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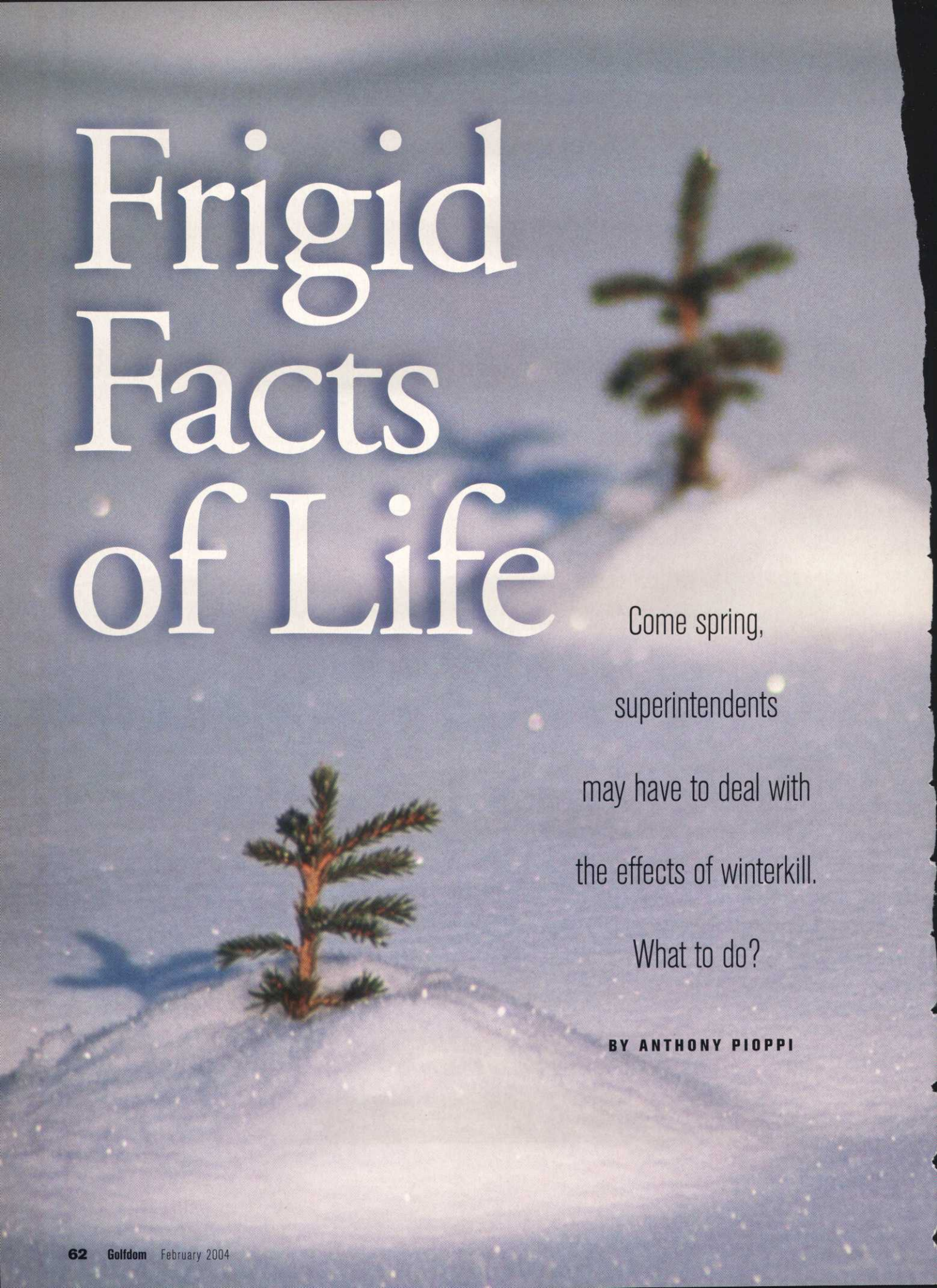
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Frigid Facts of Life

Come spring,
superintendents
may have to deal with
the effects of winterkill.

What to do?

BY ANTHONY PIOPPI

As sure as the days will get longer and the temperature warmer, come spring superintendents throughout the northern half of the United States will have to deal with the ravages of the preceding frigid months.

From Bangor, Maine, to Bozeman, Mont., they will be forced to deal with turf that was wiped out or severely damaged by the effects of winterkill, either from crown hydration or desiccation.

There are tried-and-true methods to deal with the problem along with some new ideas. The fact remains, however, that nothing can be done to save the turf in certain situations.

Craig Vigen, certified superintendent of the Fargo (N.D.) Country Club, has 27 holes to maintain at the private facility, 18 of which are more than 100 years old and another nine that date back to the early 1960s.

Since the mid-1980s Vigen says he has been protecting his original 18 greens — which are pushups — with covers, while sealing the newer nine with heavy layers of sand.

A consistent snow cover for most winters and a layout sheltered from strong winter winds by trees and topography has kept away winter damage for most seasons. In 1998, though,

Vigen had winter damage throughout his 27 greens thanks to crown hydration problems caused by the warming of snow then freezing of the runoff. His turf is 70 percent Penncross and 30 percent *Poa annua*.

According to Vigen, sometimes nothing can be done to prevent damage or predict its extent.

“I don’t get too worked up about it,” he says. “There’s not much you can do about it until you see it.”

Keith Angilly is entering his third season at Mill River Country Club in Stratford, Conn., and has the same assessment.

“Until the snow melts you don’t know what’s going to happen,” he says. “It comes out of the winter looking green, everything is great, and a week later it dies.”

Angilly has been lucky. In the spring of 2003, many courses in the Central Connecticut were wracked with winter damage. Angilly escaped with few problems.

He is a big fan of topdressing his greens heavily before Thanksgiving.

“It really helps against desiccation to protect the crown,” he says. “I don’t believe in covers.”

He does not remove the sand come spring. “I just let nature take its course,” he says.

His fall fertilization program calls for more potassium and a little more phosphorous while

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Some superintendents and their crews cover greens to protect them from winter damage.



Frigid Facts of Life

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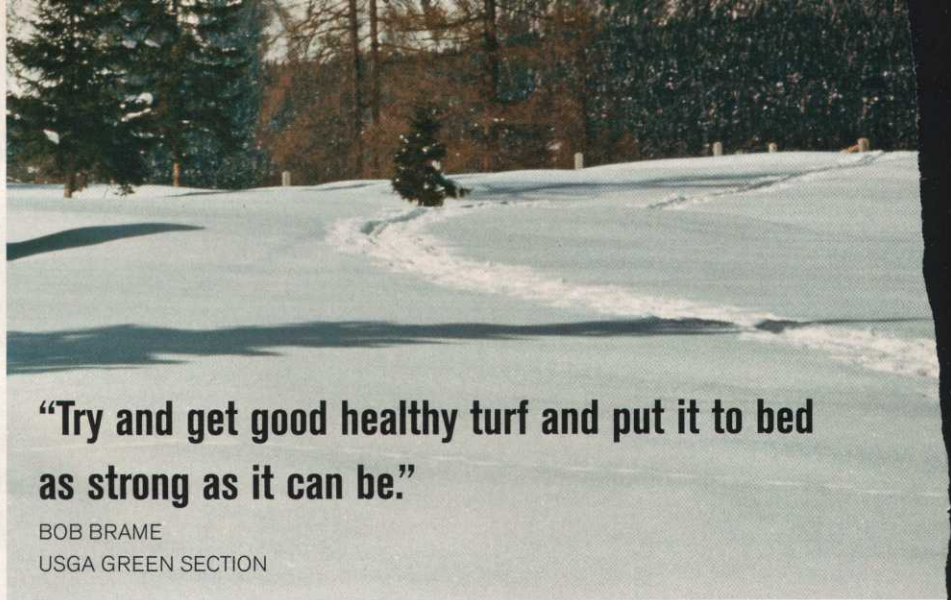
backing off the nitrogen so the plant can begin to harden off.

If the white stuff piles up, so be it. "I've never believed in shoveling snow off greens," Angilly says.

Tim Davis, the longtime superintendent at Shoreacres in Lake Bluff, Ill., has stuck with his plan of allowing snow cover to remain on greens for his 20 seasons at the Seth Raynor-designed course. For 19 years that method worked. In 1998, however, he suffered his only bout of winter damage as 60 percent of his 16th green died when spring arrived.

He says a bout of warm weather, mixed with rain in March of that year, led to crown hydration. Within 24 hours, the temperature dropped 40 degrees to 2 below zero.

That spring, when the problem became evident, he aggressively overseeded using some quadritining, but mostly relying on a hand aerifier with nipple



"Try and get good healthy turf and put it to bed as strong as it can be."

BOB BRAME
USGA GREEN SECTION

tines. He then covered the affected areas and was able to get germination around Easter, but kept the green under wraps until May. By June 15, the green was ready for play.

Davis said he kept the line of communication open with his supportive members so they knew one green had a problem coming into the season.

Vigen's former assistant, Todd Grimm, is in charge of Meadows Golf Course in

Moorhead, Minn. His problems are a little different at the 11-year-old municipal course he grew in. A links-style layout, Moorhead has not a tree, and Grimm's biggest opponent is the Northwest winds that rip through the golf course.

The only time he suffered any sort of winterkill came when a warm fall turned quickly to a cold one with the arrival of a major snowstorm that saw a wind chill factor of 40 below zero. Grimm surmises the turf hadn't properly hardened off enough to withstand the drastic temperature change, and the result was dead grass.

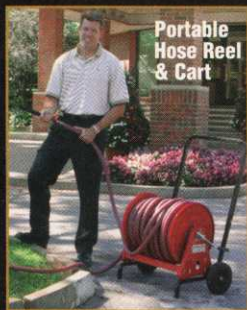
To thwart the winds, he places covers over the greens and erects snow fences around the northwest side of each green. "As long as the grass is hardened off going into the winter, we're usually OK," Grimm says.

Bob Brame, director of the USGA Green Section's North-Central Region, says the key to avoiding winterkill is to properly prepare the grass. "Try and get good healthy turf and put it to bed as strong as it can be," he says.

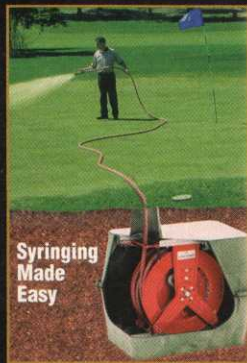
Another remedy, according to Brame, is to improve drainage on greens that have consistent problems with winter damage.

Bob Vavrek Jr., the USGA's North-Central Region's senior agronomist, says a number of supposed remedies have come and gone over the years. One trend a few years back in the Minneapolis area was the use of wood fiber blankets, much like those used to prevent erosion, placed on problem greens. Vavrek says some superintendents still use that method.

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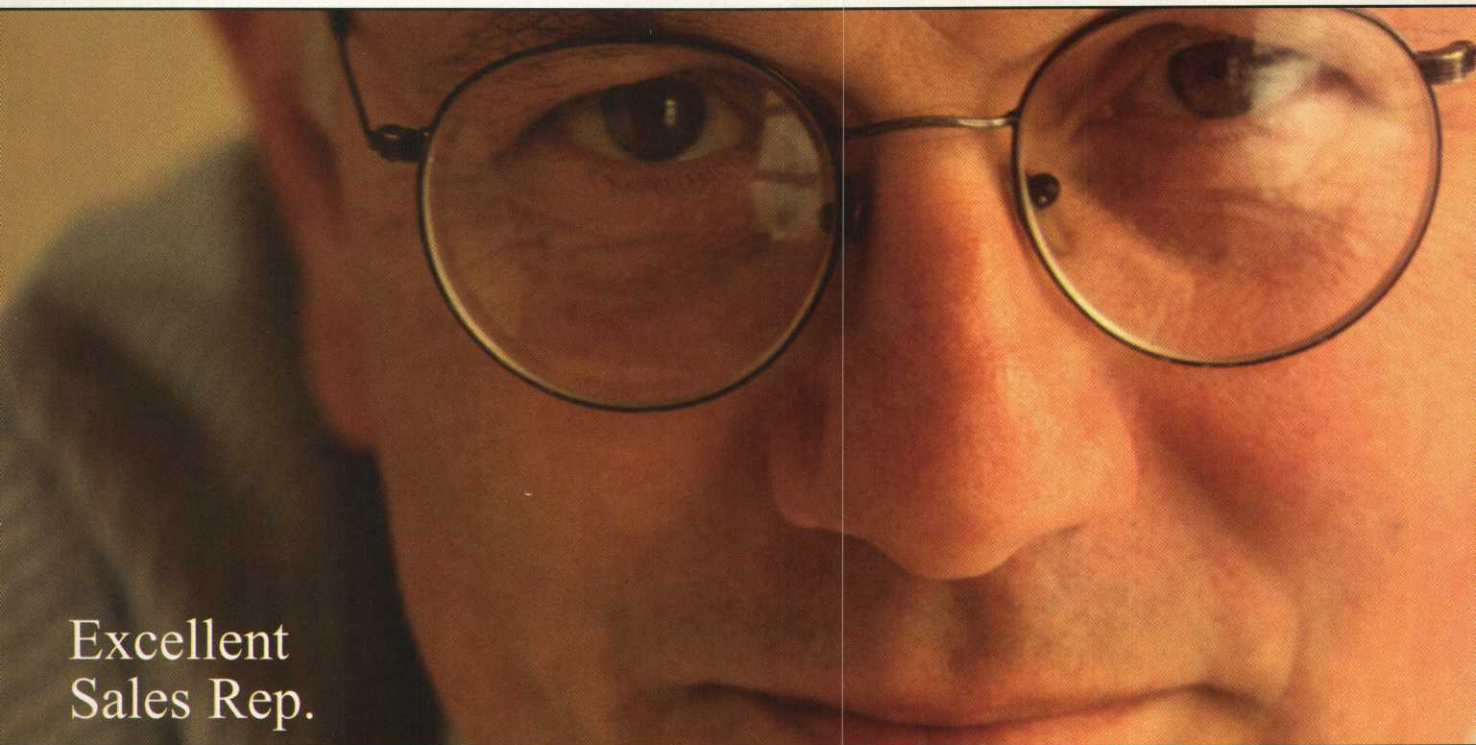
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Frigid Facts of Life

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One problem with the wood fiber is that it expands and gains weight when it first becomes wet, Vavrek says. Large dry areas are required for storage and even then the blankets only last three or four years.

Some superintendents are experimenting with waterproof white plastic greens covers that

do not heat up the ground the way dark colored covers do. "I've seen success," Vavrek says.

Others are experimenting with antitranspirants, common in the horticulture industry. These chemicals are capable of reducing transpiration rate when applied to plant foliage. Some superintendents are putting the waxy substances on greens to reduce chances of problems in the spring.

Still there is no silver bullet for winter damage or impatient golfers once spring rolls around.

One of Vigen's biggest problems associated with winterkill is dealing with members who did not like the idea of greens being closed for recovery. "They expect it (the course) to be perfect from the start," he says.

According to Brame, there is one simple rule that superintendents know is indisputable.

"Mother Nature is definitely in control," Brame says, "and golfers forget that." ■

Pioppi is a freelance writer from Middletown, Conn.

Trees can help thwart wicked winter winds that lead to winterkill.



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They have multiplied like rabbits, only “they” aren’t furry, funny or lovable. They seem to enjoy faxing silly introductory letters to pros, superintendents and general managers, and they have never met a voice mail they didn’t love telling their life stories to. They carry little identification cards (which you should always ask to see). “They” are ranking panelists.

They have topped the 1,000 mark with directives to evaluate the resistance-to-scoring greatness, conditioning precision and “walk-in-the-park” charm of your course. And supposedly they know greatness when they see it — especially when they are comped rounds.

Many facilities have grown weary of panelists’ requests for access, going so far as to establish elaborate policies to deal with the herd. Others engage in creative phone-tag charades, sending panelists yo-yoing between the pro, general manager and an accounting office answering machine in between. Still others in need of publicity welcome the pack, offering perks every an International Olympic Committee member would envy.

Unsure just how to deal with all of these panelists? Here are a few guidelines that will help you separate the real students from the posers.

The wannabe-ranked course

So you want to be considered for one of those Best New awards or the Top 100? Be prepared to roll out the red carpet. Besides deep-tissue (ego) massaging and a yardage book, free food and wine will earn big points with certain rankers.

Legend has it that a 2003 magazine-organized gathering of panelists couldn’t get enough of the free Pro-V1’s and pricey fermented grape during a lavish post-round panelist celebration. You’ll be shocked to learn that this little glutton-fest took place in the quaint town of Las Vegas.

And remember, even if you have just opened the second coming of St. Andrews, a paid green fee is the quickest way to a lower-than-deserved panelist score.

The little-hope-of-being-ranked course

You are a quiet place, providing a nice service for your customers. The panelists only call when

What to Do With All These Panelists?

BY GEOFF SHACKELFORD



HERE ARE A FEW
GUIDELINES THAT
WILL HELP YOU
SEPARATE THE
REAL STUDENTS
FROM THE POSERS

they can’t get on the purported-to-be-more desirable courses in town. Your policy is simple. You’d be happy to host the panelist and his pals, but you must take a credit card in advance because you’ve had a few cancellations lately.

Sit back and savor that dial tone.

The doesn’t-care-about-awards course

There’s some sadistic, pain-loving gene in all golfers. So nothing warms a panelist’s heart like hearing that he can only play at certain times. If you whip the panelist into believing he is blessed to receive some undesirable time (Monday at 3 p.m.), he might just think he’s lucky to play your fine course and vote accordingly.

If you work for a private club and don’t want the hassle, tell a panelist it’s the club’s policy that a guest must play with a member. If the panelist persists, ask for his ranking supervisor’s number because it’s club policy to confirm all panelist rounds with editors. You won’t hear back.

The somewhere-in-between course

There is one way to tell if a panelist is actually interested in evaluating your course (as opposed to merely longing for free golf). If the panelist calls to ask if he could just walk your course to study the design, you actually have a student on your hand. Welcome that panelist. Tell him to bring his clubs, and maybe, just maybe, you’ll be able to slip him in.

Because that is a panelist trying to do his job — evaluating course architecture — as opposed to evaluating (free) course access.

Geoff Shackelford is teaching a one day Harvard Design School seminar on golf course restoration with architect Brian Silva on March 31. For more information, go to <http://www.gsd.harvard.edu> or email Shackelford at geoffshackelford@aol.com.

TURFGRASS TRENDS

PLANT GROWTH REGULATORS

Ultradwarf Bermudagrass PART 1

How sensitive is it to PGRs?

By Patrick McCullough, Haibo Liu and Bert McCarty

Pressure to consistently produce ideal putting-green quality has superintendents including regular plant growth regulator (PGR) applications in their management programs.

PGRs are compounds that reduce growth by modifying turfgrass hormone synthesis. For fairways, tees and roughs, PGR applications reduce mowing requirements, which minimize labor and equipment operation (Watcshke et al., 1992). PGRs are also used to promote smooth and uniform putting surfaces by reducing diurnal shoot growth fluctuations (McCarty, 2001).

Challenges superintendents face with ultradwarf bermudagrass varieties include maintaining appropriate fertility, managing thatch/mat development and promoting root growth. Dwarf bermudagrass varieties show some sensitivity to herbicide and PGR practices previously acceptable for traditional bermudagrass cultivars.

Root growth inhibition from PGRs appears to be excessive on dwarf bermudagrass regardless of turf quality and clipping yield reductions.

Hybrid bermudagrass (*Cynodon dactylon* (L.) Pers. x *C. transvaalensis* Burt-Davey) is the warm-season turfgrass used most commonly on putting greens in the warm, humid climatic regions (Beard, 2002). Bermudagrass putting-green quality has long been considered inferior to fine-textured creeping bentgrass (*Agrostis palustris* Huds.) because of the

inabilities of cultivars such as Tifgreen and Tifdwarf to withstand routine mowing heights lower than three-sixteenths to one-quarter inch (Beard, 1973).

Problems also exist from genetic instabilities of these cultivars leading to off-type patches of different color and texture, causing greens to become mosaic and difficult to play (McCarty and Miller, 2002; Beard, 2002).

Dwarf bermudagrass varieties have recently been introduced that tolerate mowing heights of one-eighth inch or closer on a consistent basis (McCarty and Miller, 2002). Dwarf bermudagrass is characterized by fine leaf textures, high shoot densities and low growth habits suitable for close mowing and producing ball roll distances once exclusive to creeping bentgrass greens (McCarty and Miller, 2002; Beard, 2002). However, management programs designed for Tifdwarf and Tifgreen bermudagrass putting greens appear questionable for successful long-term ultradwarf bermudagrass culture.

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FIGURE 1

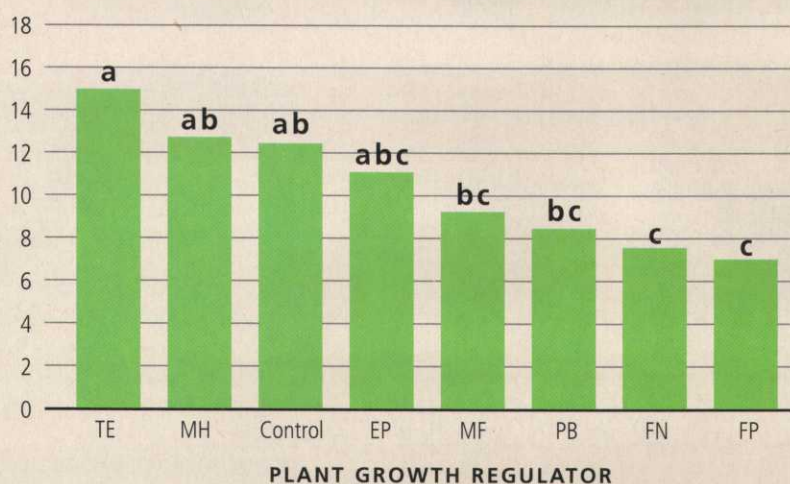


Figure 1: Dry root weight (g m⁻²) averaged across three studies for TifEagle bermudagrass treated with seven growth regulators. Different letters indicate a significant difference at P = 0.05 according to Fishers Protected LSD test. Abbreviations: MF, mefluidide; FN, fenarimol; EP, ethephon; MH, maleic hydrazide; TE, trinexapac-ethyl; PB, paclobutrazol; FP, flurprimidol.

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Turfgrass color and quality enhancements are commonly observed from regular PGR use, enhancing tolerances to shade, drought and other physiological stresses (Qian and Engelke, 1999; Jiang and Fry, 1998). Growth inhibitors used in turf are divided into two categories: Type I and Type II. Type I compounds, including maleic hydrazide and mefluidide, inhibit cell division and are used predominantly as seedhead and foliar suppressant inhibitors in low maintenance turf areas. Inconsistent performance, turf injury and root-growth reductions have limited the use of these compounds. Type II growth regulators inhibit gibberellic acid, a hormone necessary for stem elongation, and present less likelihood of leaf burn compared with Type I compounds (McCarty, 2001).

As dwarf bermudagrass varieties continue to expand as putting-green turf, concerns exist for incorporating appropriate PGRs into management programs. Turf discoloration and negative rooting responses from PGRs may limit their potential for routine dwarf bermudagrass maintenance. Currently, no PGRs are labeled for use on ultradwarf bermudagrass. Thus, university research is warranted on these responses.

The objectives of our research were to:

- (1) provide initial screening of PGRs on ultradwarf bermudagrass for future field and greenhouse research;
- (2) compare labeled PGR rates of traditional bermudagrass and creeping bentgrass greens on ultradwarf bermudagrass; and

- (3) examine morphological responses of ultradwarf bermudagrass to growth inhibition.

PGR greenhouse studies

Preliminary greenhouse screening studies were conducted to determine the immediate effects of seven plant growth regulators on clipping yield, visual quality and root mass of TifEagle bermudagrass after six weeks.

Growth regulators tested included trinexapac-ethyl (Primo), flurprimidol (Cutless), paclobutrazol (Turf Enhancer, Trimit), mefluidide (Embark), maleic hydrazide (Royal MH-30), ethephon (Proxy) and fenarimol (Rubigan). Due to the lack of labeled rates for growth regulators on ultradwarf bermudagrass,

rates for previous bermudagrass cultivars, bentgrass greens and low rates for higher-mowed hybrid bermudagrass were applied (Figure 1).

Two applications of each compound were made over a six-week period in three separate studies to TifEagle bermudagrass plugs placed in 5-inch deep pots with 28 square-inch areas. PGR applications for all studies were made with a greenhouse spray cabinet.

Visual quality was unacceptable with repeat fenarimol, flurprimidol and paclobutrazol applications (Pictures 1 and 2). Ethephon, a PGR that induces ethylene, had unacceptable turf quality one week after application.

Total dry weight clippings from six weekly samples were reduced 56 percent from trinexapac-ethyl, 86 percent from paclobutrazol, 88 percent from flurprimidol, 25 percent from mefluidide, 46 percent from maleic hydrazide, and 41 percent from ethephon (data not shown).

After six weeks, root mass was reduced 49 percent by fenarimol and 43 percent by flurprimidol, while all other PGRs had root mass similar to untreated turf (Figure 1). TifEagle bermudagrass treated with trinexapac-ethyl averaged 45 percent more root mass compared to mefluidide, paclobutrazol, fenarimol, and flurprimidol (Figure 1). Trinexapac-ethyl was the only compound to reduce clippings and enhance turf quality without negative effects on rooting in three studies.

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