

BRIEFS



EPA STARTS ENVIRONMENTAL SERVICE

WASHINGTON — The U.S. Environmental Protection Agency has unveiled a new service to help the public access environmental information. The Government Information Locator Service (GILS) is an electronic service through the Internet that provides a decentralized location to anyone who needs to locate, access or acquire government information. GILS is available on the world wide web at <http://www.epa.gov/gils>.

MECHLING IS OHIO MAN OF YEAR

COLUMBUS, Ohio — The 29th Annual Ohio Turfgrass Foundation Regional Conference and Show was highlighted by presentation of the Man of the Year Award to Paul Mechling of Heather Downs Country Club in Toledo. John Fanning was honored for Professional Excellence, while Dr. Jim Beard and Doug Halterman were given special recognition and Gene Probasco was presented an honorary lifetime membership.



E/T EQUIPMENT BACKS DELHI

DELHI, N.Y. — A major distributor of turfgrass products has donated two new state-of-the-art mowers to the golf education program at the State University College of Technology at Delhi. E/T Equipment Co. of Croton has supplied the Delhi College Golf Course with a John Deere fairway mower and walk-behind greens mower, according to Delhi's Dominic Morales.

CANADIANS SUPPORT AUDUBON

HALIFAX, N.S. — The Royal Canadian Golf Association (RCGA) has awarded \$75,000 to the Canadian Turfgrass Research Foundation to continue its turfgrass and environmental research projects, while Audubon International received \$31,000 to fund a separately run Canadian office that will be instrumental in protecting the environment's relationship with golf courses.



RUTGERS' ROYALTIES ADDING UP

SOMERSET, N. J. — Jon Loft, president and CEO of Lofts Seed, and Dr. Richard Hurley, Lofts' director of research and professional sales, have presented Drs. C. Reed Funk, T. M. Casey and Bruce Clark of Rutgers University with a royalty check in the amount of \$713,150. To date, Lofts Seed, through the marketing of its turfgrasses, has contributed over \$3.5 million in royalties to Rutgers.

Cold stressed at the Maine turf conference

By MARK LESLIE

ROCKPORT, Maine — Hardening off cool-season turfgrasses is the most important factor in turf surviving a winter of freezing stresses, according to Dr. William Torello, turf program director at the University of Massachusetts at Amherst. Speaking at the Maine Turfgrass Conference and Show here March 7, Torello said superintendents should make every effort to accumulate volumes of carbohydrates within the turf plant. Higher carbohydrate levels mean less internal ice

crystal formation — “the kiss of death” — within the plant, he said.

Torello told superintendents to enhance the hardening process by:

- Increasing mowing heights, which “does great things for you. Even if you only bring it up 1/8 inch, it makes a big difference because you have increased leaf area and green tissues, which means higher carbohydrate production during the fall, increased storage, and increased concentration of stored carbohydrates in the crown which is going to give you a

much better-prepared turf.”

- Decreasing or eliminating soluble nitrogen (N) applications as the fall progresses. “Make no N applications after Oct. 15 — earlier in Maine,” he warned. “How does nitrogen interfere with the hardening process? The more N picked up by the plant, the more protein it makes. Protein is made by taking carbohydrate and attaching ammonium nitrogen to it. It takes away carbohydrate.” Dormant applications are an exception, he said.

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Determined: All sprinklers are not 'created equal'

By AL KLINE, CGCS



Photo by JoAnn Kline

Tim Cavellier (left) and Jim McPhilomy are shown in 1990 making a practice run on the PITOT PSI test soon after the test stand was activated.

Technical advances in irrigation equipment closely parallel the rapid gains made in all areas of turf management. Today, many of us think most, if not all, mysteries have been solved and maybe things have become a bit ho-hum. Yet, why do we continue to be plagued with “localized dry spot,” wet areas, dry areas (that require continual attention from “hot spot” or “sponge” crews), less-than-acceptable results from pesticide and fertilizer applications, black layer, and just plain old-fashioned non-uniform turf.

Well, howdy to the real world where so many of us are frustrated and looking for answers. Indeed, a few people think sprinklers may be the key to solving the unsolvable and should be put under the old magnifying glass!

That's what we did at the University of New Mexico Championship Golf Course. Tim Cavellier, a local Toro irrigation specialist, and I built what appears to be the best outdoor sprinkler test stand in the world and are using the SPACE (Sprinkler Profile And Coverage Evaluation) computer program for sprinkler head evaluation as produced by The Center for Irrigation Technology at California State University-Fresno. Key players at CIT whom we have worked with, and are indebted to, are Dr. Ken Solomon, Dave Zoldoski and Joe Oliphant.

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The play's the thing, say supers who hit the links

By PETER BLAIS

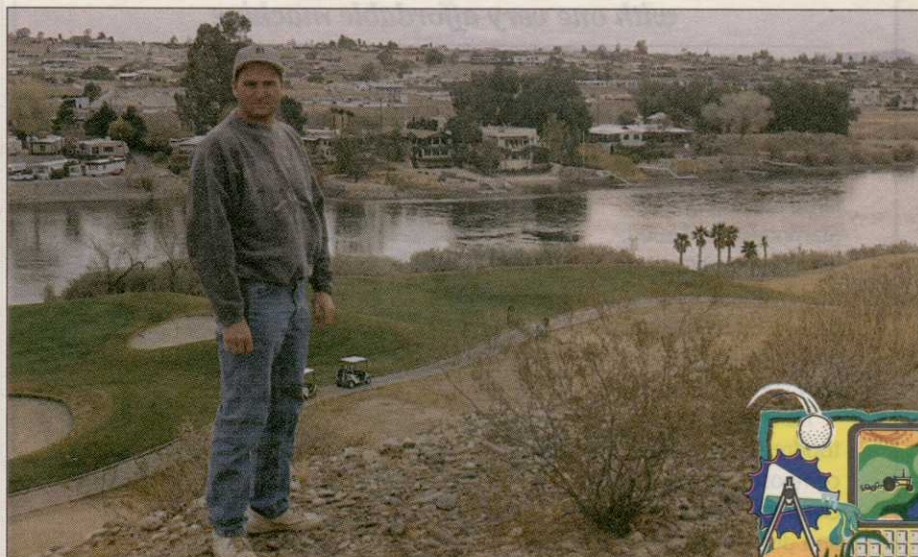
All superintendents may not play as much or as well as Jim Dusch of Atlanta National Golf Course in Alpharetta, Ga.

“But it's hard to see how you can do this job and not play the game,” said Dusch, winner of this year's GCSAA Championship and a self-described 1-handicap player. “My goal is to get the course to the point where it is agronomically sound and playable in my eyes.”

Dusch tries to play his course at least once a week. He watches how the ball rolls on the greens, how bunkers are raked and how worn the tees are as both a superintendent and a golfer.

“You don't have to be a great golfer,” he said. “But you should know what the course looks like to the people playing your course. Playing helps you understand what is good and what is bad from the player's perspective. I'm not saying someone who doesn't play can't have a great course. But it would be tougher if you weren't a player.”

Charles Passios, head superin
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Jay Long pauses above one of Emerald River's most picturesque holes. The Colorado River flows in the background.



Beating the water woes in Nevada

By ALTON PRYOR

LAUGHLIN, Nev. — Emerald River Resort and Country Club stretches for four miles along the Colorado River where it is carved out of rough and unforgiving desert. Built in 1989 on 380 acres of desert base, it requires huge amounts of water to cope with high summer temperatures. For golf course superintendent Jay Long, water is his biggest concern. Even though he pumps from the giant Colorado River, flowing only a fairway from the course, water is an expensive commodity and Long has had to discover ways to reduce that expense.

“We pump out of the river, but cost for water is very high,” Long said. “I'm budgeted \$250,000 a year for water and that isn't enough. We are charged \$1.94 per thousand gallons, which is the residential rate, and there are meters on the pumps to make sure we don't cheat. When the courts broke up the water rights among the states on the Colorado River, Nevada didn't get a very big share.”

Long said he applies about 50 acre feet per year to his green areas — about 75 acres. During the summer, when temperatures soar to as high as 125 degrees,

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Maine turf talk

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- Increasing potassium (K) applications, generally using an application rate of 1:3 N:K, to lower water-potential levels.
- Reducing irrigation.
- Using turfgrass species and cultivars that start the hardening process early. "Grasses that start hardening off in early September versus those that start in early October are going to have a foothold, able to accumulate more carbohydrates," he said. "For instance, ryegrasses generally don't start to harden until October, whereas bluegrasses begin in September, so blues have much more potential to resist freezing stress."

Cool-season grasses adapt to cold areas because of the natural process called hardening off — which allows them to get ready for the cold, freezing temperatures, Torello said. The external changes are decreased shoot growth and deeper green color. The more important internal changes are an increase or peak in photosynthesis, a decrease in overall respiration rate (the use of carbohydrates as energy for growth or just to stay alive), and accumulation of high levels of reserve carbohydrates in crown tissues.

Most important are the carbohydrate levels in the crown, since high levels reduce water potential. Less water means lower temperatures to freeze those tissues, he said.

Because the plant lives off reserve carbohydrates during the winter, "the more energy stored during the fall, the better off the plant will be," Torello said. "Photosynthesis is very slow, if at all, in the winter. Respiration must continue, albeit slowly."

The two major types of freezing stress are direct ice crystal formation inside the cell, which he said seldom happens but is "the kiss of death" when it does; and indirect ice crystal formation, which occurs when ice forms between cells within the dormant crown.

"This occurs in all cool-season turfs at the onset of freezing temperatures," Torello said. "This causes extreme drying of cells. The net effect is actually drought stress."

"If the cells are well hardened, with a lot of carbohydrates, the turf is more resistant to indirect freezing stress injury."

Citing ice-cover injuries and stress as another turf killer, Torello suggested that superintendents faced with this situation punch holes or crack the ice at 1- to 3-foot intervals; apply dark granular organic materials which absorb heat and form holes in the ice; or combine the two methods.

"The injury to the turf is due to lack of gas exchange," he said, which cuts off oxygen and builds up hydrogen cyanide and carbon dioxide.

By PATRICK O'BRIEN

It is very difficult to detect the viability of dormant and overseeded Bermudagrass after extreme cold temperatures. Superintendent David Stone at The Honors Club has used a technique for many years that he learned from Dr. A.J. Powell at the University of Kentucky to determine the winter survivability of his Bermudagrass areas.

A plug removed from sites that typically are susceptible to winter damage can be assayed quickly using the following method:

- Use a 4-inch cup cutter to remove a Bermudagrass plug from a "protected" and "unprotected" area for comparison purposes.

A test for dormant Bermudagrass

- Wash off the soil from the plug and remove the old dormant top growth.
- Expose the rhizomes and stolons by pulling the plug apart.
- Place the separated rhizomes and stolons in a Ziplock clear plastic bag, along with a wet paper towel.
- Place the sealed bag in a window or under a grow lamp.
- Create "instant summer" by maintaining a temperature near 90 degrees.
- Rewet the paper towel as needed to keep

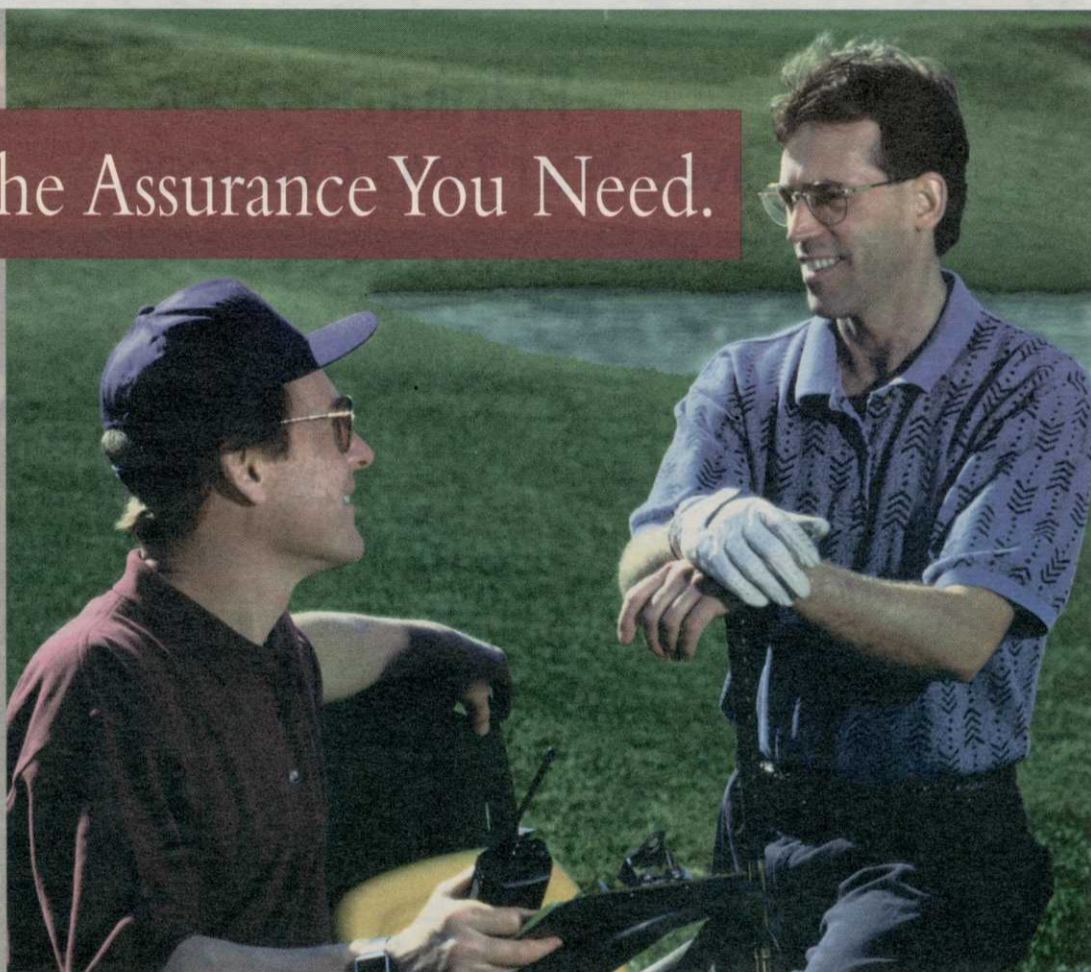
the rhizomes and stolons from drying.

- Within two to five days, green-up of the winter-surviving tillers should happen.

"This essay method will take much longer if you leave the plug intact," according to Powell. Powell usually samples sites prone to winter injury during January, mid-February, and early March with this technique. Late-winter sampling will help a superintendent determine if late freezes affected the Bermudagrass.

Correlation over the last two years with spring green-up has been 100 percent with this method. According to Powell, this test is also valid to check the viability of zoysiagrass, but it takes a few days longer for the results because of zoysia's slower growth rate.

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