

AN **HBJ** PUBLICATION

DECEMBER 1986/\$2.50

WEEDS TREES & TURF

The magazine of **LANDSCAPE** MANAGEMENT

WOMEN

Surviving and thriving
as superintendents



STATE OF THE
GREEN INDUSTRY

**'The best greens I
ever putted on'**

Harry Anderson, Greens Chairman
Wilmington CC, Delaware



David Kroll, CGCS, inspects one of 18 PennLinks greens at Wilmington CC, Delaware

PennLinks creeping bentgrass — working wonders at Wilmington

New bentgrass variety provides a truer putting surface at Wilmington CC.

When David Kroll, CGCS, was dealt the problem of bentgrass

This Wilmington green was seeded in early '60s with poor quality seed fraudulently labeled Penncross. All the greens deteriorated to the point that they had to be entirely renovated.



deterioration on the greens of this prestigious country club, he called in the experts to help. The greens could not be salvaged, so they were treated with methyl bromide and completely re-greened.

Dr. Joe Duich, Penn State University, suggested seeding with a bentgrass coded PSU 126.

Two and a half years later, the greens look great and with PennLinks' more upright growth pattern, putt like a dream. That experimental variety is now named PENNLINKS, and is available in limited quantities.

Available in limited supply this fall in the re-usable 6 gallon "PENN PAIL."

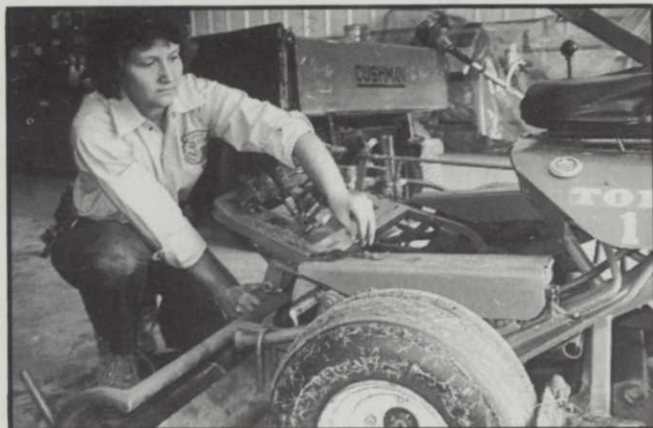


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WEEDS TREES & TURF

The Magazine of **LANDSCAPE MANAGEMENT**



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15 COVER STORY: IT'S NO JOKE

The numbers are growing . . . and women golf course superintendents are not only surviving, but thriving, in what was once considered a man's job.

20 ALL SYSTEMS GREEN

The green industry is growing in all directions. An indication of this positive trend is the magnitude of chemical, equipment and seed purchases. So the state of the green industry is "green and go."

25 GOLF AND TURF CALENDAR

A detailed listing of all the major turf and golf events lined up for calendar 1987.

40 MOTIVATION TIPS

Getting the most out of employees is one key to a successful operation. A salary by itself will not provide the motivation necessary for optimal productivity.

44 THE EUCALYPTUS LONGHORNED BORER

A new insect pest is threatening California's eucalyptus trees. So far, there aren't many solutions to the growing problem.

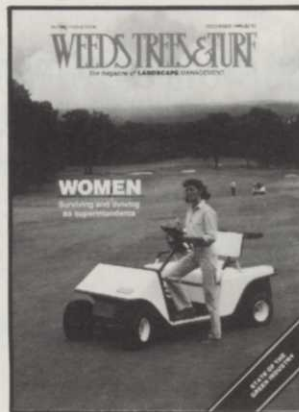


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Model C.B. Silver scans Sleepy Hollow Golf Course in Cleveland, Ohio.



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BPA AIP



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Rolling ads on golf cars?

■ A campaign to place advertising on golf cars has been launched in Florida, Southern California, Arizona and other major golf markets.

The Rollad Corp. of Louisville, Ky., will pay a \$50 a year commission to the fleet owner for each golf car on which ads are placed. Also part of the Rollad plan is the creation of a scholarship program for the junior golfers who help service the Rollad fleet.

The "Rollads" are 8½-inch square all-weather stick-ons which can be peeled off.

"This medium could provide advertisers with one of the longest, most intensive exposure factors in the ad industry, and it provides another source of income for course operators," says Michael A. Cox, a golf industry communications consultant who is assisting the Rollad startup.

In mid-August, the Rollad fleet was at 4500 cars; the company expects to reach 20,000 cars by the end of the year.

Golf course boom to continue

■ Why is the demand for municipal golf courses so strong?

Ken Killian, president of the American Society of Golf Course Architects notes first that, since high interest rates choked development for several years, the country is now "playing catchup" during the current period of lower interest and bond rates.

Even more importantly is the fact that about one-third of the nation's golfers are now women, according to the National Golf Foundation.

Killian also feels that the general trend toward better conditioning and more exercise has helped contribute to the demand for more high-quality golfing facilities. "Also," Killian adds, "there are more people in retirement than ever before, and many of them are avid golfers."

He adds that municipal golf courses no longer are second class citizens in the world of golf. "Some of the best new courses being designed are municipal layouts, and that trend will continue as city and recreation department personnel recognize that courses are appreciated by the general public and generate substantial income," he contends.

Rental equipment more popular

■ Changing conditions in the construction industry will force construction equipment users to take a harder look at equipment rental in the coming decade, says Marv Zoromski of JI Case.

Four major trends will influence the shift, Zoromski says: smaller projects, proposed tax law changes, increased contractor sophistication and increased competition in the rental industry.

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Everett Mealman
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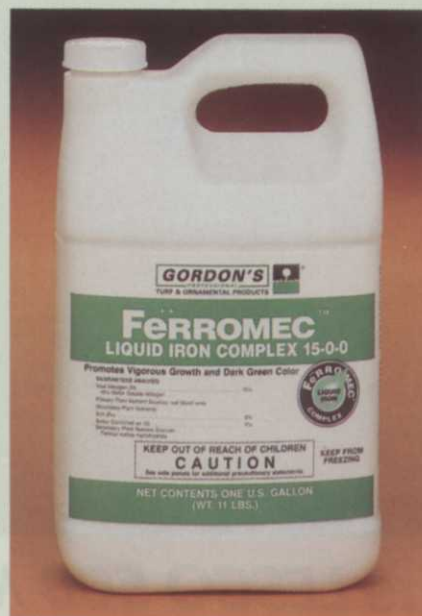
As a professional golf course superintendent or groundskeeper, you will immediately recognize the significance of what I am about to say . . .

. . . We at PBI/Gordon have been quietly testing our patented Ferromec under a wide variety of growing conditions, and the results are conclusive! . . .

Ferromec will not only deliver rapid and dramatic color responses in turf as a result of foliar intake, but will also deliver a therapeutic dose of iron to the turf through root absorption.

It means that now you can have deep, vibrant, healthy green turf without an unwanted overdose of fertilizer which could lead to all sorts of problems and exposure to disease.

No wonder we are so eager to get a sample of Ferromec in your hands. But, meantime, we urge you to take a minute or so to better understand why iron is such an elusive material, and how



PBI/Gordon has managed to harness it for you.

Ferrous Iron is Very Fragile.

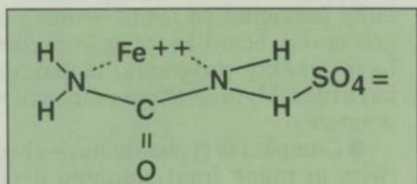
As you know, the basic problem of supplying iron to turfgrass is its fragility in the Ferrous⁺⁺ state. Only Ferrous iron can be utilized by a plant and, *ironically*, almost as soon as Ferrous Sulphate is applied it turns to the non-usable Ferric⁺⁺⁺ state. Once oxidized, the reversal with organic matter acting as a reducing agent is so slow there is a question if it would ever occur.

And thus it is that scientists devised chelating, which is intended to fix the iron molecule in the Ferrous state. If chelating is properly done, it is effective.

Half of this green at Hodge Park Golf Course in Kansas City was sprayed with Ferromec and, within 24 hours, the color change was dramatic. Under normal growing conditions, visual response usually occurs between 8 and 48 hours after application. However, if moisture and temperature extremes exist, the response may be slower. Ferromec is also effective on trees, shrubs and herbaceous plantings.



Iron that Produces Within 24 Hours



This is the molecular structure of Ferromec. Note that ferrous sulphate is bonded to a urea molecule and will remain stable. Ferromec utilizes a recombinant urea process to achieve the unique composition. It is classified as an organometallic compound.

But it is very expensive and so slow to release that it could be many weeks before a treatment of chelated iron could produce a significant color change in the grass.

Ferromec Works Right Now!

At PBI/Gordon we have a patented process of bonding a Ferrous iron molecule to a molecule of urea, which stabilizes the iron in a Ferrous state. Notice the diagram above of the Urea/Ferrous sulphate molecule which is called Ferromec.

Ferromec can be mixed with liquid fertilizer and Super Trimec® broadleaf herbicide, and it will not harm the equipment. The Ferromec is almost immediately assimilated so the color change occurs very rapidly. The Ferromec which reaches the

ground is taken up by the root system because the grass has such a voracious appetite for the nitrogen content of Ferromec.

Neal Howell Can Answer Your Questions about Iron in Turf

Iron is definitely established as an essential micronutrient required by all plants. Yet, the amount required can vary dramatically depending on the pH of the soil, the composition of the fertilizer that is being used and the plant that is being fed.



To help you better understand how to use iron in your turf program, we have brought Neal Howell into the PBI/Gordon organization as Director of Technical Sales Services of Soil Supplements. He is a leading authority on iron and is as near as your telephone when you have questions.

You'll like Neal. He's a *real Iron-man* whose roots go back to the Iron Knights of the "Hell on Wheels" gang of the 2nd Armor Division from Fort Hood (that's General Patton's old bunch).



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EQUIPMENT

Half of equipment service is in-house

Nearly half of the landscape management companies answering a WEEDS TREES & TURF survey have in-house equipment service technicians. Forty-nine percent said they have service technicians on the payroll. Most of the rest of the companies depend on either commercial service dealers or distributor service departments.

While the Midwest (54 percent) Southeast (54 percent) and Northeast (48 percent) depend most heavily on staff service technicians, the Southwest heavily favors commercial service dealers for maintenance (50 percent).

Other facts revealed by the survey conducted for The Toro Company:

- Seventy-one percent of the re-



spondents provide turf cultivation such as aeration.

- Four out of 10 landscape management companies mow between 50 and 200 acres of turf per year.

- Most common training practices employed are, in order of popularity,

hands-on demonstrations, lectures and a review of the owner's manual.

- Cutting season lengths: 7 months in the Northeast, 7½ months in the Midwest, 9 months in the Southeast, 10 months in the Southwest.

- 34 percent of the companies have daily preventative maintenance programs and record-keeping; 31 percent have weekly programs, 18 percent have monthly, and 17 percent have no programs.

- Companies typically have about twice as many front-mounted decks on riding mowers than center-mounted decks on lawn tractors.

- Price is not the top determining factor in making a purchase—parts availability is.

LAWN CARE

PLCAA not opposed to lawn sign-posting; planning to mount public relations blitz

The Professional Lawn Care Association of America has changed its policy toward lawn care companies which wish to adopt voluntary sign-posting of treated lawns.

The new policy reads:

"The PLCAA believes proper application of labelled pesticides by licensed, trained applicators is the primary issue in ensuring public and employee safety. The association is not opposed to the voluntary posting of lawns after application as a courtesy to customers as notice that an application has been made.

"The association further believes that, if notification of pesticide application is to be required, notification or posting requirements should not single out applications to a particular site such as lawns, or a particular type of applicator such as commercial applicators."

The PLCAA's previous written policy did not condone sign-posting. To make the change was a difficult decision, according to James Wilkinson, PLCAA president.

"The Board of Directors...given the fact that there were a number of companies most likely posting in 1987, decided that we should take a look at that policy," Wilkinson told LCOs at the PLCAA's annual conference last month. "The first thing we felt necessary was to avoid the issues of safety and health. Our policy and feelings are quite strong that the application of pesticides by professionals pose no health, safety or environmental problems whatsoever."

The change was greeted with mixed emotions by PLCAA members attending the conference.

Other "hot" topics covered during the volatile but informative conference included the recent media scare and the possible loss of 2,4-D herbicide from the list of EPA-



approved pesticides.

"The association will develop a pro-active public relations campaign to counter the negative attention that our industry has been receiving," said Wilkinson, referring to a barrage of bad national publicity directed at LCOs in 1986.

Here is the short-term program the PLCAA is implementing:

- reducing data gaps on the pesticides LCOs use;
- making a list of third-party experts the organization can turn to;
- providing "damage control" to LCOs who face local negative publicity;
- putting together a media information kit;
- organizing a "media alert network;"
- sending information to members to help them respond to negative publicity, including a booklet entitled "The News Media's Lawn Care Scare: Fact or Fiction?" and
- establishing industry advisory committees from manufacturers.

Because the costs of warding off negative newspaper articles and radio and television programs is running to \$6,000 per month, the PLCAA will solicit extra funds. The organization is asking for voluntary contributions from manufacturers and is assessing the membership quarterly. Member donations in 1987 will be a minimum of \$100 for the smallest companies to a maximum of \$1500 for the largest companies.

The seventh annual convention and trade show broke all records for number of exhibitors and attendance. More than 1700 LCOs visited Baltimore for the event.



Roadside officers

Bill Johnson (right), state landscape engineer for the North Carolina Department of Transportation, is the new president of the National Roadside Vegetation Management Association (NRVMA). Elected as vice-president at the annual meeting in St. Louis was Carl B. Wills (center), roadside environment state administrator for the Kentucky D.O.T. Re-elected as secretary/treasurer was Larry Munzenmaier (left), Du Pont sales representative.

INDUSTRY

Buy-outs, mergers affect green industry suppliers

Within the last several months, major shufflings have taken place among green industry suppliers.

Hoechst A.G. of West Germany acquired New York-based Celanese Corp. for \$2.84 billion, a merger which forms the world's largest chemical company.

Celanese and Hoechst together had 1985 sales of \$17.6 billion, which puts them ahead of Du Pont, which reported sales of \$16.6 billion last year.

Hoechst manufactures Acclaim, a post-emergence herbicide, for which registration is pending. The company also makes Trevira, a nonwoven polyester fabric used by Warren's in its Terrabond landscape fabric.

Lesco, Inc. of Rocky River, Ohio

has acquired Groves Industries, Inc. of Elyria, Ohio. Groves Industries works in precision machining, manufacturing, fabrication, painting and finishing.

"Groves is an important supplier to Lesco of various precision parts used in our greensmower and will expand into production of components for other turf care equipment which we manufacture and market," says Jim FitzGibbon, chairman of Lesco.

Steven Groves, former president of Groves Industries has joined Lesco as vice president, manufacturing.

The Alamo Group of Seguin, Texas has purchased the BMB Company of Holton, Kan. Alamo Group completed

continued on page 11

Chemical spills are one of the landscape manager's biggest fears. But pesticide expert Phil Catron says such spills can be avoided.

Catron told the Florida Turfgrass Conference causes of vehicular accidents:

- excessive speed;
- following too closely;
- not keeping your eyes on the road; and
- backing.

Catron says 90 percent of all accidents occur because of improper backing.

He defines proper backing of a tanker:

1. Check all mirrors.
2. Walk around the truck before backing.
3. Don't back up, if it can be avoided; drive around the block.
4. If people are in the truck with you, have them get out and watch you back up.

Tanker characteristics—height and weight—play a role in accidents. A tanker is most dangerous, Catron warns, when it is half full because of the shiftable fluid load.

Even with these safety precautions, accidents can happen, in which case Catron advises:

1. Save people first.
2. Contain the spill. If the spill is small, use kitty litter to absorb it. Keep the kitty litter in a plastic garbage bag and dispose of it in an approved landfill.

Lesco's Hazorb pillows are even better than kitty litter. The pillows should be carried in the truck.

If the spill is large, dike it up, using all available resources.

3. Notify your employer. He or she can dispatch help.

4. Always carry a registration sheet in your truck, telling what chemical you are carrying and its EPA registration number.

5. Have a list of emergency phone numbers readily available in case the accident leaves the driver unconscious.

Finally, Catron notes, keep an emergency plan outlined for your employees with the proper accident procedures listed.

"1-2-3," a column describing pesticide safety "by the numbers" is a regular feature of WT&T.



Landscape Exposition

THE SECOND ANNUAL LANDSCAPE EXPOSITION

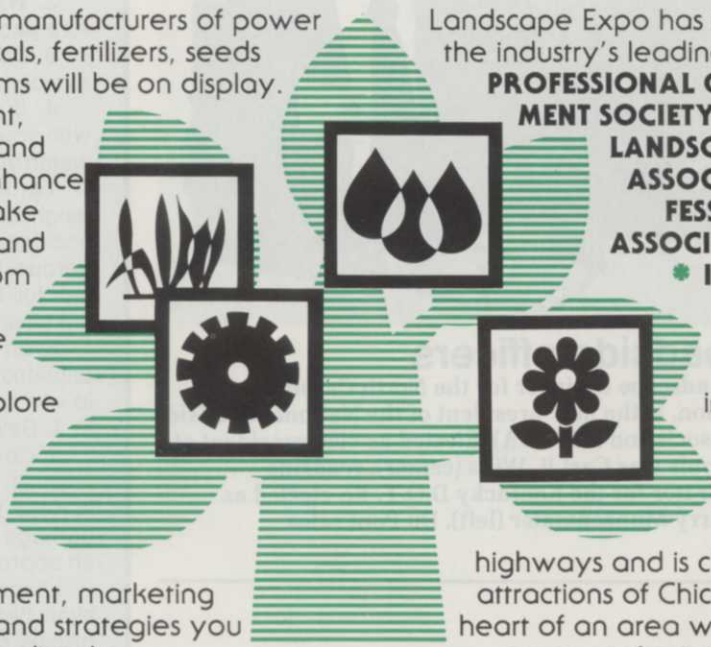
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- THE PROFESSIONAL LAWN CARE ASSOCIATION OF AMERICA
- ILLINOIS LANDSCAPE CONTRACTORS ASSOCIATION.

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SHORT CUTS

BUY-OUTS from page 7
the acquisition in August.

BMB manufactures rotary mowers, rear blades for tractors and cultivators. BMB also manufactures rotary mowers for Ford Tractor under Ford's brand name.

BMB will continue its operations in Holton. The facility there will be expanded to allow increased production, including the manufacturing of the Rhino product line.

Thomas A. Herrmann of Easton, Conn. has purchased Locke Manufacturing, Inc., of Bridgeport, Conn. Locke is the manufacturer of professional lawn care equipment. Herrmann is Locke's seventh owner in the company's 62-year history. He will also become chief operating officer of the firm.

GardenAmerica Corporation has signed an agreement to purchase Irri-Trol Manufacturing of Valencia, Calif. for about \$7 million. Irri-Trol manufactures specialty irrigation controllers for landscape architects and installers. GardenAmerica manufactures lawn and garden products for residential and light commercial applications.

RSI Corporation, of Greenville, S.C. has acquired DeBra Enterprises, Inc., (Hollywood, Fla.) and Turf and Industrial Equipment, Inc. (Orlando, Fla.).

DeBra sells turf care products to golf courses, commercial customers and government units. Turf and Industrial Equipment sells and services turf equipment.

Sax Industries, Inc. of Nash, Texas, has purchased the assets and complete inventory of F.E. Myers power spray division in Ashland, Ohio. The company will produce and market general purpose and air sprayers for golf courses, parks, schools, cemeteries, lawns and municipalities.

The Agricultural Services Division of Land O'Lakes, Inc. has acquired 24 midwestern retail fertilizer plants from the International Minerals & Chemicals Corp. Land O'Lakes is a major supplier of fertilizer and agricultural chemicals in the upper Midwest.

PESTICIDES

Preemergence material works on 90 weeds

Elanco Products Co. hopes to have EPA label approval for EL-107, a pre-emergence herbicide, by early 1988.

The new herbicide for turf and ornamentals has broadleaf activity. It is the only experimental pesticide that

NO MORE COMPETITION... Competition has become cooperation for members of the ALCA Interior Landscape Division and the Interior Plantscape Association. The ILD, now the IPD, has assimilated IPA members, thereby almost doubling its membership, according to WEEDS TREES & TURF sources. The new, larger group, though remaining under the umbrella of the Associated Landscape Contractors of America, promises to be a more effective organization than either of its predecessors.

BOUT WITH THE DROUGHT... Golf courses on Hilton Head Island stayed green through the summer's severe drought despite restrictions on water usage. The reason: the courses are watered with sewage effluent rather than fresh water. This actually helps the level of the island's underground water aquifer. The earth's soil filters out the remaining impurities in the effluent before it reaches the aquifer to replenish the water source.

COUNT DOWN... Northrup King Seed Company has hit the market this fall with the first salt-tolerant sod, ideal for roadsides and rights-of-way. The company, a leader in researching native grass varieties, previously marketed only salt-tolerant seed mixes, primarily its Boulevard mix. But according to turf specialist Mark Grundman, the mix must be composed by seed count, rather than seed weight. Grundman says if its not done that way, certain aggressive native varieties will take over.

JUST DOWN THE RIVER A BIT... The Skokie River— well, actually it's more like a brook— flows through nine golf courses outside of Chicago, Ill. It starts at Lake Bluff Golf Course in Lake Bluff and flows from there to Deer Path Park Golf Course (Lake Forest) to Onwentsia Club (Lake Forest) to Old Elm Club (Lake Forest) to Highland Park Country Club (Highland Park) to Sunset Valley Golf Club (Highland Park) to Bob O'Link Golf Club (Highland Park) to Northmoor Country Club (Highland Park) to, finally, Glencoe Golf Club (Glencoe). That's about 10 miles "as a crow flies," says Onwentsia's superintendent Paul Boizelle.

THEY'LL GET YOUR GOAT... Way down in the lowlands east of Dallas, Texas, goats are everybody's friends. It gets a little messy at the city water plant in the summer when a combination of heat and oozing sludge produces lagoon grass that swarms up and swallows tractors. Enter seven Spanish goats who now keep the 67 acres groomed. The area previously needed twice-monthly mowings by seven men and a host of mowers. The animal maintenance unit is a neighborly arrangement between Samuell Farm and the nearby water plant. The plant saves gas and labor costs, while the goats eat for free.

Elanco is developing specifically for the specialty markets.

Company personnel say that they will probably recommend mixing EL-107 with a dinitroaniline (like pendamethalin or Balan) for sharper grass control. It also controls dandelions and buckhorn.

The product has been shown to work on 90 species of ornamentals for weed control, both alone and in combination with another Elanco product, Surflan.

TECHNOLOGY

Plant stress monitor measures turf's health

Standard Oil is testing a plant stress monitor that yields a "stress index" to enable turf managers to more accurately program irrigation needs.

The instrument has been placed in the hands of two golf course superintendents—one in the Cleveland, Ohio area, and one in the Atlanta area—for field trials. If tests are positive, it will be marketed to golf course superintendents and other turf managers.

The monitor, a hand-held "gun" attached to a computer worn at the waist on a shoulder strap, monitors the physiological state of the turf. After measuring the plant's leaf temperature, ambient temperature, relative humidity and solar radiation load, the data is processed by the computer. The resulting "stress index" gives the turf manager information needed to analyze irrigation effectiveness and project irrigation requirements.

"There's still a question as to how we're going to release this

product," notes Steve DeSutter of Standard Oil of Ohio. "But we're working on an agreement with one of the major irrigation suppliers to the turf industry."

A specific release date is yet to be determined.

FERTILIZER

Lebanon Chemical expands fertilizer line

With the purchase of Tidewater Agri-corp Inc. of Chesapeake, Va., Lebanon Chemical Corp. significantly expands its liquid fertilizer line.

Tidewater has 20 fertilizer outlets in the coastal regions of Virginia and North Carolina. Last year, Tidewater's liquid fertilizer retail sales were in the multi-million dollar range.

Mark Nuzum, manager/agronomist at Tidewater's Chesapeake facility, will handle marketing and sales of the acquisition.

RESEARCH

Dutch find treatment for Dutch elm disease

Scientists at the Institute of Applied Chemistry in Zeist, Holland, have found a way to treat Dutch elm disease.

They have found that injecting a tree with fenpropimorph, a fungicide also used to treat mildew on cereal crops, will block the spread of the fungus that causes the disease. Fenpropimorph has been proven harmless to Dutch elms, but prevents the fungus from giving off

spores that spread the disease.

It can be used either preventatively or curatively. Used preventatively, it has been 100 percent effective.

Treatments of this kind are labor-intensive and, thus, expensive. But researchers at the Institute say a Dutch elm "vaccine" could be on the market as early as next year.

CHEMICALS

Turf regulator shows promise in Northwest

While turf growth regulators have won increasing acceptance in many parts of the country, they haven't been widely available in the Pacific Northwest. But research conducted with Limit turf regulator shows promising results for reducing grass growth in the particular growing and climatic conditions of Washington and Oregon.

Tom Cook, associate professor of horticulture at Oregon State University, has been testing the product in Oregon's Willamette Valley.

"We've seen the most impressive results on bluegrass," he says. "The treatment with Limit did not completely stop grass growth as some growth regulators do, but it did slow it down significantly. There was no visible discoloration or loss of turf quality."

Mike Vandecoevering of the Wilbur-Ellis Co. adds, "From what we've seen so far, it appears to have a real nice fit in our landscape management programs." The Wilbur-Ellis Co. has begun distributing Limit on a test market basis in Washington and Oregon.

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RESEARCH

Gypsy moth populations self-destructive?

According to researchers at Cornell University, gypsy moths may carry a chemical toxic to them in their bodies.

At least 10 percent of the moths in a test at the Boyce Thompson Institute for Plant Research are infected with a virus deadly to them which passes on to offspring. The virus produces no recognizable symptoms until it is triggered by an unknown catalyst.

Scientists at the institute plan to bombard a colony of infected gypsy moths with different types of stress in order to find the catalyst.

Virologist Alan Wood suspects that the trigger may be chemicals produced by trees or shrubs which the moths feed on, such as tannin. If they are right, they could eliminate whole populations of moths by spraying this chemical on infested areas.

Gypsy moths have destroyed millions of acres of forests in this country, mainly in the Northeast and Midwest. They attack more than 100 species of trees and shrubs.

INSECT CONTROL

New insecticide is tree extract

A new type of insecticide is based on extracts of neem, a common tropical tree. Tests show that more than 80 major insect pests can be controlled by neem extracts.

The first label for a commercial neem product was recently granted by the EPA for insect control on some

horticultural crops.

In tests, neem gave safe and inexpensive control of two formidable insects—the sweet potato whitefly and the Colorado potato beetle—which have gained resistance to many other insecticides.

PESTICIDES

Ciba-Geigy refutes EPA diazinon decision

Ciba-Geigy says the U.S. Environmental Protection Agency's decision to revoke the use of diazinon on golf courses and sod farms by the end of the year is based on "inadequate scientific review."

The insecticide has been linked to bird kills, according to the EPA.

Ciba-Geigy, major producer of the pesticide, says the EPA has "ignored the company's efforts to scientifically resolve concerns of certain uses."

The decision to ban use on golf courses and sod farms was based on documented evidence of bird kills, claims the EPA's George Larocca. The evidence was examined by the agency's Scientific Advisory Panel.

Diazinon has been registered for use on golf courses and sod farms for more than 30 years, and has been used on turf for more than 20.

Ciba-Geigy says in the news release that it tried twice in the last year to discuss the concerns with the EPA and was rebuffed both times.

"We were completely ignored," says Dr. Haney B. Camp, vice president of research and development for Ciba-Geigy's agricultural division. "Ciba-Geigy and the EPA have successfully resolved concerns many times in the past. We do not under-

stand why the agency has turned a deaf ear to us this time, in comparison with past experience."

This fall, the company will test new application rates and new formulations to reduce hazards to birds.

Use on residential and commercial lawns is presently under review by the EPA. That review will be completed by the end of the year.

PEOPLE

Adikes chairman passes away

Philip Adikes former chairman of J&L Adikes seed company of Jamaica, N.Y., died September 27th. He was 75. Adikes had been with the company for 34 years. He was a grandson of the founder, **Robert A. Russell**, Adikes president, will become chairman when purchase arrangements are complete.

Rain Bird Sales makes the following appointments: **Dick Schaeffer** is named a golf manager; **Bob Olson** is appointed Eastern regional sales manager for the turf division; **Bob Bernards** is Pacific Northwestern district manager for the turf division; **Bill Tullos** is named North/Central Florida district manager for the turf division. Rain Bird is headquartered in Glendora, Calif.

The American Society of Golf Course Architects accepts three associate members: **Bruce Borland**, Long Grove, Ill.; **Brian Silva**, Whittinsville, Mass.; **Michael Dasher**, Orlando, Fla.

Michael E. Leeson resigns as exec-

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Dick Schaffer

utive director of the **California Landscape Contractors Association**. He leaves the group after 14 years to enter private business.

Roy C. Ontiveros joins **Pacific Sod** as turfgrass advisor and technical representative in Los Angeles, Riverside and San Bernadino counties. He is an 18-year green industry veteran.

Alamo Group names **Frank Hernandez** territory manager for the states of Nebraska, Kansas and Missouri. He's been with the company since 1980.

Yardmaster names **Michael S. Whitman** staff designer and **Kerry G. Kitchel** horticulturist in the sales and service areas. Whitman is the sixth landscape architect to join the company.

Michael S. Pratt joins **Erosion Control Systems** business of Gulf States



Bob Olson



Bill Tullos

Paper Corporation as product manager.

Jacobsen Division of Textron Inc. names **Anthony Saiia** vice president of engineering and **Earl Klepel** vice president of manufacturing. The company names **Robert Krick** product manager while **Mark Foree, Jack Ball and Bill Swann** are appointed dealer sales managers for the Commercial Products line.

E-Z-Go/Textron names **Frank Smith** national sales manager for the reorganized Turf, Industrial and Commercial Vehicles Division. The restructuring divides the country into three regions—West, Northeast and Southeast—each under the direction of a regional sales manager. **Bill Manning** is West sales manager; **Steve Cotton** is Southeast sales manager; and **Jim Simmons** is Northeast sales manager.



Frank Hernandez



Anthony Saiia

ger. **E-Z-Go/Textron** names **J. Hampton Manning** vice president of Turf, Industrial and Commercial Vehicles Sales.

Bob Knoche joins the Landscape and Turf Division of the **L.R. Nelson Corporation** as district sales manager for Southern California, Arizona and Southern Nevada. He has over 15 years of industry experience.

Tom Hashman is promoted to product development manager, Midwest region, for **Staufer Chemical's Agricultural Products Division**. He joined the company in 1979.

Barbara Craycraft is manager of all large accounts.

Cyanamid International Agricultural Division names **Bruce Andrews** vice president, pesticides. He was formerly director, animal products.



Earl Klepel

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IT'S NO JOKE

The numbers are growing...and women golf course superintendents are not only surviving, but thriving, in what was once considered a man's job.

by Heide Aungst, associate editor

It's a typical scenario: A golf course superintendents' meeting. The speaker gets up to the podium and starts to expound on his dry wit. "Did you hear the one about the guy who..." He glances around the room, and suddenly stops.

Oh no! There's a woman in the room.

"It's great, I know half of so many dirty jokes," says Sandy Bemis, superintendent of Renwood Country Club in Round Lake, Ill. "They see me sitting there and stop in the middle. Some day I'll have the guts to say, 'Never mind, I've heard this one.'"

Bemis knows a good sense of humor is the best ammunition in the male-dominated profession. "When an invitation says tie required, I put one on," she says.

The Golf Course Superintendents Association estimates 25 to 100 women golf course superintendents for 12,278 courses nationwide. GCSAA total membership is about 6,900.

It's difficult to pinpoint the exact number of women supers.

The GCSAA membership roster lists 40 women with distinctly female names. Another 40 people are listed by initials only, and about 70 have androgynous names.

"I thought about just using my first initial. That way they can't tell when you apply for a job," says Jo-Ann Eberle Ward, superintendent of Sunset Valley Golf Course in Pompton Plains, N.J.

Bemis and Ward both work at municipal courses. "No one has really broken into a Winged Foot or any of the conservative old clubs," says Shirley Talmadge, assistant superin-



Sandy Bemis, superintendent at Renwood Golf Course in Round Lake, Ill., repairs a tractor.



"She can already say 'pesticide' and 'irrigation,' and she can swing a golf club too," Jo-Ann Eberle Ward says of daughter Kate. Ward's husband John helps with the golf lessons.

tendent of the prestigious Winged Foot Golf Club in Mamaroneck, N.Y.

Talmadge has struggled through management changes at Winged Foot to work her way to second in command. "If I had brains in my head, I would have left," she says. "But because I'm a woman, I'm older and I'm on my third career, I felt the fastest way to get to the top was to stay with a top club."

Getting there

Women superintendents don't fit into any particular stereotype. Talmadge, at 37, is more than a decade older than

Bemis, 25. Ward is 32. Ward's husband John works in the industry, as a resort landscape manager. They have one daughter, Kate, almost 3.

Bemis's husband Ken is a flight instructor. They don't have any children.

Talmadge has never married.

The thing all three women do have in common is an avid love for the outdoors, and a determination to work there. But the paths which led them to the golf course are as different as greens and roughs.

"My mom wanted me to be an airline stewardess so she could get free



It's been tough for women to break into private clubs, says Shirley Talmadge, assistant superintendent at Winged Foot Country Club.

trips," says Bemis. "My dad didn't care what I did, as long as I didn't get dirty."

At 15, Bemis landed a job as a gardener on a golf course. The experience prompted her to take horticulture classes at a local vocational school.

Bemis excelled in floral design, but "went crazy" trapped inside a florist shop on nice days. That led her back to Midlane Golf Course as a seasonal worker for five years.

Then she got an assistant superintendent's job at Heather Ridge Golf Course. After three years there, she accepted a job at Renwood as an assistant. Within six months, the super left and she took over his responsibilities.

Today she oversees 138 acres on the 18-hole course, and two staffers.

No yelling

"At first it was real hard because you're telling men what to do," Bemis says. "So I didn't tell them, I asked them."

Bemis also finds golfers react differently to her than they might a male superintendent. "Folks out here are kind of surprised," she says. "They'll say 'I want to talk to the man in charge.' I get talked to rather than screamed and yelled at. They're more hesitant to yell at a woman."

Ward started as a secretary at the Playboy Resort and Country Club in northern New Jersey. But she wanted to work outside and applied for a job on the course. "When I first went for the job, I didn't realize it was male dominated," Ward reflects. "The superintendent said, 'I'll put it to you this way, kid. If you're crazy enough to want to work outside, I'm crazy enough to hire you.'"

After taking turf courses at Rutgers University, she became assistant superintendent at High Mountain Country Club in Franklin Lakes, N.J. Later

that year she became assistant superintendent at the Americana Resort and Country Club, where she worked on 27 holes and more than 700 acres of golf course and hotel grounds. The extra holes qualified Ward above other male candidates who applied for the superintendent's job at Sunset Valley, which she took in '84.

The course is 150 acres, with about

'My mom wanted me to be an airline stewardess so she could get free trips.'

Sandy Bemis
Renwood Country Club

300 rounds of golf played daily. She supervises seven full-time employees and usually three more during the golf season.

She says she's never had a problem supervising men. "I've made it clear that what I say goes, but they're entitled to their opinions," she says. "They know if they have a problem they can come to me."

Talmadge started in the pre-med program at Vanderbilt University in 1967. The pre-med experience gave her a solid chemical background which later helped her get her pesticide license.

She got a degree in anthropology and psychology, worked overseas in the importing business, and eventually ended up back in New York.

There she worked on a golf course for spending money. She fell in love with the job.

In 1981, she went to the University of Massachusetts for a two-year de-

gree in turf management. She completed her five-month work program with Ted Horton at Westchester Country Club. In 1983, she took a job on the crew at Winged Foot.

Several changes in superintendents left her in line for the assistant's job in late '84. But, she says, superintendent Bob Alonzi was hesitant to give her the title. "He said the foreman and crew wouldn't take orders from a woman," she said. "The first time he left, I had to tell them myself. I did all the records without the title. I had to prove myself over and over again."

The crew has nine full-time workers, with more than 20 in the summer. *Golf Digest* (Nov. 1985) ranked Winged Foot the fifth-best course in the country.

Getting physical

Greens committees are often hesitant to hire a woman superintendent. They argue that a woman can't handle the physical labor involved.

Women superintendents argue in return that it's like any other job—some women aren't cut out for it. But, then, some men couldn't handle it either.

"It's a crazy idea I've always had that if a guy can do it, I can do it too," Bemis says.

And, of course there's the "problem" of women becoming pregnant. "I dug up an irrigation break when I was six months pregnant," says Ward. "I worked up until a week before Kate was born."

Kate was born on Christmas day, "during the off-season, of course."

"I always say she'll be the second woman golf course superintendent," Ward jokes. "She can already say 'pesticide' and 'irrigation,' and she can swing a golf club, too."

Ward has a house on the golf course, which makes it easier to balance career and home. John drives more than two hours to his job, so Jo-Ann can keep her job.

Bemis also plans to have children and keep her job as superintendent. "In this day and age, unless you're really lucky, both people have to work. It's just another job," she says. "We'll just mount a child seat on the back of the tractor."

Women supers still have a long way to go. But Bemis, Ward, and Talmadge all advise starting as a crew member, getting an education, being involved with professional organizations like the GCSAA, and working within the system. "If you're going to be sensitive and try to fight intellectual white-collar battles in this field, you're not going to get anywhere," Talmadge says. **WT&T**

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TURF'S GRANDAME

It's really not a new trend for women to work as golf course superintendents. Just ask Virgie Ross.

A great-grandmother to four girls (she has two daughters, and two granddaughters), Ross retired from Homewood Golf Course, in Ames, Iowa, just four years ago.

In 1974, Ross became Iowa's first woman superintendent and one of the first women in the country to hold such a position.

"I lost my husband and I needed a job," she remembers. "The parks and recreation director had faith in me. He told me his demands, and I really had to work to be a Class A superintendent."

With old-fashioned savvy, Ross pioneered work in an area few women chose as a career. She inherited the job from her husband, Gerald, who died mowing greens in '74. But where another woman might look for more traditionally female work, Ross went to the parks and recreation director and asked for the job.

The physical labor involved was no problem. After all, she and Gerald had farmed together for more than 20 years, and she loved working outside.

Not for men only

In fact, because of her farming background, she never thought twice about the job being for men only.

"My feeling is that women can be in this as well as men," she says. "I come from an era where women were supposed to be careful lifting things. Sure, maybe they won't pick up a 100-pound bag, but then they can take two buckets and just carry smaller loads at a time."

By her definition, her career started in a one-room country school house in Winfield, Iowa, in the '30's, when she met Gerald. They married in 1937.

The two worked closely together at whatever task they undertook. They gave up farming in the '60's, several years after Gerald suffered his first heart attack.

They moved to Columbus Junction, Iowa, where Virgie ran a cafe and Gerald sold hog feed and worked at a gas station. The local banker was chairman of the golf course board and approached Gerald



Virgie Ross helped pioneer women working as superintendents. This photo was taken before her retirement four years ago.

with a superintendent's job.

The Musser 'bible'

He jumped at the chance and started attending seminars and reading everything he could on the subject. "Musser's old turf management book was his bible," Virgie remembers. "I thought he had it memorized."

In 1971, he wrote to Homewood Golf Course in Ames, Iowa, interviewed on a Wednesday and by the following Monday, they had moved to Ames.

Three years later, after Gerald's death, Virgie began running the course, attending classes, and becoming active in the GCSAA.

"I walked into one of the first meetings. They were playing golf, and they said, 'You can't play today. This is for golf course superintendents.' I said, 'I am a superintendent,'" Ross says.

But the job didn't go as smoothly as she thought it would. "The man who hired me believed in women being in men's work, if they can handle it," she says. "But he

moved to California and they hired another guy who resented me very much."

Her boss' prejudice against women forced her to retire when she turned 65.

"I wouldn't be sitting in this empty mobile home by myself if I hadn't had that boss," she says. "I resent drawing Social Security when I could be working. I can still sit on a tractor and mow grass."

Despite the loss of her job, she stays active with the GCSAA, handling the state newsletter, and attending national conferences.

Today, Ross says, Iowa has nine women superintendents. With fewer than 100 nationwide, Iowa may lead the country in the number of women running courses.

Women, she says, have a knack for detail, which can help beautify any golf course. And, as far as men working with women, she makes one simple statement:

"If they're a MAN—that's with capital letters—they won't resent it."

—Heide Aungst



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ALL SYSTEMS GREEN

The green industry is growing in all directions. An indication of this positive trend is the magnitude of chemical, equipment and seed purchases. So the state of the green industry, judging by a recent survey, is 'green and go' for 1987.

During 1986, readers of WEEDS TREES & TURF purchased almost \$2.5 billion worth of chemicals, equipment and plant material for landscape care.

Most of the purchases were split between equipment and chemicals, says an independent survey done for the magazine by Readex, Inc., St.

Paul, Minn. The Readex numbers closely parallel other studies like the Charles H. Kline Report released earlier this year.

Chemical purchases

The Kline statistics indicate a total market for turf and grounds pesticides of \$729.6 million; Readex indicates

that WT&T readers will make pesticide purchases of \$678.3 million (not including seed, sod, adjuvants, wetting agents and growth regulators).

Among WT&T readers, granular fertilizer continues to be the favorite. More than 7 out of 10 landscape managers opt to use it, resulting in \$262 million worth of sales. Liquid fertilizer is a distant second with 1986 sales of \$31.8 million to just one-fourth of the magazine's readers.

Herbicides remain the most popular of the pesticides in the green industry. Readers bought more than \$160 million worth in 1986, including almost \$100 million of pre-emergents.

Fungicide sales to WT&T readers were \$81 million and insecticide sales were \$72 million in 1986, the Readex survey suggests.

Equipment purchases

Readers report owning more than 124,000 tractors, 140,000 pick-up trucks, and 398,000 mowers, as well as a long list of other items (see charts).

The pick-up truck is the most popular piece of equipment. The average reader owns almost four pick-ups. Taken as a whole, pick-up truck manufacturers gained \$135 million in sales to readers of WT&T.

Likewise, more than \$100 million worth of irrigation equipment sales went to our readers, including nearly \$60 million worth of sprinklers. The average reader owns or has installed 362 sprinklers, two or three irrigation pumps and 22 electronic irrigation controls.

Though the most dominant piece of mowing equipment is the walk-behind rotary (six owned by the average reader) riding reels are the biggest expense. According to the Readex survey, WT&T readers purchased \$42.8 million worth of them, slightly more than the \$40.3 million the same readers spent on rotary riders.

Lots of plants

Not surprisingly, the biggest single expense for the typical landscape manager is for plant materials. Nearly

PREDICTED EXPENDITURES FOR 1986

Chemicals, supplies	Percentage reporting	Mean	Total Readership Projection
Adjuvant-spreaders	21.8	\$436	\$4,260,000
Aquatic herbicides	16.2	\$580	\$4,200,000
Dry-applied turf fertilizer	71.7	\$8,150	\$262,000,000
Fungicides	49.1	\$3,730	\$81,800,000
Growth regulators	21.8	\$427	\$4,170,000
Insecticides for trees/ornamentals	42.0	\$1,060	\$20,000,000
Insecticides for turf	49.9	\$2,330	\$52,000,000
Landscape fabric for erosion control	14.8	\$875	\$5,810,000
Landscape fabric for weed control	16.2	\$2,250	\$16,300,000
Landscape structures	20.3	\$2,842	\$23,245,000
Liquid-applied turf fertilizer	25.6	\$2,770	\$31,800,000
Plant materials	58.2	\$27,600	\$719,000,000
Post-emergence herbicides	62.0	\$2,570	\$71,400,000
Pre-emergence herbicides	60.1	\$3,650	\$98,200,000
Sod	36.7	\$6,080	\$99,800,000
Soil amendments	34.2	\$2,800	\$42,900,000
Tree fertilizer	34.2	\$911	\$14,000,000
Turf seed	71.4	\$2,920	\$93,300,000
Wetting agents	30.2	\$667	\$9,020,000



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6 of 10 WT&T readers purchase such materials each year, for which they pay an average of \$27,600. Projected to the entire WT&T readership of more than 45,000, that's an annual expense of \$719 million on plant materials nationally.

More than half the respondents to the survey were involved in the following maintenance practices:

- fertilizer application (76%);
- weed control (75%);
- landscaping (70%);
- lawn care (69%);
- pesticide application (64%);
- irrigation (52%); and
- tree installation and care (52%).

Seventy-seven percent of the respondents maintain an average of 157 acres of turf yearly, or more than 5 million acres when projected to the magazine's total circulation.

In addition, nearly one-fourth of the sample maintains rights-of-way and an additional one-fourth maintains lake acreage.

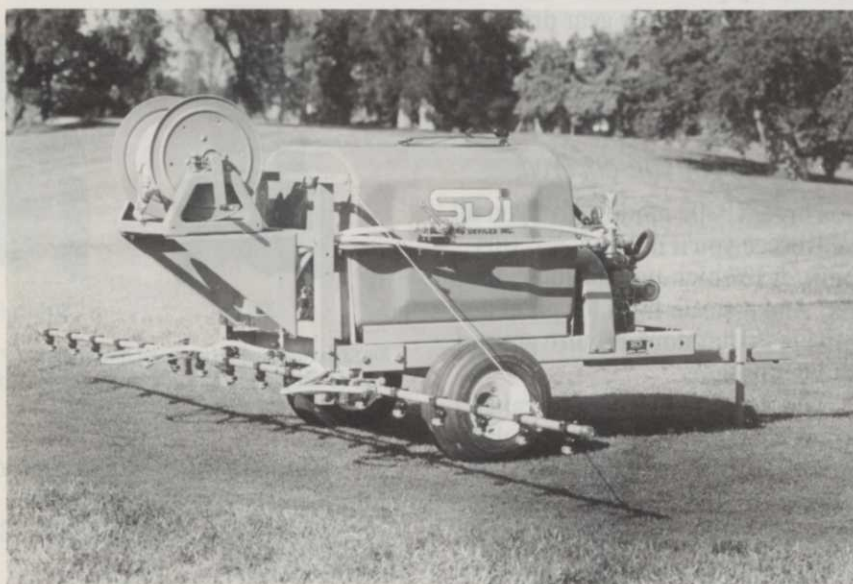
The Readex survey was based on 371 usable responses from a mailing to 500 randomly-chosen WEEDS TREES & TURF readers. Proportions based on all 371 respondents are subject to a maximum sampling error of $\pm 4.3\%$ at the 90% confidence level.

PREDICTED EXPENDITURES FOR 1986

Equipment	Percentage reporting	Mean	Total Readership Projection
Golf cars/utility vehicles	11.0	\$5,090	\$22,400,000
Irrigation systems	23.0	\$3,100	\$33,733,000
Pick up trucks	25.8	\$6,040	\$75,850,000
Riding mowers—reel	16.2	\$5,920	\$42,800,000
Riding mowers—rotary	32.9	\$2,740	\$40,300,000
Seeders	13.5	\$951	\$5,800,000
Soil aerifiers/corers	22.9	\$1,310	\$13,500,000
Spreaders	29.9	\$433	\$5,800,000
Tractor drawn gangs	13.7	\$3,510	\$21,600,000
Tractors	15.5	\$4,051	\$26,748,000
Walk-behind mowers—reel	10.8	\$1,710	\$8,230,000
Walk-behind mowers—rotary	48.0	\$996	\$40,300,000

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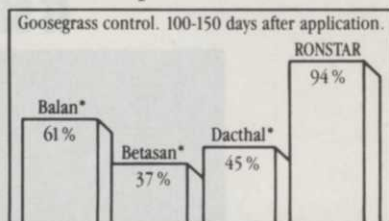


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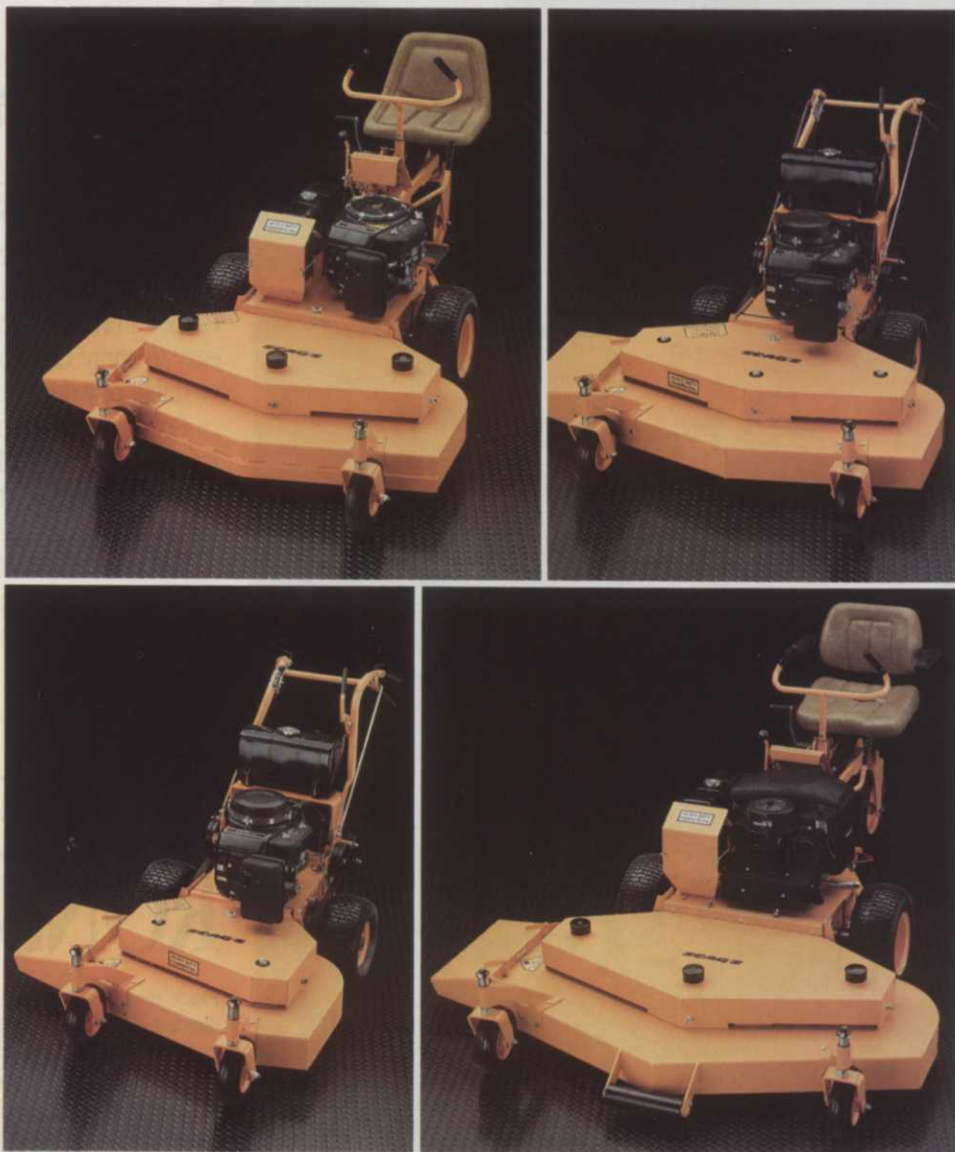
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The image features a large, detailed illustration of a white golf ball with a dimpled texture, resting on a red tee. In the background, the head of a golf club is visible, set against a blue sky with white clouds and a green landscape with rolling hills and trees. The text is centered on the golf ball.

WEEDS TREES & TURF

1987

CALENDAR OF EVENTS

TURF CALENDAR

JANUARY

3-6—Grower Expo '87, Grower Talks Magazine, Chicago Marriott, Chicago, IL. Contact: Kathy Wooton, P.O. Box 501, West Chicago, IL 60185; (312) 293-5020.

4-6—Kansas Association of Nurserymen, Winter Meeting (in conjunction with the Western Association of Nurserymen), Hilton Plaza Hotel, Kansas City, MO. Contact: John Tonkin, K.A.N., 5530 W. 19th, Topeka, KS 66604; (913) 272-6437.

4-6—Green & Growin' Show, North Carolina Association of Nurserymen and N.C. Landscape Contractor's Association, Benton Convention Center, Winston-Salem, NC. Contact: Bill Wilder, P.O. Box 400, Knightsdale, NC 27545; (919) 266-3322.

4-6—Western Annual Meeting & Trade Show, Western Association of Nurserymen, Kansas City, MO. Contact: Ed G. Gray, 2215 Forest Lane, Kansas City, KS 66106; (913) 236-5203.

5-7—Maryland Turfgrass Council Turfgrass '87, Baltimore Convention Center Festival Hall, Baltimore, MD. Contact: Cheryl A. Gaultney, P.O. Box 223, White Marsh, MD 21162; (301) 335-3700 or Dr. Thomas R. Turner, Dept. of Agronomy, University of Maryland, College Park, MD 20742; (301) 454-3716.

5-7—21st Annual Conference of the Tennessee Turfgrass Association, Music City Rodeway Inn, Nashville, TN. Contact: Donnie Callis, University of Tennessee, P.O. Box 1071, Knoxville, TN 37901-1071; 800-342-1016.

5-9—Annual Turfgrass Short Course, Mississippi State University and Mississippi Turfgrass Association, Bost Extension Center, MSU Campus, Starkville, MS. Contact: Dr. George Euel Coats, Coordinator, Drawer PG, Mississippi State University, MS 39762; (601) 325-2608.

6—Pest Control Seminar, University of California Extension, Salinas Convention Center, Salinas, CA. Contact: Shirley Humphrey, University of California, Davis, CA 95616; (916) 752-0470.

6-8—Indiana Association of Nurserymen Annual Winter Conference, Adam's Mark Hotel, Indianapolis, IN. Contact: Donald L. Schuder, Dept. of Entomology, Purdue University, W. Lafayette, IN 47907; (317) 494-4561.

6-9—New York State Nurserymen's Association Annual Meeting, Concord Hotel, Kiamesha Lake, NY. Contact: Margaret Herbst, 310 Madison Ave., New York, NY 10017; (212) 697-2752.

6-9—Connecticut Nurserymen's Eastern Regional Trade Show, Concord Hotel, Kiamesha Lake, NY. Contact: Larry Carville, Room 109, 30 Lafayette Square, Vernon, CT 06066; (203) 872-2095.

7—Metropolitan Golf Course Superintendents Winter Educational Seminar, Tappan Zee Motor Inn, Nyack, NY. Contact: Bruce Cadenelli, Hollywood Golf Club, Deal, NJ 07723; (201) 531-3609 or Ted Horton, Westchester Country Club, Rye, NY 10580; (914) 967-6000 ext. 360.

7-8—Tidewater Professional Horticulture Conference & Trade Show, Tidewater Virginia Nurserymen Association, Pavillion Conference Center, Virginia Beach, VA.

Contact: Beth Wright, P.O. Box 6291, Virginia Beach, VA 23456.

7-9—North Carolina Turfgrass Conference & Exhibit, Winston Salem, NC. Contact: A.H. Bruneau, Box 7620, North Carolina State University, Raleigh, NC 27695-7620; (919) 737-2326 or R. L. Robertson, NCTC, P.O. Box 5395, Cary, NC 27511; (919) 467-1162.

8—Pest Control Seminar, University of California cooperative extension, University Theatre, Riverside, CA. Contact: Shirley Humphrey, entomology extension, University of California, Davis, CA 95616; (916) 752-0470.

8-9—KNA/KSTA Winter Conference & Trade Show, Kentucky Nurserymen's Association, Executive West Hotel, Louisville, KY. Contact: Larry Lose, 10105 Afton Rd., Louisville, KY 40223; (502) 454-8296.

8-9—New Hampshire Turf Conference, New Hampshire Golf Course Superintendents Association and New Hampshire Cooperative Extension Service, Manchester, NH. Contact: Dr. John M. Roberts, Dept. of Plant Science, Nesmith Hall, UNH, Durham, NH 03824-3597; (603) 862-3202.

8-10—WSNA Convention & Product Exhibit, Washington State Nurserymen's Association, Marriott, Seacac, Seattle, WA. Contact: Sharon, Box 670, Sumner, WA 98390; (206) 863-4482.

9-11—Foliage World '87, Florida Foliage Association, Orange County Convention/Civic Center, Orlando, FL. Contact: Ann King, 57 E. Third St., P.O. Box Y, Apopka, FL 32704; (305) 886-1036, in Florida (800) 342-0138.

9-11—Illinois Landscape Contractors Association Mid-America Trade Show, Hyatt Regency Hotel, Chicago, IL. Contact: Lucile M. Little, 2200 S. Main St., Suite 301, Lombard, IL 60148; (312) 932-8443.

9-11—Mid-America Horticultural Trade Show, Hyatt Regency, Chicago, IL. Contact: Donn Sanford, Mid-Am Trade Show, 4300-L Lincoln Ave., Rolling Meadows, IL 60008; (312) 359-8160.

10-11—Arkansas Nurserymen's Annual Seminar & Plant Auction, Arlington Hotel, Hot Springs, AR. Contact: Leah Sylar, P.O. Box 55295, Little Rock, AR 72225; (501) 225-0029.

10-11—Louisiana/Mississippi Nurserymen's Short Course & Trade Show, Bellemont Motel, Baton Rouge, LA. Contact: Dr. Warren A. Meadows, 4560 Essen Lane, Baton Rouge, LA 70809; (504) 766-3471.

12—Pest Control Seminar, University of California cooperative extension, Holiday Inn, Visalia, CA. Contact: Shirley Humphrey, entomology extension, University of California, Davis, CA 95616; (916) 752-0470.

12-14—North Central Turfgrass Association's Annual Meeting, Holiday Inn, Fargo, ND. Contact: Ed Evernham, Box 5031, 2001 Great Northern Dr., Fargo, ND 58102; (701) 232-7238

12-14—Mid-Atlantic Nurserymen's Trade Show, Maryland, Virginia & West Virginia Nurserymen's Associations, Baltimore Convention Center, Baltimore, MD. Con-

tact: Carville M. Akehurst, P.O. Box 314, Perry Hall, MD 21128; (301) 256-6474.

12-14—North Central Turf Conference, North Central Turf Association, Fargo Holiday Inn, Fargo, ND. Contact: Ed Evernham, P.O. Box 7262, Bismarck, ND 58502; (701) 222-0652 or (701) 258-2950.

12-15—Michigan Association of Nurserymen Annual Convention & Trade Show, Grand Plaza & Grand Center, Grand Rapids, MI. Contact: Rick Seely, 500 N. Homer, Suite 201, Lansing, MI 48912; (517) 337-1796.

13-15—Eastern Pennsylvania Turf Conference & Trade Show, Valley Forge Convention & Exhibit Center, King of Prussia, PA. Contact: Dr. Thomas L. Watschke, Dept. of Agronomy, 16 Tyson Building, University Park, PA 16802; (814) 863-1613 or Christine E. King, Pennsylvania Turfgrass Council, P.O. Box 417, Bellefonte, PA 16823; (814) 355-8010.

13-15—Illinois Landscape Contractors Association Winter Seminar—Design Section, Elmhurst Country Club, Wooddale, IL. Contact: Lucile M. Little, 2200 S. Main St., Suite 301, Lombard, IL 60148; (312) 932-8443.

14—Pest Control Seminar, University of California cooperative extension, Chateau de Ville, Modesto, CA. Contact: Shirley Humphrey, entomology extension, University of California, Davis, CA 95616; (916) 752-0470.

14-15—Rhode Island Nurserymen's Association Annual Short Course, Sheraton Islander Inn & Conference Center, Newport, RI. Contact: Marlene L. Franklin, P.O. Box 99, Kingston, RI 02881; (401) 789-6481.

14-16—Georgia Nursery Association Short Course & Trade Show, Charleston, SC. Contact: Jake Tinga, 190 Spring Tree Rd., Athens, GA 30605-2418.

15—Pest Control Seminar, University of California cooperative extension, Bonanza Inn, Yuba City, CA. Contact: Shirley Humphrey, entomology extension, University of California, Davis, CA 95616; (916) 752-0470.

15-16—Rocky Mountain Regional Turf Conference, Rocky Mountain Turfgrass Association, Lory Student Center, Colorado State University, Fort Collins, CO. Contact: Jack D. Butler, Dept. of Horticulture, Colorado State University, Fort Collins, CO 80523; (303) 491-7070.

15-16—San Diego Xeriscape (low water usage), Atlantis Restaurant, San Diego, CA. Contact: Brad Monroe or Helen Stone, Cuyamaca College, Ornamental Horticulture Dept., El Cajon, CA 92020; (619) 464-1980 ext. 262.

15-17—Georgia/South Carolina Nurserymen's Short Course & Trade Show, Charleston Place Hotel, Charleston, SC. Contact: J.P. Fulmer, 321 Berkeley Dr., Clemson, SC 29631; (803) 654-2446 or Jake Tinga, 190 Springtree Rd., Athens, GA 30605; (404) 548-1257.

18-20—N.Y. State Arborists Annual Convention, ISU Chapter, Hotel Marriott, Albany, NY. Contact: Margaret Herbst, 310 Madison Ave., New York, NY 10017; (212) 986-1160.

22—Maryland Arborists Association's



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TURF CALENDAR

Seminar & Recertification Day. Snyder's Willow Grove Restaurant, Linthicum Heights, MD. Contact: Mathew C. Anacker, secretary, P.O. Box #12130, Pikesville, MD 21208-0310; (301) 486-4706.

19-23—Golf Course Association Conference & Award of Merit Banquet. Hilton Hotel, Walt Disney World, Orlando, FL. Contact: Curt Walker, Golf Course Association, 8030 Cedar Ave., Suite 228, Minneapolis, MN 55420; (612) 854-8482.

20-22—New Jersey Association of Nurserymen's Annual Convention and Trade Show. Caesars Hotel/Casino, Atlantic City, NJ. Contact: Larry D. Little Jr., Secretary, P.O. Box 231, 233 Blake Hall, New Brunswick, NJ 08903; (201) 828-2325.

20-22—Landscape Ontario Horticultural Trades Association, Congress '87. The Sheraton Centre, Toronto, Canada. Contact: Jim Bradley, Manager, Communications, 1293 Matheson Blvd., Mississauga, Ontario, Canada L4W 1R1; (416) 629-1184.

20-22—Massachusetts Horticultural Congress. Mass. Nurserymen's Association, Mass. Arborists Association and Cooperative Extension Service, Dunfey's Hotel, Hyannis, MA. Contact: Deborah M. Fanning, coordinator, 715 Boylston St., Boston, MA 02116; (617) 266-6800.

21-22—Professional Turf & Landscape Exposition. Northern California Turfgrass Council, Santa Clara Convention Center, Santa Clara, CA. Contact: Wanda M. Sarsfield, P.O. Box 268, Lafayette, CA 94549; (415) 283-6162.

21-23—Virginia Turfgrass Conference & Trade Show. Marriott, Richmond, VA. Contact: Dr. J.R. Hall III, Virginia Tech University, Cooperative Extension Service, Dept. of Agronomy, 426 Smith Hall, Blacksburg, VA 24061; (703) 961-5797.

22—Delaware Winter Nursery Meeting. Delaware Association of Nurserymen and Delaware Cooperative Extension, Sheraton, Dover, DE. Contact: Susan Barton, Townsend Hall, University of Delaware, Newark, DE 19717-1303.

22-24—Tropical Plant Industry Exhibition. Florida Nurserymen & Growers Association, Coconut Grove Exhibition Center, Coconut Grove, FL. Contact: Susan Stoun, 5401 Kirkman Rd., Suite 650, Orlando, FL 32819, (305) 345-8137.

23—National Council for Interior Horticultural Certification Exam. TPIE Coconut Grove-Miami, FL. Contact: Norma A. Gammon, 115 Abbot Street, Andover, MA 01810; (617) 475-4433.

25—National Council for Interior Horticultural Certification Regional Exam. Los Angeles, New York, Dallas, San Antonio, Minneapolis, Columbus, Houston, Boston. Contact: Norma A. Gammon, 115 Abbot Street, Andover, MA 01810; (617) 475-4433.

25-28—California Weed Conference. Red Lion Inn, San Jose, CA. Contact: Stan Walton, Box 3021, El Maciero, CA 95618; (916) 756-0123.

26-28—University of Tennessee Turf Winter Short Course. Ellington Plant Sciences Building Auditorium, University of Tennessee, Knoxville, TN. Contact: Lloyd Callahan, University of Tennessee, P.O. Box 1071, Knoxville, TN 37901-1071.

26-29—Central Environmental Nursery Trade Show "Cents" & O.S.U. Nursery Short Course. Ohio Nurserymen's Association, Ohio Center/Hyatt Regency, Columbus, OH. Contact: Bill Slater, Ohio Nurserymen's Association, 2021 E. Dublin-Granville Rd., Suite 185, Columbus, OH 43229; (614) 431-2452.

26-Feb. 2—58th International Golf Course Conference & Show. Golf Course Superintendents Association of America, Phoenix, AZ. Contact: GCSAA Headquarters, 1617 St. Andrews Dr., Lawrence, KS 66046; (913) 841-2240.

27—Professional Turf and Landscape Conference. N.Y. Turf & Landscape Association, Cornell University Cooperative Extension, Long Island Landscape Gardeners Association, Yonkers Raceway, Route 87, Yonkers, NY. Contact: John F. Cockerill, 475 Central Park Ave., White Plains, NY 10606; (914) 693-3792.

27-29—Illinois Landscape Contractors Association Winter Seminar—Lecture Section. Elmhurst Country Club, Wooddale, IL. Contact: Lucile M. Little, 2200 S. Main St., Suite 301, Lombard, IL 60148; (312) 932-8443.

28-29—Connecticut Nurserymen's Annual Short Course. The Treadway Cromwell Hotel, Cromwell, CT. Contact: Larry Carville, Room 109, 30 Lafayette Square, Vernon, CT 06066; (203) 872-2095.

28-30—Iowa Nurserymen's Association Convention & Trade Show. Savery Hotel Convention Center, Des Moines, IA. Contact: Marge LePorte, 7261 N.W. 21st St., Ankeny, IA 50021; (515) 289-1790.

29—Connecticut Tree Protective Association Annual Meeting. Aqua-Turf, Plantsville, CT. Contact: Oscar P. Stone, CTPA, P.O. Box 344, New Haven, CT 06513-0344.

31—Sports Turf Managers' Association Educational Conference. Hyatt Regency, Phoenix, AZ. Contact: Kent Kurtz, 1458 North Euclid Ave., Ontario, CA 91764; (714) 984-4675 or 869-2176.

31-Feb. 1—Alabama Nurserymen's Association Trade Show & Annual Meeting. The Admiral Semmes Hotel, Mobile, AL. Contact: Judy P. Copeland, P.O. Box 9, Auburn, AL 36831-0009; (205) 887-6916.

31-Feb. 2—West Horticultural Exposition. Salt Palace Convention Center, Salt Lake City, UT. Contact: Crossroads of the West Horticultural Exposition, 26 Pine St., Dover, DE 19901; (302) 736-6781.

FEBRUARY

1—STMA Sports Turf Tour. Phoenix, AZ. Contact: Kent Kurtz, 1458 North Euclid Ave., Ontario, CA 91764; (714) 984-4677 or 869-2176.

1-4—Southwest Park & Recreation Training Institute. Park Administration Dept., Texas Tech University, Lake Texoma Lodge, Kingston, OK. Contact: Mickey Carter, Director of Parks, El Paso County Parks Dept., 1045 W. Rio Grande, Colorado Springs, CO 80506; (303) 520-6375.

1-5—NLA/GCA Management Clinic. American Association of Nurserymen, National Landscapers Association, Garden Centers of America, Louisville, KY. Con-

tact: Dave Hamilton or Patrick Redding, 1250 I St. NW, Suite 500, Washington, DC 20005; (202) 789-2900.

2-3—Michigan Recreation & Park Association Trade & Travel Show. Hyatt Regency, Dearborn, MI. Contact: Michigan Recreation & Park Association, 2722 E. Michigan Ave., Suite 201, Lansing, MI 48912.

2-4—Colorado Nursery Trade Show & Conference. Denver Merchandise Mart, Expo Hall, Denver, CO. Contact: Cary G. or Judy M. Hall, 10775 N. 65th St., Longmont, CO 80501; (303) 447-2828.

2-4—American Sod Producers Association's Midwinter Conference & Show. The Diplomat Hotel, Hollywood, FL. Contact: Douglas Fender, ASPA, 4415 West Harrison, Hillside, IL 60162-1903; (312) 449-2890.

2-5—Pennsylvania Allied Industries Nursery Conference. Pennsylvania Nurserymen's Association; Penn State University & Cooperative Extension Service, Keller Conference Center, State College, PA. Contact: Dr. Larry J. Kuhns, Dept. of Horticulture, Penn State University, 103 Tyson Building, University Park, PA 16802; (814) 863-2197.

2-4—ASPA Midwinter Conference. American Sod Producers Association, Diplomat Hotel, Hollywood, FL. Contact: Douglas H. Fender, ASPA, 4415 W. Harrison, Suite 309-C, Hillside, IL 60162; (312) 449-2890.

3-4—The New England Nurserymen's Annual Convention & Trade Show. The Copley Plaza Hotel, Boston, MA. Contact: Larry Carville, Room 109, 30 Lafayette Square, Vernon, CT 06066; (203) 872-2095.

3-5—Weed Science Society of America Annual Meeting. St. Louis, MO. Contact: Carl Johnson, 309 W. Clark St., Champaign, IL 61820; (217) 356-3182.

5—Rhode Island Nurserymen's Association Annual Meeting. Sheraton Islander Inn & Conference Center, Newport, RI. Contact: Marlene L. Franklin, P.O. Box 99, Kingston, RI 02881; (401) 789-6481.

5-8—American Society of Landscape Architects Professional Practice Institute. Radisson Hotel, San Diego, CA. Contact: Pam Jensen, 1733 Connecticut Ave., NW, Washington, DC 20009; (202) 466-7730.

8-12—National Arborists Association Annual Meeting. Marriott Marco Beach Resort, Marco Island, FL. Contact: Robert Felix, EVP, 174 Rt. 101, Bedford, NH; (603) 472-2255.

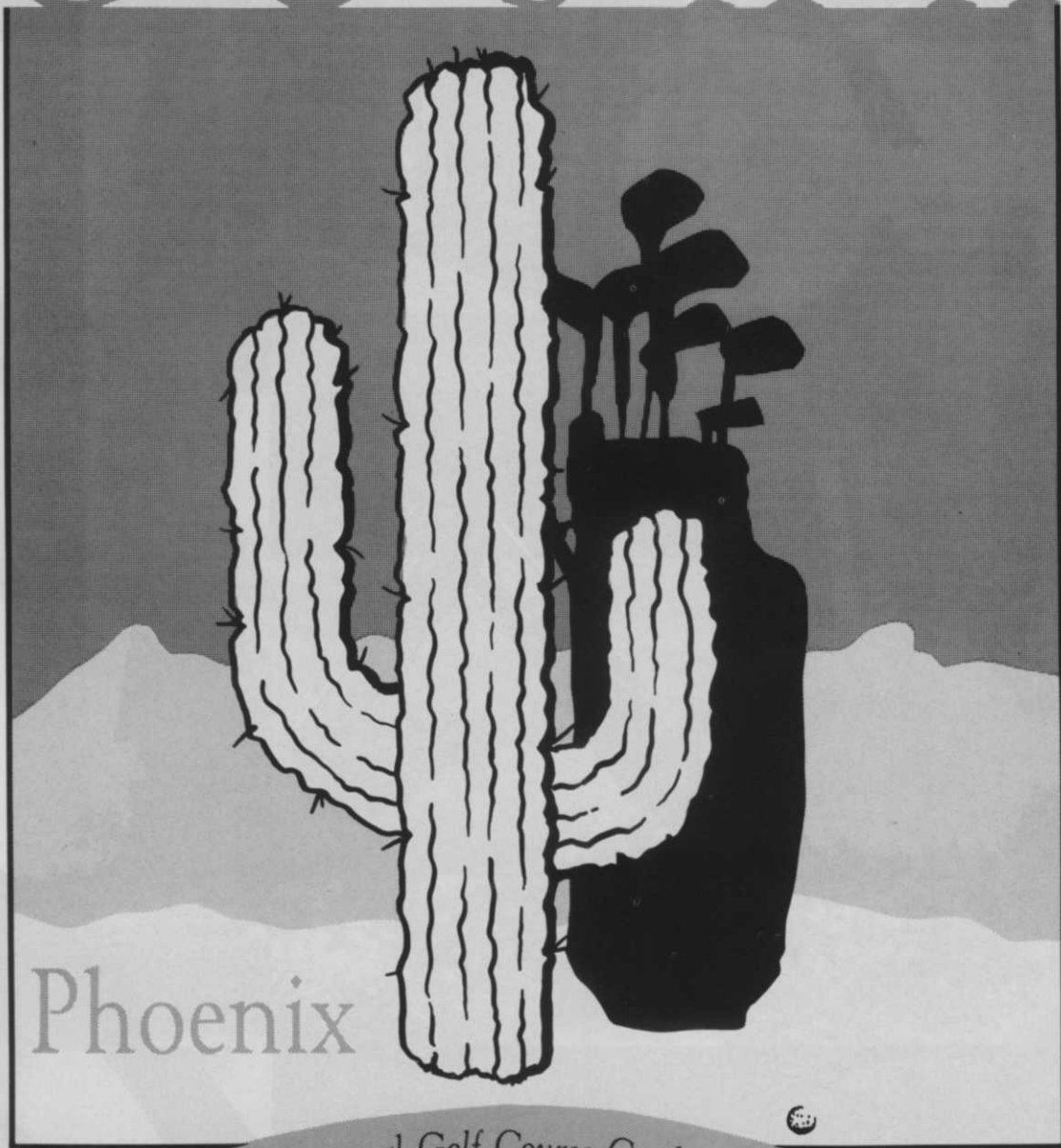
11—Small Engine Clinic. University of Illinois Cooperative Extension Service, DuPage County Fairgrounds, IL. Contact: James E. Schuster, Senior 2, Extension Adviser, Horticulture; (312) 682-7486.

11-12—New England Landscape Industry Exposition. Associated Landscape Contractors of Massachusetts, Sheraton Inn, Foxborough, MA. Contact: Virginia Wood, 1357 Washington St., West Newton, MA 02165; (617) 964-0452.

12—Professional Turf & Landscape Conference. Connecticut Grounds Keepers Association, Hartford Civic Center, Hartford, CT. Contact: Anthony D. Penkrat, 23 Atwater Street, West Haven, CT 06516; (203) 934-3103.

13-15—Nebraska Turfgrass Conference.

G C S A A



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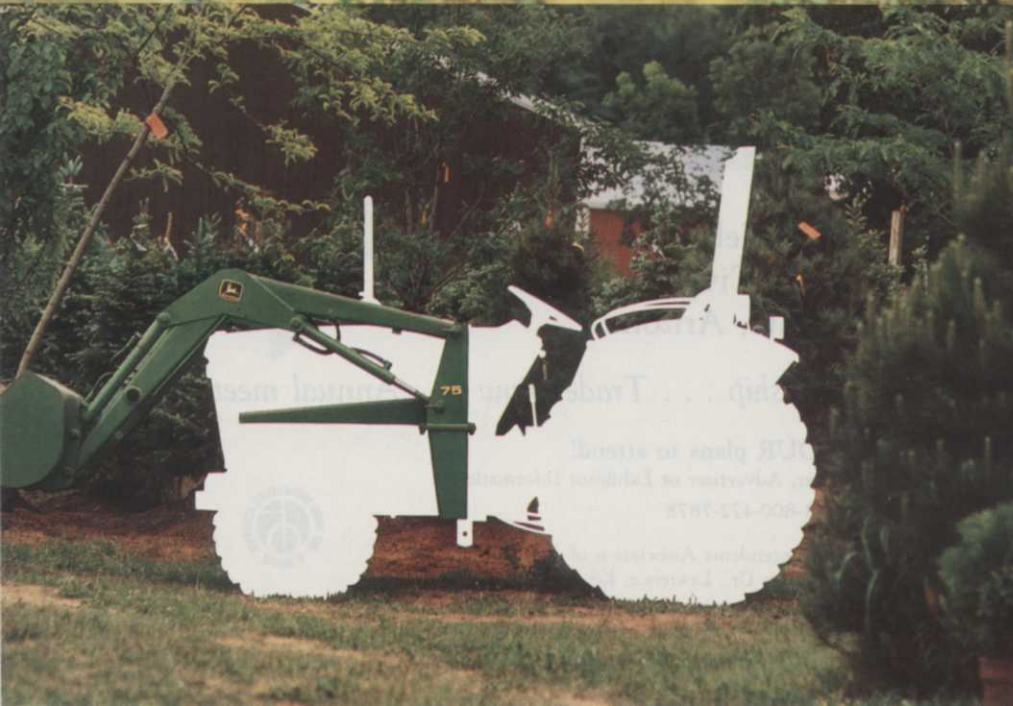
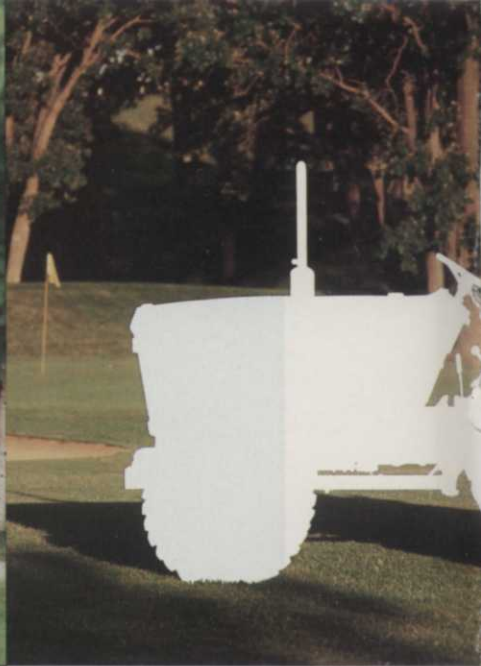
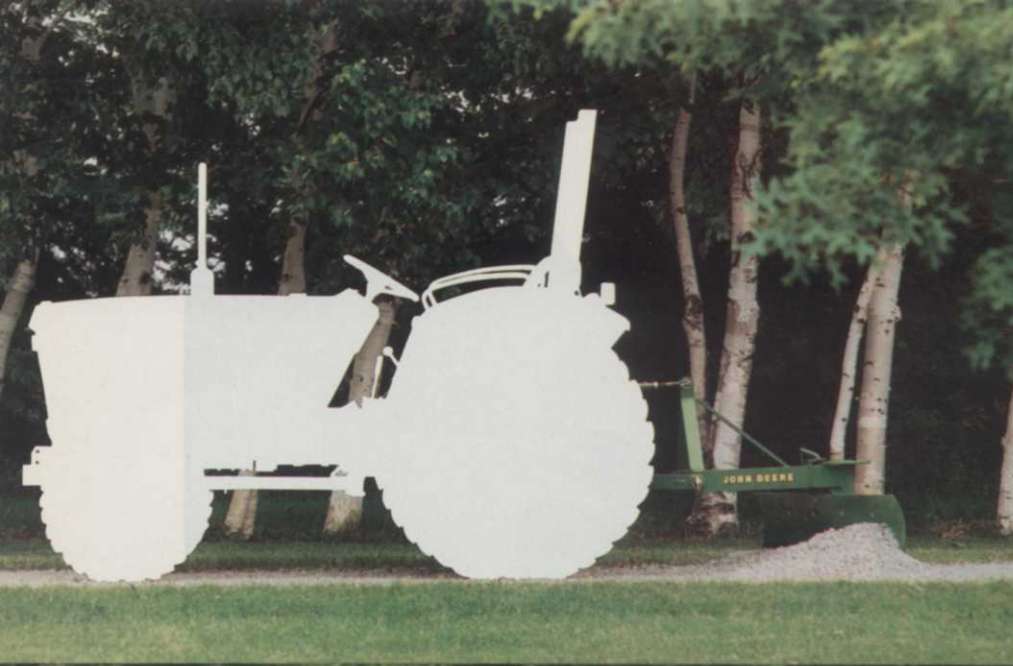
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TURF CALENDAR

Holiday Inn Central, Omaha, NE. Contact: Don Ellerbee, executive director, Nebraska Turfgrass Foundation, 209 W. 9th, Hastings, NE 68901; (402) 463-5418.

14-19—American Society of Golf Course Architects Annual Meeting, Royal Lahaina, Maui, HI. Contact: Paul Fullmer, 221 N. LaSalle St., Chicago, IL 60601; (312) 372-7090.

16-17—Nebraska Association of Nurserymen's Annual Winter Meeting & Trade Show, Cornhusker Hotel, Lincoln, NE. Contact: Carol Westfall, P.O. Box 6306, Lincoln, NE 68506; (402) 423-4556.

17-19—Nebraska Weed Control Association Conference, Nebraska Weed Control Authorities, Holiday Inn, North Platte, NE. Contact: Jean Drawbaugh, 2921 W. Stolley Park Rd., Grand Island, NE 68801; (308) 381-5097.

18—The Annual Grounds Maintenance Short Course, South Carolina Landscape & Turfgrass Association, Sheraton Columbia NW, Columbia, SC. Contact: (registration) Tom Rapp, City of Aiken, P.O. Box 2354, Aiken, SC 29802; (803) 649-2504; (exhibitors) Gerry Bearman, Porter Brothers Inc., P.O. Box 807, Bluffton, SC 29910; (803) 757-3900.

18-19—Southwest Athletic Turf Clinic & Trade Show, Will Rogers Memorial Complex, Fort Worth, TX. Contact: Harold E. Clark, Athletic Turf Association, Inc., P.O. Box 1114, Hurst, TX 76053; (817) 282-4965.

18—Target Specialty Product's Annual Seminar & Exhibit, San Jose Convention Center, San Jose, CA. Contact: Marketing Communications Dept., P.O. Box 1117, Cerritos, CA 90702; (213) 865-9541 or (714) 821-9020.

18-20—Iowa Turfgrass Conference, Iowa Turfgrass Institute & Iowa State University, Des Moines Convention Center, Des Moines, IA. Contact: Dr. Michael Agnew, 105 Horticulture Building, Iowa State University, Ames, IA 50011; (515) 294-0027.

20—Target Specialty Product's Annual Seminar & Exhibit, Fresno Hilton, Fresno, CA. Contact: Marketing Communications Dept., P.O. Box 1117, Cerritos, CA 90702; (213) 865-9541 or (714) 821-9020.

21-22—Tampa Bay Horticultural Trade Show, Tampa Bay Wholesale Growers, Florida State Fairgrounds, Tampa, FL. Contact: Bette S. Walker, 8807 Roberts Rd., Odessa, FL 33556; (813) 920-4393.

23-24—Wisconsin Landscape Federation Annual Conference, Interlaken Resort, Lake Geneva, WI. Contact: Joe Phillips or Doris Raffaele, 5645 S. 108th St., Hales Corners, WI 53130; (414) 529-4705.

23-24—Arboriculture, Shade Tree Symposium, Americana Host Farm Resort, Lancaster, PA. Contact: Sara Attig, 1321 Squire Dr., Ambler, PA 19002; (215) 643-0413.

23-25—South Dakota Nurserymen's Association Annual Conference & Trade Show. Contact: Bruce R. Ellingson, 3309 E. 10th St., Sioux Falls, SD 57103; (605) 334-4767.

24—Target Specialty Product's Annual Seminar & Exhibit, Hyatt Regency, Phoenix, AZ. Contact: Marketing Communications Dept., P.O. Box 1117, Cerritos, CA 90702; (213) 865-9541 or (714) 821-9020.

24-26—Western Pennsylvania Turf Conference & Trade Show, Pittsburgh Expo Mart/Marriott Hotel, Monroeville, PA. Contact: Henry F. Meinert, Jr., Meinert Brothers Landscaping, 325 Dorseyville Rd., Pittsburgh, PA 15215; (412) 963-8801 or Christine E. King, Pennsylvania Turfgrass Council, P.O. Box 417, Bellefonte, PA 16823; (814) 355-8010.

26-27—Erosion Control: You're Gambling Without It, International Erosion Control Association, John Ascuaga's Nugget, Sparks, NV. Contact: Executive Director, P.O. Box 195, Pinole, CA 94564-0195, (415) 223-2134.

26-27—Landscape Industry Conference & Trade Show, Associated Landscape Contractors of Colorado, The Regency Hotel, Denver, CO. Contact: C. Diane Matt, 3895 Upham St., Suite 150, Wheat Ridge, CO 80033; (303) 425-4862.

27-28—1987 Florida Agribusiness Computer Short Course & Trade Show, University of Florida Reitz Union, Gainesville, FL. Contact: IFAS Conferences & Institutes, 1041 McCarty Hall, University of Florida, Gainesville, FL 32611; (904) 392-5930.

27-28—Target Specialty Product's Annual Seminar & Exhibit, Queen Mary, Long Beach, CA. Contact: Marketing Communications Dept., P.O. Box 1117, Cerritos, CA 90702; (213) 865-9541 or (714) 821-9020.

MARCH

2-4—Midwest Regional Turf Conference, Stewart Center, Purdue University, West Lafayette, IN. Contact: Dr. Clark Throssell, 2-443 Lilly Hall, Purdue University, West Lafayette, IN 47907; (317) 494-4785.

3-5—Landscape Exposition, O'Hare Exposition Center, Rosemont, IL. Contact: Dawn Pratt, HBJ Expositions & Conferences, P.O. Box 5555, 50 Washington St., Norwalk, CT 06854; (800) 243-2815.

3-5—Horticultural/Grounds Maintenance Seminar, University of Illinois cooperative Extension Service, DuPage County Fairgrounds, IL. Contact: James E. Schuster, Senior 2, Extension Adviser, Horticulture; (312) 682-7486.

8-11—1987 Canadian Turfgrass Conference, Canadian Golf Superintendents Association, Saint John Trade & Convention Center, Toronto, Ontario, Canada. Contact: Mary Gurney, Conference Coordinator, CGSA, 698 Weston Rd., Suite 32, Toronto, Ontario, CANADA M6N 3R3; (416) 767-2550.

11—Professional Turf & Plant Conference, Nassau/Suffolk Landscape Gardeners Association, Nassau Veterans Memorial Coliseum. Contact: Walter Austin, 20 Robin Hill Place, Brentwood, NY 11717; (516) 231-9840.

12—Wildflower Identification Seminar, National Wildflower Research Center, Austin, TX. Contact: Pam Jones, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725; (512) 929-3600.

13-14—Trees for Nebraska Conference, University of Nebraska, Lincoln, NE. Contact: Dave Mooter, Douglas County Extension Office, 8015 W. Center Rd., Omaha, NE 68124; (402) 444-7804.

18-19—Reinders Turf Conference, Reinders Bros., Inc., Waukesha County Expo Center, WI. Contact: Ed Devinger, 13400 Watertown Plank Rd., Elm Grove, WI 53122; (414) 786-3300.

23—Profitably Managing Landscape Dollars, University of California extension, University Theater, U.C. Riverside, Riverside, CA. Contact: Dick Maire or Ann Richwine, University Extension, Bannockburn, University of California, Riverside, CA 92521; (714) 787-4102.

25-27—Missouri Park & Recreation Association Annual Conference, Tan-Tar-A Resort, Lake Ozark, MO. Contact: David W. Ostlund, MPRA, 1203 Missouri Blvd., Jefferson City, MO 65101; (314) 636-3828.

27-29—Hawaii Association of Nurserymen Plant Sale, Neal Blaisdell Center, Honolulu, HI. Contact: Mordecai Hudson, P.O. Box 293, Honolulu, HI 96809; (808) 833-3369.

APRIL

5-9—Menninger Flowering Tree Conference, Edwin A. Menninger Foundation, Quality Inn, Cypress Gardens, FL. Contact: Jack Siebenthaler, P.O. Box 6524, Clearwater, FL 33518; (813) 446-3356.

5-9—Southern Tree Workshop, Edwin A. Menninger Foundation, Quality Inn, Cypress Gardens, FL. Contact: Jack Siebenthaler, P.O. Box 6524, Clearwater, FL 33518; (813) 446-3356.

9-11—1987 CCLA Conference & Trade Show, California Council of Landscape Architects, Sheraton Harbor Island East Hotel, San Diego, CA. Contact: Brad Walker, CCLA, 1121 L Street, #500, Sacramento, CA 95814.

13-14—Southeastern Turfgrass Conference, Georgia Coastal Plain Experiment Station with USGA Green Section & Southern Golf Association, Tifton, GA. Contact: Dr. Glenn W. Burton, Dept. of Agronomy, Coastal Plain Experiment Station, Tifton, GA 31793; (912) 386-3353.

24-25—Texas Wildflower Day, Texas Women's University, Denton, TX. Contact: Dr. Robert Collier, chairman, P.O. Box 22675-TWU Station, Denton, TX 76204; (817) 898-3326.

27-29—Turf & Landscape Institute, Southern California Turfgrass Council, Anaheim Convention Center, Anaheim, CA. Contact: Ed McNeill, 2492 E. Mountain St., Pasadena, CA 91104-3423; (818) 798-1715.

MAY

4—Mole Cricket Classic & Educational Seminar, Alabama Turfgrass Association, Oak Mountain State Park, Birmingham, AL. Contact: Judy P. Copeland, executive secretary, P.O. Box 70, Auburn, AL 36831-0070; (205) 887-6916.

7—Pest Control Workshop, Agricultural Center Auditorium, Sanford, FL. Contact: Uday Yadav, University of Florida, extension service, Sanford, FL 32771; (305) 323-2500 ext. 182.

13-16—American Horticultural Society Annual Meeting, Omni Park Central Hotel, New York City, NY. Contact: Harriet Sweeney, meeting planner, AHS, P.O. Box 0105, Mt. Vernon, VA 22121; (703)



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TURF CALENDAR

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15-18—Western Chapter, International Society of Arboriculture Annual Conference, Santa Cruz Holiday Inn, Santa Cruz, CA. Contact: Donald F. Blair, 1958 Latham St., Mountain View, CA 94040; (415) 967-4676.

20—North Carolina Turf & Landscape Field Day, NCSU Turf Field Center, Raleigh, NC. Contact: J.M. DiPaola, Box 7620, North Carolina State University, Raleigh, NC 27695-7620; (919) 737-2657.

21-24—Florida Ornamental Growers Annual Seminar, Orlando, FL. Contact: Dr. Benny Tjia, 1509 Fifield Hall, Dept. of Ornamental Horticulture, University of Florida, Gainesville, FL 32611; (904) 392-7935.

JUNE

16-19—New England Cemetery Association Conference, Sea Crest Resort, North Falmouth, MA. Contact: Frederick R. Lafond, secretary/treasurer, 15 Riverton St., Keene, NH 03431; (603) 352-7655.

17-20—American Association of Botanical Gardens & Arboretums, Chicago Botanical Garden, Chicago, IL. Contact: Susan H. Lathrop, AABGA, P.O. Box 206, Swarthmore, PA 19081; (215) 328-9145.

18—Iowa Turfgrass Field Day, Iowa Turfgrass Institute & Iowa State University, Horticultural Research Farm, Ames, IA. Contact: Dr. Michael Agnew, 105 Horticulture Building, Iowa State University, Ames, IA 50011; (515) 294-0027.

18—Turf Seed Inc. Field Day, Research Station, Hubbard, OR. Contact: Tom Stanley, P.O. Box 250, Hubbard, OR; (503) 981-9571.

25—University of Massachusetts Turfgrass Field Day, Turfgrass Research Center, South Deerfield, MA. Contact: Dr. R.J. Cooper, Dept. of Plant & Soil Sciences, Stockbridge Hall, University of Massachusetts, Amherst, MA 01003; (413) 545-2353.

JULY

8—Connecticut Nurserymen's Summer Meeting & Trade Show, Holdridge Farm Nursery, Ledyard, CT. Contact: Larry Carville, Room 109, 30 Lafayette Square, Vernon, CT 06066; (203) 872-2095.

13-15—NFSA Mid-Year Dealer Conference, National Fertilizer Solutions Association, Adam's Mark Hotel, St. Louis, MO. Contact: Robin Roberts, 10777 Sunset Office Dr., St. Louis, MO 63127; (314) 821-0340.

15-17—Florida Foliage Expo, Florida Foliage Association, Diplomat Hotel, Hollywood, FL. Contact: Ann King, P.O. Box Y, 57 E. Third St., Apopka, FL 32704; (305) 886-1036, in Florida (800) 342-0138.

19-21—American Association of Nurserymen Convention & Nursery Industry Exposition, Amway Grand Plaza, Grand Rapids, MI. Contact: Lawrence E. Scovotto, 1250 I St. NW, Suite 500, Washington, DC 20005; (202) 789-2900.

19-23—American Society of Plant Physiologists Annual Meeting, St. Louis, MO. Contact: Dr. M.J. Josephs, 15501-A Monona Dr., Rockville, MD 20855; (301) 251-0560.

21-22—Association for the Use of Native Vegetation In Landscapes Annual Meeting, Chicago, IL. Contact: Dr. Ray Freeborg,

Dept. of Agronomy, Purdue University, West Lafayette, IN 47907; (317) 494-4784.

22—Kansas Turfgrass Field Day, Kansas State University, Manhattan, KS. Contact: Larry D. Leuthold, Horticulture Dept., Waters Hall, Kansas State University, Manhattan, KS 66506; (913) 532-6173.

28-30—Penn Allied Nursery Trade Show, Pennsylvania Nurserymen's Association, Valley Forge Convention & Exhibit Center, King of Prussia, PA 17102; (717) 238-1673.

29-31—ASPA Summer Convention & Field Day, American Sod Producers Association, Westin Hotel, Seattle, WA. Contact: Douglas H. Fender, ASPA, 4415 W. Harrison, Suite 309-C, Hillside, IL 60162; (312) 449-2890.

AUGUST

1-3—SNA Horticultural Trade Show, Southern Nurserymen's Association, Georgia World Congress Center, Atlanta, GA. Contact: Thomas L. Henegar, 3813 Hillsboro Rd., Nashville, TN 37215; (615) 383-5674.

2-5—Soil Conservation Society of America Annual Meeting, Sheraton & Northern Hotels, Billings, MT. Contact: Walt Peachatka, 7515 N.E. Ankeny Rd., Ankeny, IA 50021; (515) 289-2331.

3-8—Perennial Plant Symposium, Perennial Plant Association, Omni Hotel, Baltimore, MD. Contact: Dr. Steven M. Still, 2001 Fyffe Court, Columbus, OH 43210; (614) 422-6027.

4—Nebraska Turfgrass Field Day & Equipment Show, University of Nebraska ARDC, Mead, NE. Contact: Dr. Terry Rioridan, University of Nebraska, Dept. of Horticulture, 377 Plant Science, Lincoln, NE 68583; (402) 472-1142.

5—Illinois Landscape Contractors Association Summer Field Day, Bork Nurseries, Onarga, IL. Contact: Lucile M. Little, 2200 S. Main Street, Suite 301, Lombard, IL 60148; (312) 932-8443.

9-13—Botanical Society of America Annual Meeting, Ohio State University, Columbus, OH. Contact: Thomas N. Taylor, Dept. of Botany, Ohio State University, 1735 Neil Ave., Columbus, OH 43210; (614) 422-3564.

12—New England Nurserymen's Summer Meeting & Trade Show, Newport Growers, The Glen, Portsmouth, RI. Contact: Larry Carville, Room 109, 30 Lafayette Square, Vernon, CT 06066; (203) 872-2095.

14-17—TAN-MISLARK Regional Nursery & Garden Supply Show, Texas Association of Nurserymen, Dallas Convention Center, Dallas, TX. Contact: Bill R. Fullingim, 512 E. Riverside Dr., Suite 207, Austin, TX 78704; (512) 444-7489.

16-19—Municipal Arborists & Urban Foresters Society, International Society of Arboriculture, Keystone Mountain Resort, CO. Contact: Cal Bundy, I.S.A., 5 Lincoln Square, P.O. Box 71, Urbana, IL 61801; (217) 328-2032.

25-27—Garden Industry of America Conference & Trade Show, Orange County Convention/Civic Center, Orlando, FL. Contact: B. Silverman/PEMCO, 2400 E. Devon Ave., Suite 205, Des Plaines, IL 60018; (312) 299-3131.

28-30—Northwest Nursery Industry Trade Show, Oregon Association of Nurserymen, Portland Memorial Coliseum, Portland, OR. Contact: Dan O. Barnhart, 2780 S.E. Harrison, Suite 204, Milwaukie, OR 97222; (503) 653-8733.

SEPTEMBER

2-4—Pacific Horticultural Trade Show, California Association of Nurserymen, Los Angeles Convention Center. Contact: Richard C. Staples, 1419 21st St., Sacramento, CA 95814; (916) 443-7373.

10-11—Alabama Turfgrass Conference, Alabama Turfgrass Association, Auburn Conference Center/Best Western, Auburn, AL. Contact: Judy P. Copeland, P.O. Box 70, Auburn, AL 36831-0070; (205) 887-6916.

11-13—Southwest Nursery & Landscape Show, Arizona Nursery Association; Ariz. Landscape Contractors Association; Ariz. Florists Association, Phoenix Civic Plaza Convention Center, Phoenix, AZ. Contact: Donald M. Johnson, 444 West Camelback Rd., Suite 302, Phoenix, AZ 85013; (602) 241-0317.

18-21—Annual Congress for Recreation & Parks, National Recreation & Park Association, New Orleans, LA. Contact: M. Susan McCarthy, NRPA, 3101 Park Center Dr., 12th Floor, Alexandria, VA 22302; (703) 820-4940.

21-24—Northwest Turfgrass Conference, Salishan Lodge, Gleneden Beach, OR. Contact: Roy L. Goss, Western Washington Research & Extension Center, Puyallup, WA 98371; (206) 593-8513.

25-27—Florida Nursery & Allied Trade Show, Florida Nurserymen & Growers Association, Orange County Civic Center, Orlando, FL. Contact: Susan Stoun, 5401 Kirkman Rd., Suite 650, Orlando, FL 32819; (305) 345-8137.

OCTOBER

6—Turfgrass Equipment, Irrigation, and Supplies Field Day, Golf Course Superintendents Association of New Jersey, Rutgers Stadium and Golf Course, NJ. Contact: Dr. Henry Indyk, Soils & Crops Dept., Cook College, New Brunswick, NJ 08903; (201) 932-9453.

7-8—Southern California Turfgrass/Landscape Equipment & Materials Education Exposition, Southern California Turfgrass Council, Orange County Fairgrounds, Costa Mesa, CA. Contact: Ed McNeill, 2492 E. Mountain St., Pasadena, CA 91104-3423; (818) 798-1715.

7-10—National Bark Producers Association's Annual Meeting, Kiawah Island Plantation, Charleston, SC. Contact: R.C. LaGrasse, 13542 Union Village Circle, Clifton, VA 22024; (703) 830-5367.

7-10—National Master Gardeners Conference, Cooperative Extension Service/Master Gardeners, Washington, DC. Contact: Pamela Marshall, CES/UDC, 1351 Nicholson St. NE, Washington, DC 20011; (202) 282-7410.

11-16—1988 Florida Turfgrass Conference & Show, Florida Turfgrass Association, Hyatt Regency Hotel, Tampa, FL. Contact: Ruth Shepherd, or William Nass, 302 S.

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TURF CALENDAR

Graham Ave., Orlando, FL 32803-6399; (305) 898-6721.

14-17—American Society of Consulting Arborists Annual Meeting, Red Lion Inn, Santa Barbara, CA. Contact: ASCA, 700 Canterbury Rd., Clearwater, FL 33546; (813) 446-3356.

25-28—1987 International Irrigation Exposition & Conference, Irrigation Association, Orange County Convention/Civic Center, Orlando, FL. Contact: Ann McClure, 1911 North Fort Myer Dr., Suite 1009, Arlington, VA 22209; (703) 524-1200.

28-31—International Trade Fair for Design, Equipping, and Care of Amenity Areas, Cologne, GERMANY. Contact: Willi Julich, Messe-und Ausstellungs-Ges.m.b.H. Koln, Postfach 210760, D-5000 Koln 21, GERMANY.

31-Nov. 3—American Society of Landscape Architects Annual Meeting & Educational Exhibit, Baltimore, MD. Contact: Pam Jensen, ASLA, 1733 Connecticut Ave., Washington, DC 20009; (202) 466-7730.

NOVEMBER

2-4—Kansas Turfgrass Conference, Kansas Turfgrass Foundation, Ramada Hotel, Wichita, KS. Contact: Larry D. Leuthold, Dept. of Horticulture, Kansas State University, Manhattan, KS 66506; (913) 532-6170.

4-6—NYSTA Turf & Grounds Exposition, New York State Turfgrass Association, Rochester Riverside Convention Center, Rochester, NY. Contact: Ann Reilly, 210 Cartwright Blvd., Massapequa Park, NY 11762; (516) 541-6902.

5-6—South Carolina Horticulture Society Convention, Sheraton NW, Clemson, SC. Contact: Dr. G. Ansel King Jr., Horticulture Dept., Clemson University, Clemson, SC 29634-0375; (803) 656-2789.

8-11—PGMS Annual Conference & Trade Show, Professional Grounds Management Society, Hyatt-Crystal City, Crystal City, VA. Contact: Allan Shulder, PGMS, 3701 Old Court Rd., Suite 15, Pikesville, MD 21208; (301) 653-2742.

8-12—National Institute on Parks and Grounds Management, Tulsa, OK. Contact: Barbara Bednaroski, Box 1936, Appleton, WI 54913; (414) 733-2301.

13-16—PLCAA Convention & Trade Show, Professional Lawn Care Association of America, San Antonio, TX. Contact: Douglas K. Moody, PLCAA, 1225 Johnson Ferry Rd. N.E., Suite B-220, Marietta, GA 30067; (404) 977-5222.

17-19—The Professional Landscape Contracting, Turf & Grounds Maintenance

Expo (Pro Show '87), Dallas Convention Center, Dallas, TX. Contact: Pro Show, 101 N. 7th St., Louisville, KY 40202; (502) 582-1672.

28—N.Y. Association of Landscape Contractors Annual Dinner Dance, Leonards of Great Neck, Long Island, NY. Contact: Tom McFadden or Frank Alberto, 1190 Lakeland Ave., Bohemia, NY 11716; (516) 589-3434.

29-Dec. 4—Annual Meetings of the American Society of Agronomy, Crop Science Society of America, & Soil Science Society of America, Atlanta, GA. Contact: ASA Headquarters Office, Convention Coordinator, 667 S. Segoe Rd., Madison, WI 53711; (608) 273-8080.

Late Nov.—North Carolina Irrigation Conference, North Carolina Irrigation Society, Inc.; N.C. Agricultural Extension Service, McKimmon Center, NCSU, Raleigh, NC. Contact: Ronald E. Sneed, Box 7625, North Carolina State University, Raleigh, NC 27695-7625; (919) 737-2675.

DECEMBER

7-9—USTC & TBA Technical Meeting & Trade Show, United States Tennis Court & Track Builders Association, The Fairmont Hotel, New Orleans, LA. Contact: Sharon Black, 223 W. Main St., Charlottesville, VA 22901; (804) 971-2860.

7-10—New Jersey Turfgrass Expo '87, Resorts Hotel, Atlantic City, NJ. Contact: Dr. Henry Indyk, Soils & Crops Dept., Cook College, New Brunswick, NJ 08903; (201) 932-9453.

8-10—North Central Turfgrass Exposition, Illinois Turfgrass Foundation, Chicago, IL. Contact: Alfred Van Horn III, 435 N. Michigan Ave., Suite 1717, Chicago, IL 60611; (312) 644-0828.

8-10—North Central Weed Control Conference Annual Meeting, Kansas City, MO. Contact: Robert Schmidt, 309 W. Clark, Champaign, IL 61820; (217) 356-3182.

11-12—Southern Nevada Desert Turfgrass Conference, Nevada Cooperative Extension, Las Vegas, NV. Contact: Bob Morris, 953 E. Sahara, STP #207, Las Vegas, NV 89104; (702) 731-3130.

11-14—NFSA Convention & Exposition, National Fertilizer Solutions Association, Kansas City, MO. Contact: Robin Roberts, 10777 Sunset Office Dr., St. Louis, MO 63127; (314) 821-0340.

14-16—Texas Turfgrass Association Conference & Show, Hyatt Regency, Houston, TX. Contact: Shirley Duble, 3606 Meadow Oaks, Bryan, TX 77802; (409) 268-0630.

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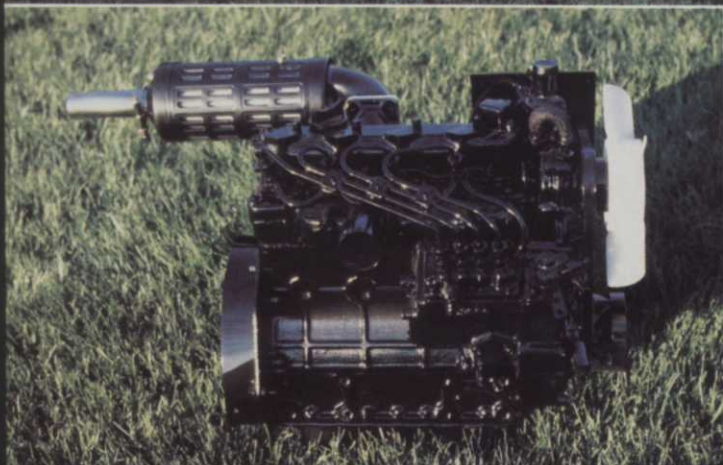
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GCSAA SHOW ISSUE

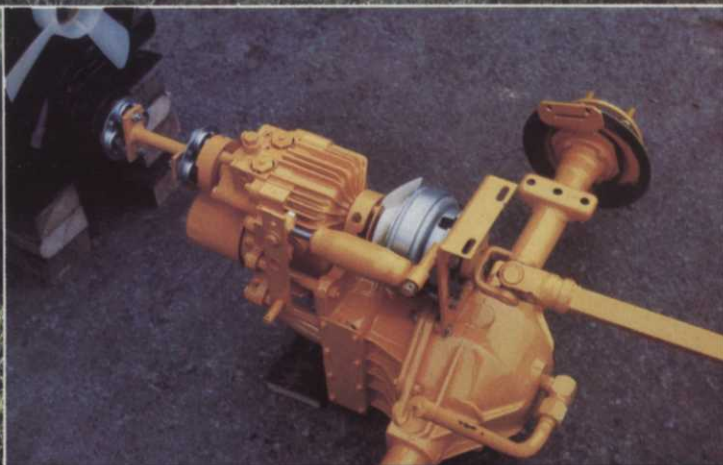
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MOTIVATION TIPS

Getting the most out of employees is one key to a successful operation. A salary by itself will not provide the motivation necessary for optimal productivity.

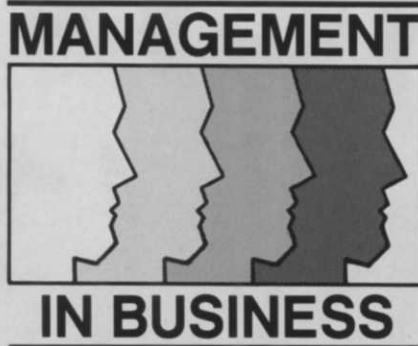
by Rudd McGary and Ed Wandtke

Most major motivational theories used to explain organizational life are applicable to green industry organizations. But this month we want to be more specific about issues you face in managing your staff.

Several basic concepts relate to the green industry. Let's examine each:

1. Salaries don't motivate. Giving someone a salary for performing a task isn't a motivational tool. We have heard managers in the green industry say that performance was going to be rewarded by "letting the guy keep his job." That's sort of an Attila the Hun approach to management. There is often a rise in productivity when a salary raise is given but it levels off quickly. Salaries don't motivate a workforce because they become expected rewards. Once something is expected and given on a regular basis, it ceases to be motivational.

2. Part-time employees are often harder to motivate than full-time. They enter during your peak time and aren't being protected by the organization over a whole year. Therefore they don't have the same motivation that your full-time people do, and you shouldn't expect it from them. In addition they are at the low end of the pay scale and probably don't have incentives built into their compensation. For these reasons, you shouldn't



expect the part-timers to have the same high-level motivation as full-time employees. They may have, but don't expect it.

3. Non-cash incentives may be more motivational than money. Most workers in the green industry aren't afforded executive perks but may respond to small amounts of money used as motivational incentives. Instead of giving someone a \$25 or \$50 bonus, try rewarding on a social basis. For instance: dinner for two at a nice restaurant or tickets to sports events. By getting these types of motivational rewards the employees get something that shows them that you are interested in them as people. This reward may also provide the individuals with some time off, an equally wanted reward in the heat of summer.

4. Rewards given for extraordinary performance are highly motivational. If someone simply does his/her job, it's hard to compensate in any exceptional manner. However, if they do the job well above expectations they should be rewarded.

5. Rewards are motivational only if they come close to the action being rewarded. If someone does well and you wait six months to reward them, they'll find the reward scarcely motivational. The event itself and the reward must be linked in the person's mind or they won't be motivated.

6. Everyone needs verbal pats on the head. (Also known as the famous "attaboys" or "attagirls.") Most managers who enjoy good relationships with their employees are very good at

giving both praise and criticism. We all need both. Since the employee is probably not as motivated as the manager, the manager's responsibility is to let the employee know how they are doing. It is surprising how motivational the simple phrase, "you did a good job today," is to most people.

7. Some rewards for performance should be stated, some can be given unexpectedly. If you have a specific task or project that has to be finished in a given time frame, you can offer rewards based on performance. State the rewards you're offering before work on the project begins. These bonuses are often very motivational. Bonuses or rewards given on an unexpected basis can be even more motivational. An unexpected bonus, particularly non-cash, will often be remembered long after the expected performance bonus is forgotten.

Manager/worker communication
Considering these factors, we can see patterns that are applicable to the green industry.

First, part-time people can be motivated but are less likely to be highly motivated all the time. This means that your spring or summer crews need to have more management communication, a responsibility that lies with management.

Second, don't use money as a motivator exclusively. You probably can't afford to give bonuses all the time but you can give non-cash incentives and rewards. They can be even more motivational than money.

Third, do the unexpected. It's extremely motivational. Timing is important and employees rewarded unexpectedly do remember.

Finally, don't expect the same level of motivation from your people that you have. You're the manager, you see more of the overall situation, and you have more control over it. In order for you to be successful, your people have to be motivated.

There are many opportunities in the green industry to use some of the concepts above. Good managers do. **WT&T**



Wandtke and McGary are senior consultants with All-Green Management Associates in Columbus, Ohio. Dr. McGary focuses on marketing and management issues. Wandtke focuses on operations and financial questions.

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THE EUCALYPTUS LONGHORNED BORER

A new insect pest is threatening California's eucalyptus trees. So far, there aren't many solutions to the growing problem.

by Dr. A.D. Ali, Janet S. Hartin, and Dr. T.D. Paine

The eucalyptus longhorned borer (ELHB), *Phoracantha semipunctata* (F.), is an exotic beetle now attacking eucalyptus trees in southern California.

Adults are 1-1½ inches long, dark brown with two yellow zig-zag lines and two yellow oval dots on the wings. The beetle belongs in the family Cerambycidae whose members generally possess a pair of antennae as long or longer than the body, hence the name "longhorned."

This pest was first detected in October, 1984, in El Toro (Orange County). Since then, infestations have spread to six southern California counties ranging from Camp Pendleton, San Diego County; north to Simi Valley, Ventura County; inland to Redlands, San Bernardino County; and Hemet in Riverside County.

Life cycle and damage

Adult ELHB fly only at night and hide under loose eucalyptus bark in the day. Mated females lay eggs under loose bark in masses ranging from 10-100 eggs.

The larvae hatch in 10-14 days and feed superficially on the bark, leaving dark trails up to 1 inch in length.

As they increase in size, the larvae start boring inside the bark and feed in the cambium layer. The larval stages known as roundheaded borers cause most of the damage.

Larvae tunnel through the phloem

Dr. A. D. Ali is extension entomologist, Ornamentals and Turfgrass, Cooperative Extension, UC-Riverside; Janet S. Hartin is environmental and urban horticulturist, UC-Cooperative Extension, San Bernardino County; and Dr. T. D. Paine is assistant professor, Department of Entomology, UC-Riverside.



The eucalyptus longhorned borer as an adult beetle (A) and as a larva (B). The larvae cause the heaviest damage to Eucalyptus trees.



The feeding galleries of the eucalyptus longhorned borer. Note the parallel galleries.

and cambial tissues as they feed, producing galleries that usually run parallel to each other and are tightly packed with frass (fecal pellets which the larva produces as it feeds). These tunnels widen as the larva grows and may reach three times the width of the larva's head region.

This feeding disrupts the movement of water and nutrients through the plant, which leads to the death of infested limbs and branches. Under severe infestations the main trunk can be girdled, resulting in tree death.

As the larva matures it starts boring into the wood up to a distance of 4-6 inches where it constructs a pupation chamber. The pupa, the intermediate stage between the larva and the adult, remains protected deep inside the tree until maturity.

At that time it transforms into an adult and emerges through characteristic oval-shaped exit holes on the trunk, completing the life cycle.

Under warm conditions, the cycle from egg to adult can be completed in two months. In cooler climates, this cycle may last as long as nine months. Consequently, in California this pest may have two or three overlapping generations per year.

To date, ELHB has only been found in eucalyptus species in California. Reports from other countries indicate that other trees in the Myrtaceae can be attacked as well. These include the gum myrtle (*Angophora* spp.) and the turpentine tree (*Syncarpia* spp.)

Cultural control

Although adult females lay their eggs on healthy, weakened, and dead eucalyptus trees, the larvae can only establish their infestation on weakened or dead trees.

Deep watering and proper fertiliza



The eucalyptus tree in the center shows symptoms of damage due to the longhorned borer.

tion which keep trees in good vigor are recommended to discourage ELHB attacks. Healthy trees produce copious amounts of dark sticky gum which drowns and kills penetrating larvae.

Dead trees and those weakened by physiological or moisture stress lack the ability to defend themselves. Branches and whole trees which have succumbed to ELHB attacks are brown in color and retain the dried up leaves.

When this situation is encountered, the affected branches and dead trees must be removed and disposed of through incineration or burial to a depth of 6-8 inches. This will prevent adults from emerging and spreading the infestation.

Adults can fly over distances up to nine miles. However, the physical transportation of infested eucalyptus logs may be the biggest cause contributing to fast spreading infestations in southern California.

Thus it is necessary that eucalyptus logs used for firewood be thoroughly inspected for infestation before transport. Furthermore, firewood logs should be arranged in uniform piles and covered with a thick plastic tarp.

The tarp prevents adult beetles from detecting the wood pile and depositing eggs on it. And, if the pile already contains an infestation, it prevents those adults from emerg-

ing and spreading.

Chemical control

Adults and eggs of the ELHB are sheltered under loose bark, whereas larvae and pupae are protected inside the trunk. Consequently, the use of foliar applications of insecticides is not recommended due to the difficulty of getting the material in contact with any stage of the pest's development.

Two other considerations also limit the effectiveness of foliar applications against this insect.

The first is the height of trees, especially those planted in windbreaks that may be more than 100-years-old. Coverage becomes a problem with such trees that are 100 feet or taller.

The other problem with using foliar applications of insecticides is the lack of distinct generations or "peak flight" of this insect which would better allow timing of applications.

It is believed that two or three overlapping ELHB generations occur in California and adult females may live up to six months. This has led researchers at the University of California in Riverside to initiate studies for controlling this pest with systemic soil-injected insecticides.

The objectives are to determine efficacy and to document the economic feasibility of such control practices in both windbreak and woodlot eucalyptus plantings.

Biological control

Due to the wide-area planting of eucalyptus alongside highways, in parks, woodlots, and backyards, it seems that long-term control could be achieved through the use of biological agents.

However, not many native predators or parasites feed on this introduced pest.

While a predaceous mite has been observed feeding on ELHB eggs in California, the quantitative impact of such mortality has not yet been assessed.

In its native Australia, ELHB is attacked by numerous biological agents including both predators and parasites. Researchers at the University of California in Riverside are studying the feasibility of introducing parasites from Australia into California to combat this pest problem.

No long-term solutions

The use of cultural practices (keeping trees in good growing condition, cutting and destroying infested limbs and trees, tarping eucalyptus firewood piles) is recommended.

Use of systemic insecticides may provide a short-term solution to slow down the spread of ELHB infestations. And the successful introduction and establishment of effective parasites could provide a long-term solution for containment of the eucalyptus longhorned borer.

WT&T

County Stadium gets a new water supply

by Bernie Rupp, Milwaukee Brewers

Last fall, a new irrigation and drainage system was installed at Milwaukee County Stadium under the direction of Harry Gill, superintendent of buildings and grounds, and his assistant Gary Vanden Berg.

They decided that the Toro 640 irrigation system would be best for use. Fifty-seven rotary, gear-driven, pop-up heads were installed. They are constructed of cycloc plastic with spring-loaded retractors, delrin gears and locking caps with check valves.

All irrigation heads were installed on swing joints. The heads were positioned 1 to 1½ inches below the finished grade. Sprinkler head connections were made to the existing 3-inch PVC main. Each irrigation head is controlled by a remote electric valve placed in a control box next to the irrigation head.

The field controllers are electro-mechanical units, capable of operating 12 normally closed 24-volt A.C. valves. Each controller has a 0- to 30-minute station timing, a 24-hour clock and a calendar clock allowing fully automatic independent programming.

Each of the field controllers is wired to the central controller which has one module capable of individual standard cycle functions such as "syringe" or "cancel" for each satellite or field control.

The central controller has a 24-hour clock, a 14-day program dial and



Workers from Milwaukee Lawn install the Toro sprinkler heads.



Harry Gill (right) supervises installation of the irrigation pipe and wires through slit sod. "The only places we had to remove the sod was when we came to a sprinkler head," Gill notes.

a manual start button. The central control is the Toro VT-XP 4000 vari-time unit, and the field controllers are Toro solid state VT-3 models.

The pipe used for the irrigation system is polyvinyl chloride pressure pipe rated at 200 psi. The piping and wiring were installed using a vibratory type apparatus. Pipe was placed 18 inches below grade.

In conjunction with the installation of our new irrigation system, a field drainage system was also installed. It is based on the concept developed by Cambridge Soil Services of Cambridge, England. It was installed by David Heiss of Turf Services in Spring Lake, Mich.

The system is implemented in three phases. Phase one consists of a slit measuring ¾-inch wide and 9 inches deep, placed 20 inches on centers radially from home plate. The slits were back-filled with sand, analyzed in the accompanying chart.

About 80 percent of the sand was in the 18- to 25-millimeter range, which is very good for sand-slitting work. It's uniformity and round particle size is especially good for this type of drainage system.

Phase two, which consists of an ID perforated pipe at the trench bottom, and phase three, a 4-inch perimeter

SAND ANALYSIS	
Mesh	(%) Retained
30	.2
40	5.8
50	27.0
70	47.0
100	19.8
140	.2

drain adjacent to the warning track, were not installed at this time. The existing drain tile was adequate for the new drainage system.

All work was completed in eight working days. **WT&T**

ED. NOTE: Milwaukee County Stadium received national media attention when heavy rain caused four feet of water to accumulate on the floor of the stadium this summer. Gill and his ground crew had the stadium ready to play ball the next day. "The irrigation system has been super," says Gill today. "It's probably one of the best things we've ever done here."

AUTHOR BIO: Bernie Rupp is employed by the Milwaukee Brewers.

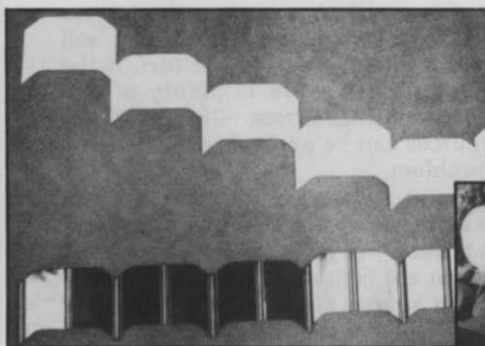
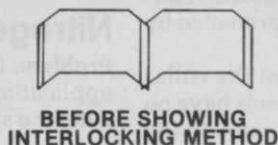
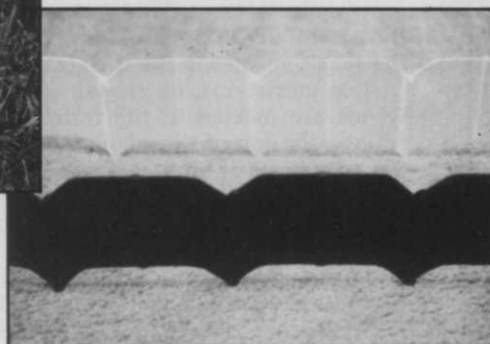
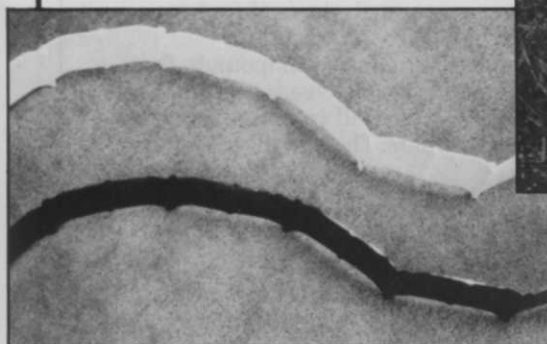
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PROBLEM SOLVERS

by Balakrishna Rao, Ph.D

Why herbicides don't kill grass

Problem: Why don't broadleaf herbicides kill turfgrass? (Georgia)

Solution: Auxin herbicides (2,4-D, MCPP, dicamba) are able to selectively control broadleaf weeds without killing turfgrass because of basic morphological and physiological differences between the two types of plants.

The horizontally-oriented leaves of broadleaf weeds collect more herbicide than leaves of upright-growing turfgrasses. This vertical growth decreases the potential of toxic amounts of the herbicide reaching sensitive sites in the turfgrass plant.

The meristems, or growth points, of broadleaf weeds are located in the terminal portion of the stems—the top of the plant. This location exposes the meristems of broadleaf weeds to foliar sprays of herbicides. The meristems of turfgrasses, conversely, are close to the soil surface and protected by the leaf sheath.

Turfgrasses have meristems located at the collar and base of each leaf, while broadleaf weeds have no leaf meristems. Herbicides being translocated in the leaves of turfgrasses must pass through these meristematic areas where rapid metabolism detoxifies the herbicide before it reaches more sensitive areas of the plant. Broadleaf weeds, however, do not have the ability to detoxify herbicides before being translocated out of the leaf tissue since the leaves lack metabolic sites.

Turfgrasses can be severely injured by broadleaf herbicides under certain conditions. The immature leaves of seedlings cannot metabolize the herbicide before it is translocated to more delicate plant tissues. Heat- and drought-stressed turf is also more likely to be injured by herbicides because of reduced metabolic activity. Proper application of broadleaf herbicides to thriving, mature turf will selectively control broadleaf weeds without injuring the turfgrass.

Controlling undesirable plants

Problem: Can you tell me some uses of allelopathic plants for control of undesirable plants? (New York)

Solution: This is a very good question and concept in vegetation management. There is not much information on uses of allelopathic plants for control of undesirable plants. Most of the information is on the effect of allelopathic plants on desirable plants or crops. There is quite a bit of information on the allelopathic effect of the walnut plant on other plants. Ten- to 12-year-old walnut plants can produce juglone, an inhibitory chemical. I am not familiar with any studies showing juglone's effect on undesirable plants.

These allelopathic compounds released from plants are short-lived in the soil because they are subject to chemical or microbial decomposition. To be very effective, economical and practical to use,

these compounds should be safe on desirable crops and sensitive and specific to undesirable plant species like weeds.

Reports from Michigan State University suggest that crops, like cucumbers, sorghum and sunflowers, can produce allelopathic chemicals which inhibit weeds. Reports from Rhode Island indicate that leachates from perennial ryegrass, red fescue and Kentucky bluegrass can affect the growth of forsythia and dogwood plants. This study suggests the possibility of allelopathic compounds released from turfgrass affecting ornamental plants if turfgrass is grown very close to them.

The effect of these inhibitory compounds from turfgrass culture on undesirable weeds is unknown. It may already be working well in nature in some situations and poor in others. This area needs further research.

Nitrogen amounts on sandy soils

Problem: Is 1.2 lbs. of nitrogen per 1,000 sq. ft. per application excessive on bluegrass turf in west Michigan for a spring treatment on sandy soils? (Michigan)

Solution: The answer to your question is yes and no. It depends upon several factors such as the release characteristics of nitrogen source, temperature, soil moisture, growth cycle and activity of turf. If the temperature is cool and there is plenty of soil moisture, 1.2 lbs. of nitrogen from either quick- or slow-release sources can be applied without anticipating much problem.

As the temperature increases with less soil moisture, quick-release nitrogen sources, like urea or ammonium nitrate, will present a problem at that high a rate. If you are considering using low-burn potential nitrogen source materials, Formolene or FLUF may not present problems at that rate. Controlled-release products like sulfur-coated urea or ureaform materials would be the safest of all.

These fertilization practices should coincide with the growth cycle of turfgrass. Provide the proper amount of fertilization based on soil test results and the shoot growth activity in spring.

Other factors to consider are sandy soils and surface-rooted bentgrass. Sandy soils will leach the nitrogen faster and deeper than finer textured soils. Surface-rooted bentgrass may not be able to use all the nitrogen applied before it leaches below the root zone. Therefore, consider applying at lower rates and at shorter intervals to overcome these problems.



Balakrishna Rao is Director of Lawn Care Technical Resources for The Daven Tree Co., Kent, Ohio.

Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

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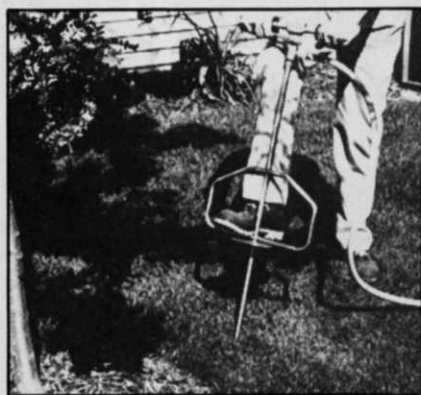
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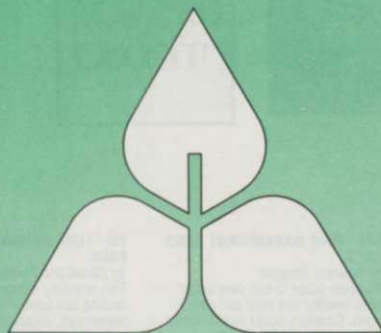
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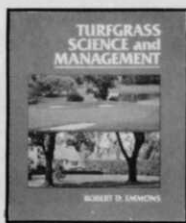
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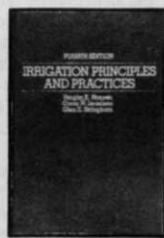
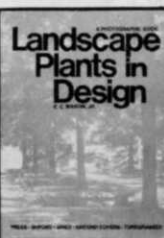
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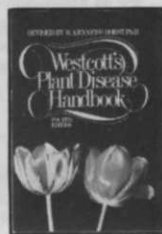
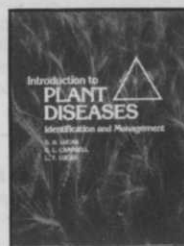
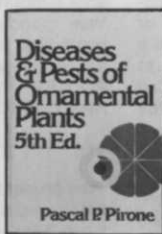
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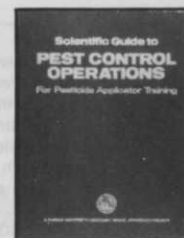
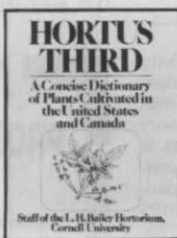
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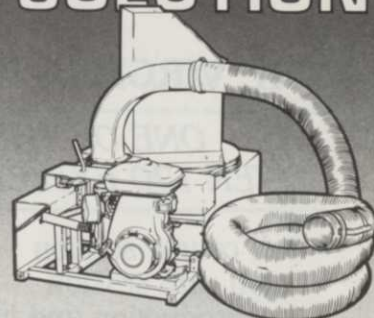
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Dr. Leon Lucas	Extension Turf Pathologist North Carolina State University
Dr. Charles Bethke	Director of Research and Development Michigan Peat Company
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Dr. Richard Schmidt Dr. Dave Chalmers and Others

For registration forms and information call Katherine Martin at 804-353-8699

EVENTS

December

North Central Turfgrass Exposition, Dec. 9-11, O'Hare Exposition Center, Rosemont, Ill. Contact: Alfred Van Horn III, Illinois Turfgrass Foundation, 435 N. Michigan Ave., Suite 1717, Chicago, IL 60611-4067. (312) 644-0828.

Southern Nevada Desert Turfgrass Conference, Dec. 12-13, Palace Station Hotel and Casino, Las Vegas, Nev. Contact: Bob Morris, 953 E. Sahara, Suite 207, S.T.&P. Building, Las Vegas, NV 89104. (702) 731-3130.

Landscape Design Short Course, Dec. 15-17, OARDC, Wooster, Ohio. Contact: Fred K. Buscher, OARDC, Wooster, OH 44691-9982. (216) 263-3831.

Texas Turfgrass Association Conference & Show, Dec. 15-17, Hyatt Regency, Houston, Tx. Contact: Shirley Duble, 3606 Meadow Oaks, Bryan, TX 77802; (409) 268-0630.

January, 1987

Annual Conference of the Tennessee Turfgrass Association, Jan. 5-7, Music City Rodeway Inn, Nashville, Tenn. Contact: Donnie Callis, (800) 342-1016.

California Pest Control Seminars, Jan. 6 (Salinas), Jan. 8 (Riverside), Jan. 12 (Visalia), Jan. 14 (Modesto), Jan. 15 (Yuba City). Contact: Shirley Humphrey, Entomology Extension, University of California, Davis, CA 95616. (916) 752-0470.

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A final note on women

I'm no Gallup, but while tracking down women superintendents, I started taking a poll. I asked men in the green industry—superintendents, researchers, executives—to name women in their business.

Most just shook their heads. It wasn't clear if they just didn't know any, or if the whole concept bothered them.

The impact of women in the green industry can no longer be ignored.

Take the seed market, for example. Three major seed manufacturers have their daughters working in highly visible positions: Gayle Jacklin, marketing for Jacklin Seed; Sheri Burlingham, domestic sales manager for E.F. Burlingham and Sons; and Crystal Rose-Fricker, plant breeder with Tee-2-Green Corp.

Although it's still rare to see women Ph.D.s in turf programs at universities, there are some: Dr. Pat Vittum, turf entomologist, University of Massachusetts; Dr. Pat Cobb, extension entomologist, Auburn University; and Dr. Jackie Mullen, plant pathologist, Auburn, to name a few.

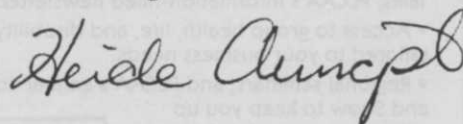
Jack Murray, (USDA-Beltsville), tells about the time he and research plant pathologist Nikkii O'Neill went to look at turf disease problems at Burning Tree Country Club in Silver Springs, where the male elite of Congress play golf. O'Neill was the first woman allowed on the course. University of Maryland researchers can't even consult on the "men-only" course during state time.

With qualified women working in the industry, it's time golf courses stopped discriminating in hiring women as superintendents. (Not to mention that women should be allowed to join that club).

Such prejudice exists in corporations, as well. I heard that the president of a major green industry company refuses to hire women, because of the poor performance of one woman in his company.

How often has a man's work suffered from a personal problem such as a rocky marriage or relative's death? With the industry 95 percent male, those cases seem scarce among men who are hard workers. When one of the comparatively few women in the industry makes a mistake, it can reflect poorly on all women.

It may be an Olympic task for women to break the barriers that have kept them out of the green industry. But, women are succeeding.



Heide Aungst, associate editor



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OLYMPIC	6.9	8.1	6.5	6.3	4.2	5.8	6.6	6.4	4.8	6.2
OLEMFINE	5.9	7.3	6.3	5.9	4.1	6.3	4.6	5.9	4.2	5.6
GALWAY	—	7.5	6.0	6.4	4.8	6.1	5.1	5.5	4.4	5.5
KY-31	5.5	6.8	6.3	5.2	4.1	5.9	3.6	5.4	5.0	5.3
ALTA	5.8	—	5.8	5.2	—	5.2	2.5	—	4.1	4.8
FAWN	—	5.8	5.5	5.1	3.4	4.5	2.1	—	3.9	4.3
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