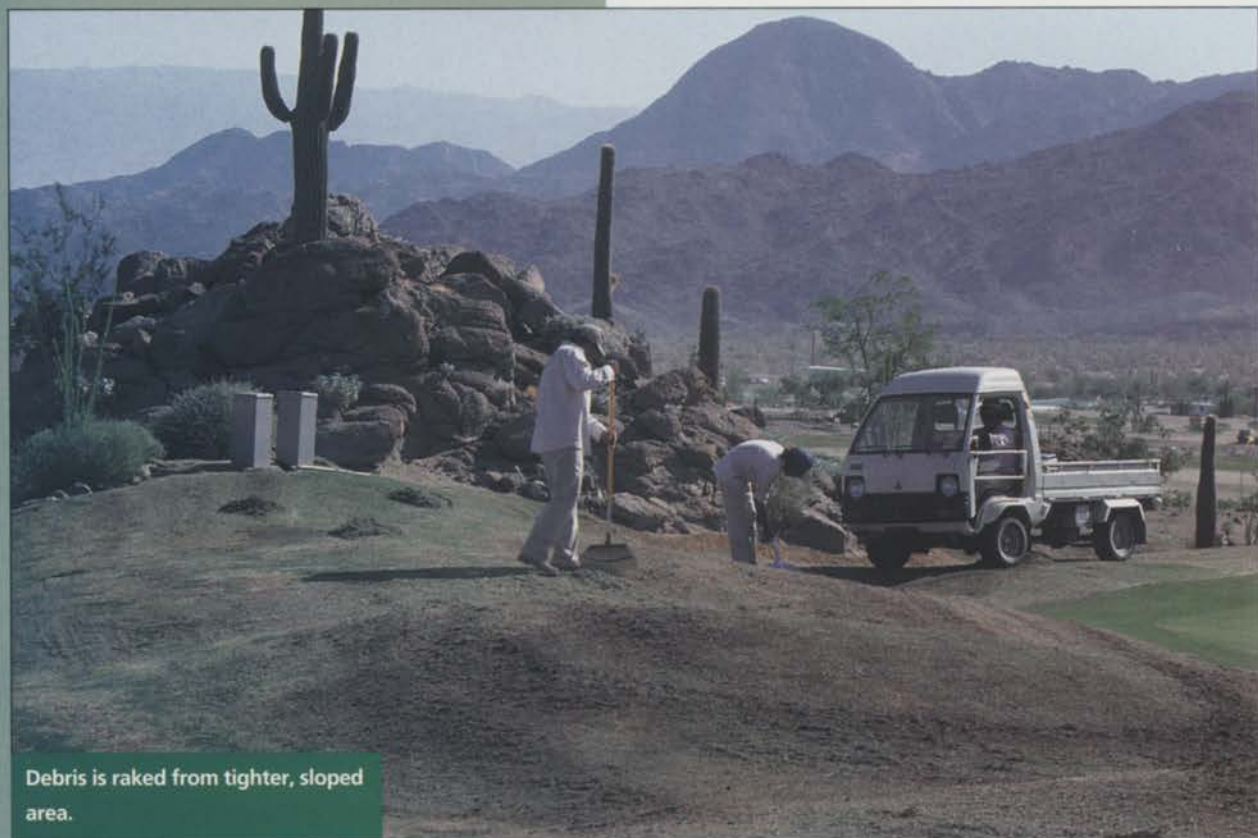
After overseeding, a good watering may help move any seed that's caught up on the grass plant down to the soil. Another post overseeding practice is that of topdressing.

After overseeding, a good watering may help to move any seed that is caught up on the grass plant down to the soil.

This is especially helpful if there's any kind of a thatch layer. It's hard for a seed to germinate and grow in thatch. Topdressing will help to provide the seed-with-soil contact.

Post seeding care

The newly overseeded turf must be watered just like



Debris is raked from tighter, sloped area.

any new seeding. The seed must be kept moist but not saturated. As the new seed germinates and begins to grow, the watering frequency is reduced. Mowing begins as the new grass reaches what will be the normal height of cut. Ideally, traffic should be kept off the overseeding until it is necessary to begin mowing. Keep heavy traffic off the overseeding until the new plants are established, perhaps after two or three mowings. Light applications of a soluble nitrogen fertilizer may begin after the overseeding is two or three weeks old.

Transition back to bermudagrass

The best transition in the spring from a cool-season, overseeded playing surface back to bermudagrass occurs when the overseeding slowly fades out as the bermuda begins to green up. Perhaps an even better transition would occur if the overseeding would die one day and the bermuda would green up the next day. It doesn't work that way.

As the warm weather begins to return to the south in early spring, the overseeded grasses begin to grow fairly rapidly. By the time it gets warm enough for bermuda to begin to grow, the overseeding is usually growing at its best. If it doesn't get hot enough quickly enough the overseeding may offer the bermudagrass some very stiff competition. When the soil temperatures get to around the mid 60 degree F range, bermuda begins to grow. The bermuda plant has been liv-



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Seed source important factor

It's very important to buy seed from an established seed distributor, one with a solid connection to a good Oregon supplier. You do get what you pay for.

Cheap seed is cheap for a reason, and the reason almost always is weed or crop contamination or a problem such as lower germination.

VNS (variety not stated) seed can be dangerous for use. Often, inferior agricultural seeds or common types are "dumped" onto the market as VNS.

The end results on a golf course can be disastrous.

Higher seeding rates result in easier transition. With higher rates the seedlings stay more juvenile and will transition out more easily in the spring.

With a lower seeding rate the new plants have more room to tiller out, produce deeper roots, and will be more "perennial," and will persist later into the spring.

Broad leaf weed contamination is generally more objectionable in overseeding situations than contamination with weedy grasses. Broadleaved weeds often form ugly "rosettes" throughout the turf that need to be sprayed out. With the exception of *Poa annua*, grassy weeds and crop seldom are an appearance problem in overseeding. □

Dr. Jerry Pepin, Pickseed West



Pepin: higher rates, easier transition

Making bentgrass work

The interest for bentgrass greens continues to increase in the southern U.S. The playing quality of creeping bentgrass is far superior to bermudagrass, and the better golfers are demanding it.

In areas such as Arizona, there have been very successful conversions to bentgrass.

We have seen success from Texas to Florida. These golfers know about bentgrass greens, and can really appreciate the better quality putting surface the new bents produce. This can be seen with the increased play

and the increased revenue at courses that have overseeded and converted either *Poa annua* or bermudagrass to bentgrass.

In the past five to six years, the new varieties such as SR 1020, Providence, Crenshaw and Cato have been planted on courses in the south and because of their breeding and the new age superintendent managing them, they are successful.



Robinson: supers make bentgrass work in South.

The superintendent is the one who really makes creeping bentgrass work in the south. Our company has many courses using our grasses in areas where bentgrass was never tried before, or if it was used had failed. There is a group of very innovative superintendents out there that have developed a new way to grow bentgrass in the south and their results are excellent. These techniques are revolutionary, yet very practical.

Several methods have been used to establish the bentgrass greens and they vary depending on the structure of the green and the grass that was growing there. Anybody interested in the methods that have worked can contact us for details.

Mike Robinson, Seed Research of Oregon, Inc. □

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Circle 109

ing on food reserves that it stored up the previous fall. It must re-establish its leaf system before these food reserves run out. The presence of vigorous overseeding tends to inhibit bermuda growth.

At the first signs of bermuda green up it has proven to be desirable to take some form of action to reduce any possible competition from the overseeding. The action may be chemical or it may be mechanical.

There are chemicals that can kill the overseeding without harming the dormant bermuda if they are properly applied. There are also chemicals that can stop the overseeding from growing without killing it. The two most popular mechanical methods involve very low mowing and the use of a fairly vigorous vertical mowing program.

When it is time for the bermuda to renew its growth, it has been proven that some action that harms the overseeding must be taken.

The worst enemy of an overseeded bermudagrass green is a long, cold, wet spring. Its best friend is an early, hot summer. **LM**

*Overseeding photos by
Larry Kassell.*

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Greens & tees: some specifics

Uniform application of seed across the seedbed is necessary to provide an attractive appearance. This is especially important on golf greens to insure a good putting surface.

—Apply seed when the area is dry and windspeed is less than 5 mph, to prevent the tracking of seed.

—Apply half the seed while moving in one direction, and the other half while moving at right angles to the first pass.

—Dew removal can be hastened by poling or dragging a hose across the green.

—Spiking of greens in several directions just prior to seeding enhances seed-to-soil contact.

However, care must be taken to prevent seed from concentrating in the holes, which would cause a speckled appearance.

Make sure that spreaders are accurately calibrated to deliver the desired amount of seed.

Some managers pre-weigh the seed to be applied to a known area, such as a putting green, and slowly meter it out over the area.

This requires that numerous passes be made over the area to insure uniform coverage. Clearly define the margins of the overseeded area by using a drop spreader. A drop or centrifugal spreader can be used to apply the remaining seed within the margins. □

—From Turf Seed Inc.'s *Winter Overseeding Guide*/ North Carolina State University.

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Premier II PR	6.91
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Turfstar Premium	6.47
Prime Blend	6.26
Omega III PR	6.21
Special FX PR-IR	5.82



University of Arizona Overseeding Fairway Trials 1995-96

YEARLY MEAN QUALITY

First Cut	6.8
Tophat/Regal/Derby Supreme	6.6
Brightstar/Quickstart/Navajo	6.4
Divine PR	6.4
Pegasus/Imagine	6.4
Citation-III	6.4

YEARLY MEAN TEXTURE

First Cut	7.9
Brightstar/Quickstart/Navajo	7.8
Pegasus/Imagine	6.9
Tophat/Regal/Derby Supreme	6.9
Divine PR	6.8
Citation-III	6.4

YEARLY MEAN DENSITY

First Cut	7.3
Pegasus/Imagine	6.6
Tophat/Regal/Derby Supreme	6.6
Divine PR	6.3
Brightstar/Quickstart/Navajo	6.3
Citation-III	6.0

MEAN WINTER QUALITY

First Cut	6.8
Citation-III	6.6
Divine PR	6.5
Brightstar/Quickstart/Navajo	6.5
Tophat/Regal/Derby Supreme	6.4
Pegasus/Imagine	6.3

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Club Car, Inc. has named Michael Harris vice president, sales and marketing. Harris has served Club Car for 18 years, and was most recently vice president of sales. He has held other posts at Club Car, in finance and sales.

Deere & Company has been named the "Official Golf Course Equipment Supplier of the PGA Tour," effective 1998 through 2006. The company will provide a full range of golf and turf equipment—along with utility vehicles and selected construction equipment, on an exclusive basis—to each of the PGA tour's owned-and-operated Tournament Players Club courses. As courses are added to the TPC network, Deere will provide the equipment. The PGA Tour will de-

sign, construct and operate a new Tournament Players Club, to be named TPC at Deere Run, to serve as the future home of the Quad City Classic. Deere also reports it is planning "the biggest new product introduction in its history." The company, "is designing machines based on extensive customer and dealer feedback sessions," says Bob Tracinski, business communications manager. "We're even looking to enter whole new product categories where we've had zero presence up to now," says Tracinski.

IPM Systems, Inc. has named John Trioli GPS mapping coordinator. Steve Prusik is Geographic Information Systems Coordinator; Raul Moya is Contract Services Manager. IPM Systems develops new and innovative products, services and

systems based on sound pest management principles for golf courses and in specialty markets worldwide.

 Robert Chanson, Ph.D., is director of **Plant Health Care, Inc.**, a leading supplier of plant health care related products for the forestry, horticulture and land restoration industries. Chanson is a member of the board of directors, and oversees strategic development of PHC, Inc.'s international activities. PHC is based in Pittsburgh, Pa.

Seed Research of Oregon, Inc. has named Eagle Point Golf Course its "Golf Course of the Year for 1996." The course, located in Jackson County, Ore., was designed by Robert Trent Jones, II, and is managed by superintendent Dave

Stephens. Eagle Point features rolling contours and a 50/50 blend of Providence and SR 1020 bentgrass for greens. The course is reported to be the first design/build/own project for the Jones design firm.

Seeds West, Inc., Roll, Ariz., is on-line with a website: www.seedswest.com. The site contains information about the company and many of the warm season turfgrass and forage seed varieties available from the company, including certified varieties of bermudagrass and buffalograss. Complete technical data is available about the varieties, including development, characteristics and planting information.

Toro has aligned its irrigation and international businesses to complete the first phase of the integration of the **James Hardie Irrigation Group** into Toro. Rick Parod is vice president/general manager of the irrigation business.

The Professional Lawn Care Association of America thanks the following companies who helped supply the "Renewal and Remembrance" at Arlington Cemetery in February: Georgia Marble; Lesco; Stihl; Tessengerlo Kerley; The Andersons; and Burlington Seeds. Legislative Day sponsors were: FMC Turf & Ornamentals; Bayer; DowElanco; Novartis Turf & Ornamentals. Contributors included: The Andersons; Zeneca Professional Products; American Cyanamid; Riverdale Chemical; Lesco; and PBI Gordon. **LM**

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

DON'T TAKE THIS PERSONALLY... "Perennials for Dummies," by Marcia Tatroe, with help from the National Gardening Association in Burlington, Vt., provides thorough, down-to-earth information on perennial selection and installation. Tatroe covers every detail in putting in a flower garden: planting, fertilizing, mulching, and maintenance, raised beds, sunny-side gardens, and much more. Includes information on pest and disease control. (This would be a great book for landscapers to give to clients who like to do-it-themselves when you're not around.) Includes a 32-page color insert that features different types of perennials, as well as sample plans to create beautiful flower gardens. "Photo op" icons next to flower descriptions let you know which ones are included in the color insert. "Flower killer" icon warns of what *not* to apply. Also available: "Roses for Dummies." Each costs \$16.95. Contact: IDG Books Worldwide, Inc., 919 E. Hillsdale Blvd., Suite 400, Foster City, CA 94404; (415) 655-3000; fax: (415) 655-3299. For info on other IDG books: www.idgbooks.com

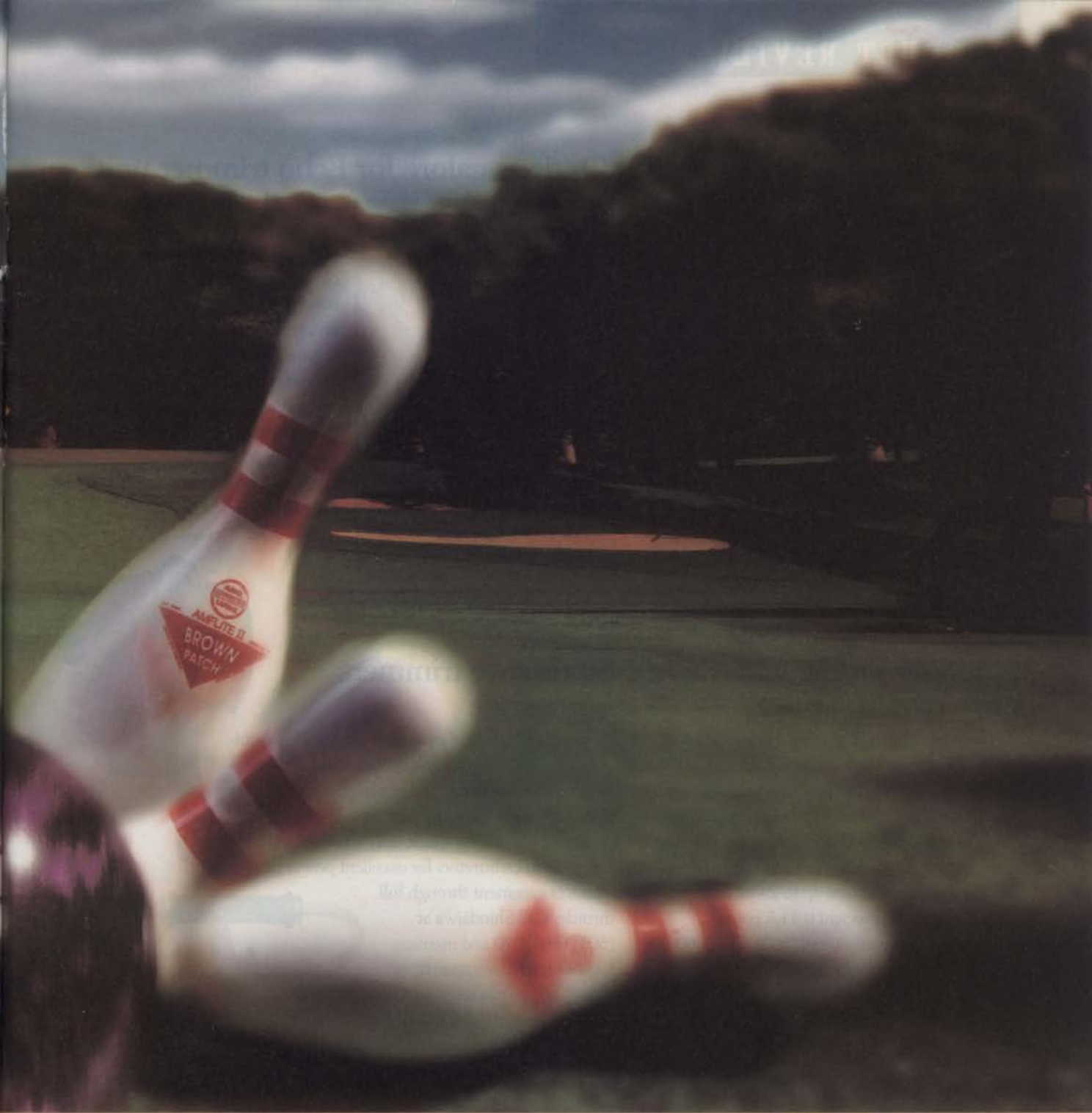
SPANISH LANGUAGE SAFETY VIDEO... EPIC of Wisconsin, Inc. has a new Spanish title in its "Superintendent's Video Workshop" series: "Safety Basics on the Golf Course" is a 26-minute video that promotes and stresses personal responsibility for one's own safety in the shop, when operating tools and on the course. Developed with the help of Paul R. Latshaw, well-known superintendent. Contact: EPIC at (800) 938-4330.

**NOTHING KNOCKS DOWN
TOUGH TURF DISEASES
FASTER THAN NEW CHIPCO 26GT.**



For years, you've relied on CHIPCO® 26019 brand fungicide to deliver the best brown patch and dollar spot control available.

But, sometimes, when soaring summer temperatures make you feel the heat, you've turned to contact materials to give you the quick disease knockdown you need. Now, you can get the same powerful, long-lasting disease control you've come to expect from CHIPCO® 26019, plus the quick knockdown you demand. Introducing the new CHIPCO® 26GT: • University trials prove that new CHIPCO® 26GT provides consistently quicker knockdown of dollar spot and brown patch.



patch than the standard CHIPCO® 26019 • In fact, CHIPCO® 26GT™ was as much as 48 hours faster. That means you'll see activity against disease mycelium within just 24 hours after application. And that means faster turf recovery. You can also count on CHIPCO® 26GT™ to give you both preventative and curative activity against dollar spot and brown patch. • Best of all, new CHIPCO® 26GT™ gives you the same powerful, broad-spectrum, long-lasting disease control you've come to expect from CHIPCO® 26019. Now you don't have to sacrifice quality and duration for quickness.

You get them all with new CHIPCO® 26GT™.

26 chipco
GT

Brown Patch Knockdown Chipco® 26GT™			
	0DAY*	1DAT	2DAT
UNTREATED	PRESENT	PRESENT	PRESENT
CHIPCO® 26GT™	PRESENT	NONE	NONE

*0DAY = Spray applied; DAT = Day(s) After Treatment
1996, Ohio State University, Penncross Bentgrass

chemical, always read and follow instructions on the label. For additional product information, please call 1-800-334-9745. © 1997 Rhône-Poulenc Ag Company.

RHÔNE-POULENC



Hydraulic pruner with high power:weight ratio

The PR41 hydraulic-powered pruner from Stanley Hydraulic Tools is lightweight and easy to handle, with the highest power:weight ratio on the market. The lightweight head design and full power operation on both the closing and opening of the cutting jaw makes it fast and safe to operate. The pruner cuts limbs up to 2¼-inches. Length is 84-inches; weight is 11.5 pounds.

For more information, call (503) 659-5660 and tell them you saw the news in *LANDSCAPE MANAGEMENT*, or

Circle No. 250

Options galore for Echo trimmer unit



The Echo SRM-2100SB can function either as a line trimmer or blade brushcutter. Then, due to its split-boom design, it can be easily converted to an edger or other tool with optional attachments. The unit features a 21.2cc, dual-ring, piston engine with Pro-Fire electronic ignition backed with a lifetime ignition-module part warranty. Unit includes vibration-reducing handles and engine mount and a see-through fuel tank.

Contact Echo Incorporated, (847) 540-8400, and mention LM, or

Circle No. 252

Shindaiwa trimmers impressive

Shindaiwa's line of grass trimmers and brushcutters offer full anti-vibration systems; high power-to-weight ratios for better performance; chrome-plated cylinders; two-ring pistons; one-piece electronic ignition for quick, easy starts; and TK and Walbro carburetors for excellent power from clutch engagement through full throttle. Call Shindaiwa at (503) 692-3070 and mention *LANDSCAPE MANAGEMENT*, or

Circle No. 253



CHIPCO26GT works faster

An improved formulation of CHIPCO26019 FLO provides faster knockdown of brown patch and dollar spot, and offers quicker turf recovery, Rhone-Poulenc announced at the GCSAA Show in Las Vegas in February.

James Merick, of Rhone-Poulenc, said that the improved product, known as CHIPCO26GT, provides the same broad spectrum disease control and the same long residual but knocks down brown patch and dollar spot up to 48 hours faster than the standard '26' product which typically worked in four to six days. "Customers wanted it to work faster," said Merick. So the

CHIPCO scientists went to work. Quicker disease knockdown allows turf to repair disease damage and begin its recovery more quickly, added Merick.

In addition to excellent brown patch and dollar spot control, CHIPCO26GT controls a broad spectrum of turf diseases including: leaf spots; fusarium blight; gray and pink snow mold; and coritcium red thread. It is also available as a flowable formulation and is compatible with the same tank mix partners as CHIPCO26019 FLO. Call Rhone-Poulenc at (919) 549-2000, or

Circle No. 251

Truck-mounted bark blower

Finn's new truck-mounted Bark Blowers are self powered, pneumatic conveyors designed to convey wood mulches, saw dust, compost and other bulk materials containing a high concentration of long fibers. Powered by an 80-hp John Deere 4039 diesel engine, these units can generate 750 cfm of air flow at a maximum of 12 psi to move up to 20 cubic yards of bulk material per hour through a 4-inch distribution hose at lengths of up to 300 feet. Made to directly mount onto a truck chassis, the two models hold 8.2 and 15.7 cubic yards, respectively. Contact Finn Corporation at (800) 543-7166 and mention LM, or

Circle No. 254



Heat up or cool down with less fuss

BioTherm Hydronic, Inc., Petaluma, CA, says it can now install its TurfTemp heating and cooling systems for turf with minimum downtime. This new installation process allows the green or tee box to be ready for play in 3-4 days time.

BioTherm says that heating/cooling the root zone assists superintendents with creating optimum temperature for the soil. Previously the system was limited to new construction or when a green or tee box was designated for excavation. Not any more. Call BioTherm at 800/438-4328, and mention LM, or

Circle No. 255

Pruning saw easy to use

Husqvarna's 235P lightweight hydraulic pole pruning saw features a powerful engine mounted on a comfortable backpack harness. The 235P is designed for orchards, tree services, utility companies and municipal workers.

The telescopic shaft of the 16.5-lb. saw extends from 6 to 12 feet, and is made of lightweight fiberglass and reinforced polyester. The cutting head can be angled to nearly every working position because of a ball joint located at the end of the shaft.

To keep vibration at a minimum, the lightweight 1.8-hp engine is mounted on a well-padded backpack and fitted with steel springs. A durable back harness and wide hip belt allow for easy mobility and comfort. A sliding throttle that can be positioned anywhere along the shaft makes operation comfortable.

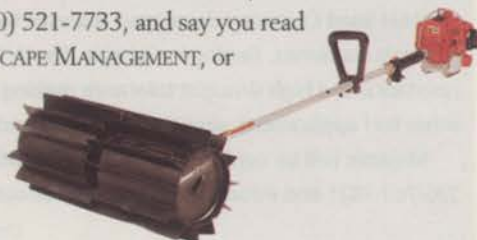
For more information about the 235P, contact Husqvarna Forest & Garden Co. at 800/438-7297 and tell them Landscape Management referred you, or

Circle No. 256

Shindaiwa PowerBroom

The Shindaiwa PowerBroom is a gasoline-powered sweeper attached to a splined, solid-steel drive shaft. The PowerBroom consists of a drum made of tough DuPont Alcryn synthetic material and is equipped with a series of rubber-like fins. In operation, the drum rests on the ground and rotates under variable throttle control with the fins pushing debris ahead of the operator. The PB270 is designed for heavy-duty jobs, and the PB230 moves lighter loads. For more information, contact Shindaiwa at (800) 521-7733, and say you read about it in LANDSCAPE MANAGEMENT, or

Circle No. 257



A trimmer that thinks

The PROForce TBC-2510 trimmer/brush-cutter features the "Brain" fully-automatic-feed cutting head that senses when more line is needed. It always feeds out the perfect length, and keeps the engine speed at peak cutting performance. For tougher cutting jobs, a cutting blade can be quickly attached. Weight 11.8 lbs.. Anti-vibration system. Bearing-supported, steel drive shaft driven by 24cc, 1.3-hp engine. To learn more about this Tanaka unit, call (206) 395-3900, and tell them you read about it here, or

Circle No. 258

Bachtold units for tough cutting

The Bachtold Hi-Wheel Weed & Brush Cutters can handle anything from grass to 6-foot weeds and 1½-inch saplings. Hand-controlled variable speed ground control and blade clutch on handle bars. New model available with 12-volt electric start. Easily converted to various attachments in minutes. Blade clutch standard equipment for added safety with heavy-duty blade brake. When you call Bachtold at (217) 784-5161, mention LANDSCAPE MANAGEMENT, or

Circle No. 261



Collection bin can be filled on-site

Klipping King, Inc., a venture of Rexus Agriculture Company, is a self-contained collection bin that makes debris handling fast and easy. Clippings are dumped from grass catchers into a ground-level hydraulic loading bucket. The bucket is lifted to a collection bin, which holds 11 cubic yards of debris, or three and a half pickup loads of refuse.

The company says the bin is large enough to hold an entire day's worth of clippings and debris. The bin is used with a dual-axle trailer, which can pull up to 7,000 pounds of material.

For more information, call (800) 279-3904 and tell them you saw this info in LANDSCAPE MANAGEMENT, or

Circle No. 259

New seeded bermudagrass available

H&H Seed Company, Yuma, AZ, claims its new variety of bermudagrass, Majestic, is very uniform in texture, forms a denser turf, and requires less mowing than other seeded bermudas. Also it has finer leaves and is darker in color.

H&H Seed Company developed Majestic by screening and genetically integrating thousands of bermuda clones. Testing in Georgia, South Carolina, and California shows it has good winter resistance and high drought tolerance making it ideal for lawns, golf courses, athletic fields and other turf applications, says the Arizona-based company.

Majestic will be available in limited quantities by summer 1997. Contact H&H Seed by calling 520/783-7821 and inform them you read about Majestic in LM, or

Circle No. 260

Lamp post adds charm

W.J. Whatley, Inc., manufactures fiberglass composite lighting poles and ornamental lamp posts. The Whatley 200 Series ornamental lamp post is a favorite with historic districts and municipalities. It's an exact replica of an 18th-century street light.

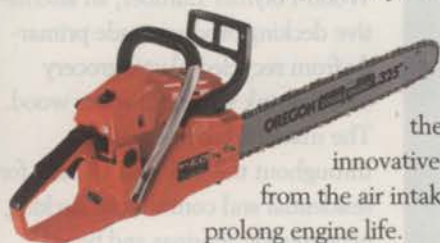
This straight lamp post has 16 flutes, a unique slip-over base cover, and is available in six standard colors and many custom colors. Whatley lamp posts are lightweight and will not corrode; so they can be direct embedded for additional cost savings. No expensive, time-consuming anchor base installation is required.

For a free Whatley catalog, call them at (303) 287-8053, or

Circle No. 262

Vertical cylinder chain saw starts quickly

The new Tanaka ECV-4501 mid-size chain saw combines state-of-the-art performance with maximum safety to provide professional users with comfort, maneuverability and smooth cutting power.



The tool weighs nine pounds, and features a vertical cylinder to provide all the power needed to cut through the toughest jobs quickly and easily. Its innovative air filtration system removes particles from the air intake to help increase performance and prolong engine life.

For more information, contact Tanaka at (206) 395-3900 and tell them you saw the news in *LANDSCAPE MANAGEMENT*, or

Circle No. 263

John Deere offers trimmers

John Deere's new line of portable and hand-held products includes seven string trimmers/brushcutters with heavy-duty 22.6cc-40.6cc engines, curved and straight shafts from 50- to 59-inches, and 17- and 18-inch cutting swaths. John Deere string trimmers feature the Tap-For-Cord stringhead, designed with only one moving part to prevent clogging. The units are also equipped with the only truly serviceable gearcase to alleviate unnecessary down time. Contact John Deere at (704) 588-3200, and mention LM, or

Circle No. 264



Ropeless tree pruner

Strucron has introduced a new Pull & Prune ropeless tree pruner.

The Pull & Prune is constructed with an internal steel cable that eliminates the need for the standard rope system. For easy cutting, the pruner features a steel head with a compound-action cutting blade for greater strength.

Comfort Grips provide better control and safer operation.

For more information, contact Strucron at (619) 744-6371 and tell them you heard about it here, or

Circle No. 265



Soil amendment comprised of rubber, organic materials

American Tire Recyclers, the patent holder of Rebound soil amendment, recently established a national sales program to recruit and manage a network of dealers and distributors.

Rebound is a subsoil amendment that combines crumb rubber and organically composted material. The product is designed for use under turf that is routinely subjected to heavy use, such as athletic fields, golf tee boxes and cart paths and public parks.

The company reports Rebound improves aeration, nutrition and the absorption abilities of native soils. It also, says ATR, reduces soil density, to permit deeper, healthier root structures. Best of all, according to ATR, is the resiliency the crumb rubber provides, which dramatically reduces soil compaction.

For more information, call ATR at (800) 741-5201 and tell them you saw the news in *LANDSCAPE MANAGEMENT*, or

Circle No. 266

Pneumatic pruner system 'complete'

Maibo's pneumatic pruning systems are used by landscapers, arborists, golf course crews and other green industry professionals, in residential and commercial settings. The SE-4 is used for fruit trees and ornamentals. The SE-6, the most powerful shear in the Maibo line, cuts limbs up to 2 1/4-inches thick, with the light touch of a trigger.

The model ST-1 hedgetrimmer and ST-5 brushcutter are rugged, low maintenance trimmers built tough for commercial use.

For more information on these and other Maibo products, call the company at (800) 255-9180 and tell them you saw the information in LM, or

Circle No. 267



Trex was used to build a bridge over a restored wetlands area, and to build a viewing area easily accessible for disabled persons.

Recycled plastics have been used to refurbish sections of Golden Gardens Park, a natural area on Puget Sound, six miles northwest of downtown Seattle.

Peter Hummel, landscape architect for the project, and a principle in Bruce Dees & Associates, says the City of Seattle encourages recycling by setting goals for amounts of recycled products to be used for various parks and public works projects.

The Golden Gardens Park project involved a \$1 million upgrade of the shoreline areas.

The park was originally built in the 1930s, and has one of the largest, most heavily-used beaches in the Seattle Metro area.

"The City of Seattle Department of Parks &

Recreation is very supportive of conservation and recycling," says Hummel.

Natural, accessible area

"Our approach to Golden Gardens was to incorporate recycled materials as often as possible, while creating a natural and accessible environment for visitors."

Bridges were made with Trex Wood-Polymer Lumber, an alternative decking product made primarily from recycled plastic grocery sacks, shrink wrap and waste wood. The material has been used throughout the U.S. and Canada for residential and commercial decking, playgrounds, marinas and boardwalks. The product, determined Hummel, would be compatible with the Golden Gardens shoreline project.

The Trex product was used to build a bridge over a restored wetlands area and for a second bridge over a newly "daylighted" year-round stream, which replaced a buried concrete storm drain.

The Trex Company, Winchester, Va., says the product is weather-resistant and durable. It won't rot, crack or splinter due to moisture, insects or sunlight, and does not require sealants for surface protection.

Utility poles as ground barriers

To restore the wetlands area, 25,000 square feet of asphalt was removed, pulverized and used as the base for asphalt paths accessible for disabled persons. The local electric utility saved on landfill costs by supplying 1500 linear feet of salvaged utility poles. Hummel used the utility poles as log barriers to keep people on the new pathways and out of natural habitats that have also been restored.

The Golden Gardens improvements are part of the Adopt-A-Park program, as led by Janine Van Sanden and ecologist Mike Williams. The area now features restored sand dunes and newly-planted native beach grass, woody shrubs and small trees.

New pathways provide disabled persons with access to the parking lot and beach.

The restored wetlands dune areas and wildlife habitat now surround a large, popular open meadow. In the distance are views of Puget Sound and the snow-capped Olympic Mountains. **LM**

Bridges of recycled plastic renew shoreline area

WIN \$500!

Announcing: the second annual LANDSCAPE MANAGEMENT "Emerald Awards". LANDSCAPE MANAGEMENT magazine is offering a \$500 first prize to the winner of a random drawing to be held on July 1, 1997.

Second prize is \$300 and third prize is \$200 in cash. To be eligible for the drawing, simply fill out the questionnaire at right and return it to LM's editorial offices.



Answers to the questions will determine our "1997 Emerald Awards" winners, to be revealed—along with the contest winner—in our August issue.



CONTEST REQUIREMENTS: Contestants must be owners or employees of landscape maintenance companies or lawn care companies; or maintenance employees of a golf course or country club, including superintendents and assistant superintendents; or an athletic field manager or member of an athletic field maintenance crew; or manager or member of a facility landscape management crew. Employees of Advanstar Communications and their families are not eligible.

All questions on this entry form must be completed, and all blanks filled. One entry per person. No more than five entries from any one employer will be allowed. Entry forms will appear in the February-June, 1997 issues of LANDSCAPE MANAGEMENT.

Completed questionnaires should be mailed to: Emerald Awards, LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. They must be received by noon, July 1, 1997.

A random drawing of all eligible entry forms will be held the afternoon of July 1, 1997. Winners will be notified within 24 hours.

OFFICIAL ENTRY FORM

QUESTION:

What is your favorite brand name of...

CHECK HERE
IF YOU
DO NOT USE

riding mower?

walk-behind mower?

turf fertilizer?

pre-emergence herbicide?

post-emergence herbicide?

turf insecticide?

turf fungicide?

plant growth regulator?

compact tractor?

turf aerator?

pick-up truck?

leaf blower?

line trimmer?

chain saw?

Kentucky bluegrass?

perennial ryegrass?

turf-type tall fescue?

turfgrass mix or blend?

biological control product?

NAME:

EMPLOYER:

CITY/STATE:

PHONE NUMBER:

(AC)

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Circle No. 145

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Circle No. 110

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Circle No. 109

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Photo courtesy of D. Read

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Circle No. 128

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Circle No. 129

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Circle No. 141

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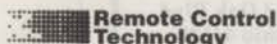
Scott Burgess, Parks Dept. Bellevue, WA

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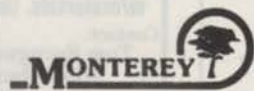


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Circle No. 136

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Circle No. 122

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management

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For all ads under \$250, payment must be received by the classified closing date. VISA, MASTERCARD, & AMERICAN EXPRESS accepted. Send to: Advanstar Marketing Services, 7500 Old Oak Blvd., Cleveland, OH 44130

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June 6, 1997
for the July 1997 issue.
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LANDSCAPE SALES South Florida full service landscape company has immediate opening for a highly motivated sales professional. Applicant must have minimum 3 years exp. in the landscape industry, strong interpersonal, communications and organizational skills. Salary plus commission, medical & dental. Growth opportunity. Fax resume to Ron 1-561-997-0971 or call 1-800-718-9619. Drug testing required. E.O.E. 5/5

Manager, Landscape and Grounds. Implements master landscape projects; administers grounds and irrigation units; manages personnel and monitors expenses by computer. Requires 4 year degree in ornamental horticulture, landscape architecture or related field. 5 years experience supervising large grounds maintenance crew. Salary dependent upon qualifications; excellent benefits. Open until filled. Submit cover letter and current resume, names of 3 professional references, and 5-year salary history to: California State University, Northridge; Human Resource Services; 18111 Nordhoff Street, Administration Park 702, Northridge, CA 91330-8229. EEO/AA/Title IX, Sections 503 & 504 Employer. 5/5

Grounds Maintenance and Enhancement Supervisors & Managers

Become a part of one of Maryland and Virginia's fastest growing team of landscape professionals. Come and work for a company that recognizes quality as a daily occurrence and knows that customer satisfaction is a successful driving force.

Positions are full-time with exceptional compensation, benefits, and advancement opportunities. Mail or fax your resumé today to: Tom Davis, Bozzuto Landscaping Company, 15127 Marlboro Pike, Upper Marlboro, MD 20774, Fax No.: 301-627-7011.

SALES ENVIRONMENTAL CARE, INC. is expanding markets in No. Calif. Bay Area. Must have 3-5 years experience and strong track record in sales. Need to be articulate w/strong interpersonal and organizational skills. Knowledge of local markets and property management a plus. Excellent growth potential, full benefits. Send resume: 825 Mabury Road, San Jose, CA 95133 EOE

BRANCH MANAGER National Lawn Equipment Supplier expanding into Northeast, Mid-Atlantic & Southeast. Previous retail management experience required. Computer literate. Send resume to: Landscapers Supply, P.O. Box 459, Spring Valley, NY 10977-0459. 8/97

LANDSCAPE management

Every month the Market Showcase offers readers of *Landscape Management* a complete and up-to-date section of the products and services you're looking for. Check it out every month, or you might miss out.

For all ads under \$250, payment must be received by the classified closing date. VISA, MASTERCARD, & AMERICAN EXPRESS accepted. Send to: Advanstar Marketing Services, 7500 Old Oak Blvd., Cleveland, OH 44130

BOX NUMBER REPLIES: *Landscape Management*, LM Box #, 131 W. First St., Duluth, MN 55802

FOR ADVERTISING INFORMATION AND AD PLACEMENT, CONTACT: DENISE ZAPPOLA, 216-891-3162, 1-800-225-4569, (ext. 162), Fax 216-826-2865

Weeks Landscape Services, a division of Weeks Corporation (NYSE-WKS) is in search of Maintenance Field Supervisors and Management Trainees, Spray Technicians and a Irrigation Service Manager. Each position requires effective organizational, technical and communication skills. Opportunities for personal and professional growth are excellent for results oriented personnel. Requirements: 2 yrs high quality commercial landscape experience, 2-4 yr. degree in related field a plus. Excellent benefits, training and opportunities. Send resume to: **Weeks Landscape Service,** 4497 Park Drive, Norcross, GA 30093, FAX: (770)717-3312. 5/97

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VALLEY CREST, a national landscape, irrigation, concrete and site construction prime contractor seeking key positions throughout the United States. Excellent salary and benefit packages available.

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OPERATIONAL MANAGERS**

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Send resume to **J. Seeley**, 24121 Ventura Blvd., Calabasas, CA 91302



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MARKETING/SALES MANAGER

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Forward resume with salary requirements to:

McGinnis Farms, Inc. - Human Resources
Ad: SMM-LM
5610 McGinnis Ferry Rd.
Alpharetta, GA 30202
Fax: (770) 410-3832

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We are seeking a full time degreed individual with a minimum of five years experience in the field of landscaping design/grounds maintenance. The individual will be responsible for the supervision and implementation of landscaping and grounds maintenance for approximately ten acres.

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& Trainees Wanted**

Garden Gate Landscaping is an industry leader in residential D/B installation and maintenance for 30+ yrs. in the Washington, DC metro area. Must have 2 yrs. related experience and driver's license. Must be organized, quality oriented and self-motivated. Excellent pay and benefits with year-round guaranteed positions. 401K and health insurance. Pay based on past experience and proven abilities. Fax or mail resume or call (8:30-5:00 M-F):

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FLORAPERSONNEL, INC. In our second decade of performing confidential key employee searches for the landscape/horticulture industry and allied trades worldwide. Retained basis only. Candidate contact welcome, confidential, and always free. 1740 Lake Markham Road, Sanford, FL 32771. PHONE (407)320-8177. FAX (407)320-8083. Email: Hortsearch@aol.com. Website: <http://www.florapersonnel.com>. 12/97

Landscape Chief Estimator/Estimators Aggressive, established commercial landscape contractor searching for experienced people knowledgeable in site development, grading operations, landscape & irrigation installation, and landscape maintenance. Computer experience mandatory; Lotus 123 release 5 or Excel preferred. Successful candidates must be professional, organized, team oriented and skilled in management. Remarkable opportunity for a career. Salary-D.O.E. Submit credentials and employment references via fax at (702)252-7031 and mail to: **Gothic Landscaping, Inc., c/o Chief Estimating Position**, 4565 West Nevso Drive, Las Vegas, Nevada 89103. 5/97

Assistant Professor of Turf Production and Management, Director of Turfgrass Center
The Department of Horticulture, Plant Science Unit, University of Missouri, invites applications for this tenure-track position to develop an extension program (50% effort) to complement a research program (50% effort) on turfgrass production and management, and to serve as Director of the UM Turfgrass Center. A Ph.D. in Horticulture, Agronomy or related discipline, training and experience in turfgrass management, and effective communication and managerial skills are required. Submit by May 31, 1997, a letter describing qualifications and career goals; resume; transcripts; selected reprints; and request three letters of reference to be sent: Dr. Bruce Barrett, Chair of Turf Search Committee, 1-87 Agriculture Building, University of Missouri, Columbia, MO 65211. **E-Mail:** agbarret@muccmail.missouri.edu. **Telephone** (573) 882-7511. **FAX** (573) 882-1469. The University of Missouri is an Affirmative Action/Equal Opportunity Employer. For more information, visit our web site: <http://www.missouri.edu/~extbsc/turf/turfhp.htm>. 5/97

Major commercial landscape company in the southeast seeking experienced **Irrigation sales person** with excellent communication and computer design skills. Very beneficial to have ability to sell commercial landscape and maintenance accounts. Also seeking **Maintenance production manager** with ten years experience. Proven communication and management skills. Strong turf background required. For confidential consideration, please fax resume and salary requirements to: (704)527-2913. 5/97

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Send Blind Box Replies to:

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AD INDEX

101 Agrevo3
 102 Agrevo45
 104 American Cyanamid/Reg49
 103 American Cyanamid7
 106 Bayer Corp/Lawn2-3L
 105 Bayer Corp/Golf2-3G
 149 Bunton/Div of Jacobsen Textron13L
 Dodge/Chrysler33
 Dow Elanco14-15
 107 Echo4-5
 108 FMC Corp42-43
 109 Finn Corporation56
 110 Fred Marvin56
 111 Husqvarna27
 113 Int'l Seed Co29-30
 114 ISK BiosciencesGolf a-d
 115 J J Mauget9-10
 116 John Deere/Golf8-9G
 117 John Deere/Lawn8-9L
 118 Kubota13
 119 Lely Pacific0S15
 120 Lofts0S11
 121 MillCreek25L
 122 Monterey57
 123 MycogenCv3
 124 Nutramax7G
 125 PGMS26L
 126 PBI Gordon36-37
 127 Pickseed0S2
 128 Plant Health Care56
 129 Plant Health Care57
 130 Poly Pavement35
 131 Powerhead Ltd/UHS19-20
 132 RJ Advantage20G
 133 Rain Bird19L
 134 Rain Bird21L
 135 Rain Bird23L
 136 Remote Control57
 137 Rexius0S13
 139 Rhone Poulenc22-23
 138 Rhone Poulenc48-49
 140 Rhone Poulenc/CA only48-49
 141 Robco Spray Equip57
 142 Rohm & Haas18-19G
 143 Seed Research0S9
 144 Stihl41
 145 Structron56
 146 Tee 2 GreenCv4
 147 Terra/North17
 148 Terra/South17
 150 Turf Merchants0S7
 151 Turf Merchants0S16
 153 Turf Seed Inc0S5
 154 Turfco22L
 155 Vitamin Institute17-18L
 156 Wilbur Ellis17G
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Needed to market environmentally friendly, liquid, slow-release fertilizer products direct from manufacturer. Ken Franke, P.O. Box 123, Plato, MN 55370; 800-832-9635. 12/9

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ISSUES

CLOSING DATES

July 1997	6/6
August 1997	7/8
September 1997	8/7
October 1997	9/8
November 1997	10/8
December 1997	TBA

(Please call Sales Rep to confirm dates.)

SEND AD COPY WITH PREPAYMENT TO:

Denise Zappola, **LANDSCAPE MANAGEMENT**, 7500 Old Oak Blvd., Cleveland, OH 44130. For more information call: 1-800-225-4569 or 216-891-3162, Fax: 216-826-2865.

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Grab Bag

Answers for turf critics

Turf critics claim that grass uses half of the outdoor water supply. They even go so far as to say that any use of water on turf is a waste. "Low water use" plants or "native" plants are suggested alternatives to eliminate water shortages.

Truth is, says Doug Fender, executive director of the Turf Resource Center, only one percent of the surface and ground-water used in the U.S. is taken for domestic purposes. And of that amount, only one-third is used for outside purposes, which includes washing cars, filling swimming pools and watering gardens and lawns.

"Eliminating lawn watering would have minimal effect on America's total water use," says Fender. "However, the resulting loss of turfgrass would be catastrophic to the environment."

Use caution, says Fender, before you chase after "low water use" or "native" plants. These species' water use characteristics have not been as thoroughly researched as turfgrass, he says.

"Education about when and how to water, mow and fertilize is the most effective way to promote more healthy lawns that can provide sound environmental benefits," says Fender.

The Turf Resource Center is a division of Turfgrass Producers International, Rolling Meadows, Ill.

Old landscapers never die...

...they just go to pot! Seen at the Cleveland 'Floralscape' show, this flower pot man managed to stay motionless for the show's duration! Pot-man's stony countenance is a testimony to his endurance as a show attraction. And he works dirt-cheap! Tom Barco, a general manager at Barco's Liberty Gardens, Medina, Ohio, assembled the figure after seeing a photo of a smaller version. The company does an extensive container business, and 'pot-man' was a great tie-in, says Barco. The annual 'Floralscape' show, held in March, draws companies and consumers from all parts of Ohio, with lots of over-the-counter selling and some displays of lightweight equipment.



From one legend to another:

"When he is in the right mood, he is probably the greatest scorer in the game...possibly that the game has ever seen."

—BOBBY JONES, ON GENE SARAZEN, LEFT, WHO THIS MONTH GETS THE DONALD ROSS AWARD FROM THE AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS.

QUOTE REPRINTED FROM "GOLF SHORTS," BY GLENN LIEBMAN, COPYRIGHT 1995, CONTEMPORARY BOOKS. USED BY PERMISSION.

Grab Bag features brief observations and prognostications throughout the green industry. If you have an unusual photo or comment you'd like to share with us, please send it in...

Receive FREE information on products and services advertised in this issue.

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May 1997

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 03 260 Lawn Care Service Companies
 04 265 Custom Chemical Applicators (ground and air)
 05 270 Tree Service Companies/Arborists

06 275 Landscape Architects
 07 280 Land Reclamation and Erosion Control
 08 285 Irrigation Contractors
 Other (please specify) _____

INSTITUTIONAL FACILITIES

09 290 Sports Complexes
 10 295 Parks
 11 300 Right-of-Way Maintenance for Highways,
 Railroads or Utilities
 12 305 Schools, Colleges, Universities
 13 310 Industrial or Office Parks/Plants
 14 315 Shopping Centers, Plazas or Malls
 15 320 Private/Public Estates or Museums

16 325 Condos/Apartments/Housing
 Developments/Hotels/Resorts
 17 330 Cemeteries/Memorial Gardens
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22 355 Extension Agents/Consultants for Horticulture
 23 360 Sod Growers/Turf Seed Growers/Nurseries
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25 370 Manufacturers
 26 Other (please specify) _____

2. Which of the following best describes your title? (check ONE only)

27 10 **Executive/Administrator**- President, Owner, Partner, Director, General Manager, Chairman of the Board,
 Purchasing Agent, Director of Physical Plant
 28 20 **Manager/Superintendent**- Arborist, Architect, Landscape/Grounds Manager, Superintendent, Foreman, Supervisor
 29 30 **Government Official**- Government Commissioner, Agent, Other Government Official
 30 40 **Specialist**- Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
 31 Other Titled and Non-Titled personnel (please specify) _____

3. SERVICES PERFORMED (Check ALL that apply)

31 A Mowing
 32 B Turf Insect Control
 33 C Tree Care
 34 D Turf Aeration
 35 E Irrigation Services
 36 F Turf Fertilization
 37 G Turf Disease Control
 38 H Ornamental Care
 39 I Landscape/Golf Design
 40 J Turf Weed Control
 41 K Paving, Deck & Patio Installation
 42 L Pond/Lake Care
 43 M Landscape Installation
 44 N Snow Removal
 45 O Other (please specify) _____

4a. Do you specify, purchase or influence the selection of landscape products? Yes No

4b. If yes, check which products you buy or specify: (check ALL that apply)

46 1 Aerators
 47 2 Blowers
 48 3 Chain Saws
 49 4 Chipper-Shredders
 50 5 De-icers
 51 6 Fertilizers
 52 7 Fungicides
 53 8 Herbicides
 54 9 Insecticides
 55 10 Line Trimmers
 56 11 Mowers (reel/rotary)
 57 12 Snow Removal Equipment
 58 13 Sprayers
 59 14 Spreaders
 60 15 Sweepers
 61 16 Tractors
 62 17 Truck Trailers/Attachments
 63 18 Trucks
 64 19 Turfseed
 65 20 Utility Vehicles

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 106 124 142 160 178 196 214 232 250 268 286 304
 107 125 143 161 179 197 215 233 251 269 287 305
 108 126 144 162 180 198 216 234 252 270 288 306
 109 127 145 163 181 199 217 235 253 271 289 307
 110 128 146 164 182 200 218 236 254 272 290 308
 111 129 147 165 183 201 219 237 255 273 291 309
 112 130 148 166 184 202 220 238 256 274 292 310
 113 131 149 167 185 203 221 239 257 275 293 311
 114 132 150 168 186 204 222 240 258 276 294 312
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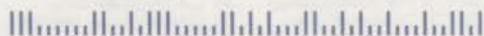
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 04 265 Custom Chemical Applicators (ground and air) 08 285 Irrigation Contractors
 05 270 Tree Service Companies/Arborists Other (please specify) _____
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 32 B Turf Insect Control 37 G Turf Disease Control 42 L Pond/Lake Care
 33 C Tree Care 38 H Ornamental Care 43 M Landscape Installation
 34 D Turf Aeration 39 I Landscape/Golf Design 44 N Snow Removal
 35 E Irrigation Services 40 J Turf Weed Control 45 O Other (please specify) _____

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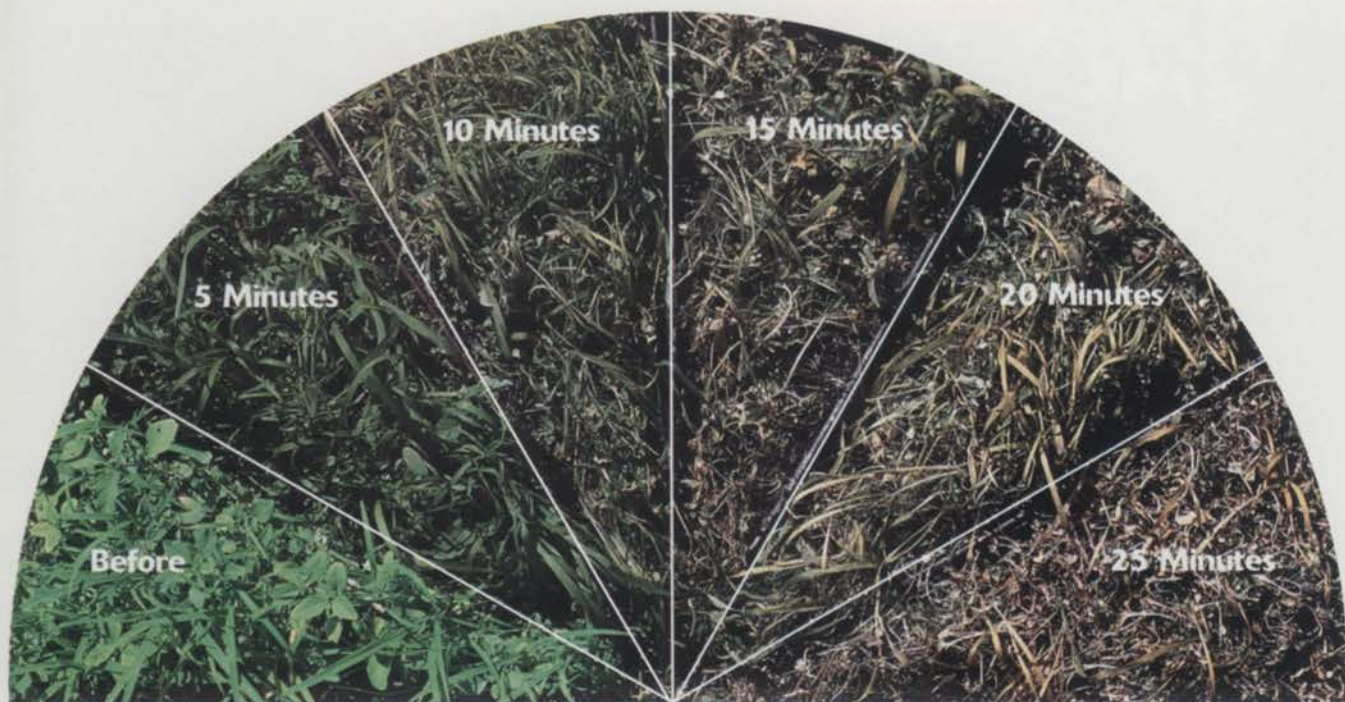
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 47 2 Blowers 57 12 Snow Removal Equipment
 48 3 Chain Saws 58 13 Sprayers
 49 4 Chipper-Shredders 59 14 Spreaders
 50 5 De-icers 60 15 Sweepers
 51 6 Fertilizers 61 16 Tractors
 52 7 Fungicides 62 17 Truck Trailers/Attachments
 53 8 Herbicides 63 18 Trucks
 54 9 Insecticides 64 19 Turfseed
 55 10 Line Trimmers 65 20 Utility Vehicles

5. Do you have a modem? Yes No

6. Do you subscribe to an on-line service? Yes No

7. Is CD-ROM available in your workplace? Yes No

101	119	137	155	173	191	209	227	245	263	281	299
102	120	138	156	174	192	210	228	246	264	282	300
103	121	139	157	175	193	211	229	247	265	283	301
104	122	140	158	176	194	212	230	248	266	284	302
105	123	141	159	177	195	213	231	249	267	285	303
106	124	142	160	178	196	214	232	250	268	286	304
107	125	143	161	179	197	215	233	251	269	287	305
108	126	144	162	180	198	216	234	252	270	288	306
109	127	145	163	181	199	217	235	253	271	289	307
110	128	146	164	182	200	218	236	254	272	290	308
111	129	147	165	183	201	219	237	255	273	291	309
112	130	148	166	184	202	220	238	256	274	292	310
113	131	149	167	185	203	221	239	257	275	293	311
114	132	150	168	186	204	222	240	258	276	294	312
115	133	151	169	187	205	223	241	259	277	295	313
116	134	152	170	188	206	224	242	260	278	296	314
117	135	153	171	189	207	225	243	261	279	297	315
118	136	154	172	190	208	226	244	262	280	298	316



Weeds? What Weeds?

- Scythe® is an amazingly fast-acting herbicide that lets you see results in minutes or hours, instead of days or weeks.
- Scythe is made from a naturally occurring fatty acid that is environmentally friendly.
- Use Scythe around homes, in parks, on golf courses, along highways and fences, in greenhouses and nurseries.
- There is no soil persistence so it can be applied to seed beds right before planting and around shrubs, trees and other ornamentals.

- Tank mix Scythe with other systemic herbicides like glyphosate and satisfy customers with fast results and long term control. An effect so unique, it's patented.

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**Penncross:
Tried and True**



Louis Miller, Supt., Louisville CC, Louisville, KY

"I've Specified Penncross For 33 Years. Why Mess With Success?"

"I've been in business 33 years as a golf course superintendent, contractor, consultant and golf course owner. Of the nearly 500 greens I've built or rebuilt, 95% have been planted with Penncross creeping bentgrass. The customers specified PennLinks on the others.

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and tear of spikes, ball marks and divots. But the real value is in its rapid establishment. In today's economy, a golf course must generate revenue quickly to recoup land, construction and startup expenses. I can seed Penncross anytime the soil is warm enough to germinate and have green grass in five days. We're then mowing the greens in 13 to 16 days. This pleases both investors and owners.

We mow Penncross between 5/16" and 1/8", and this is fast enough to please the most demanding golfer we get.

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