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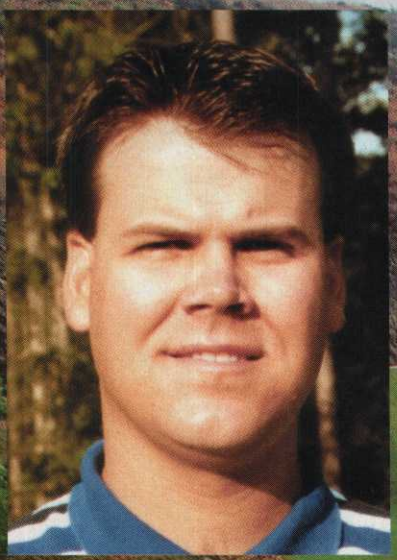

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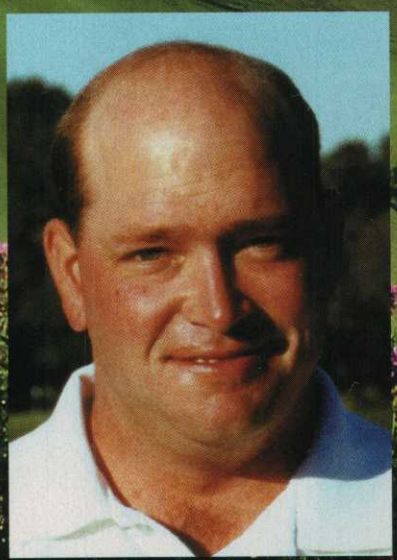

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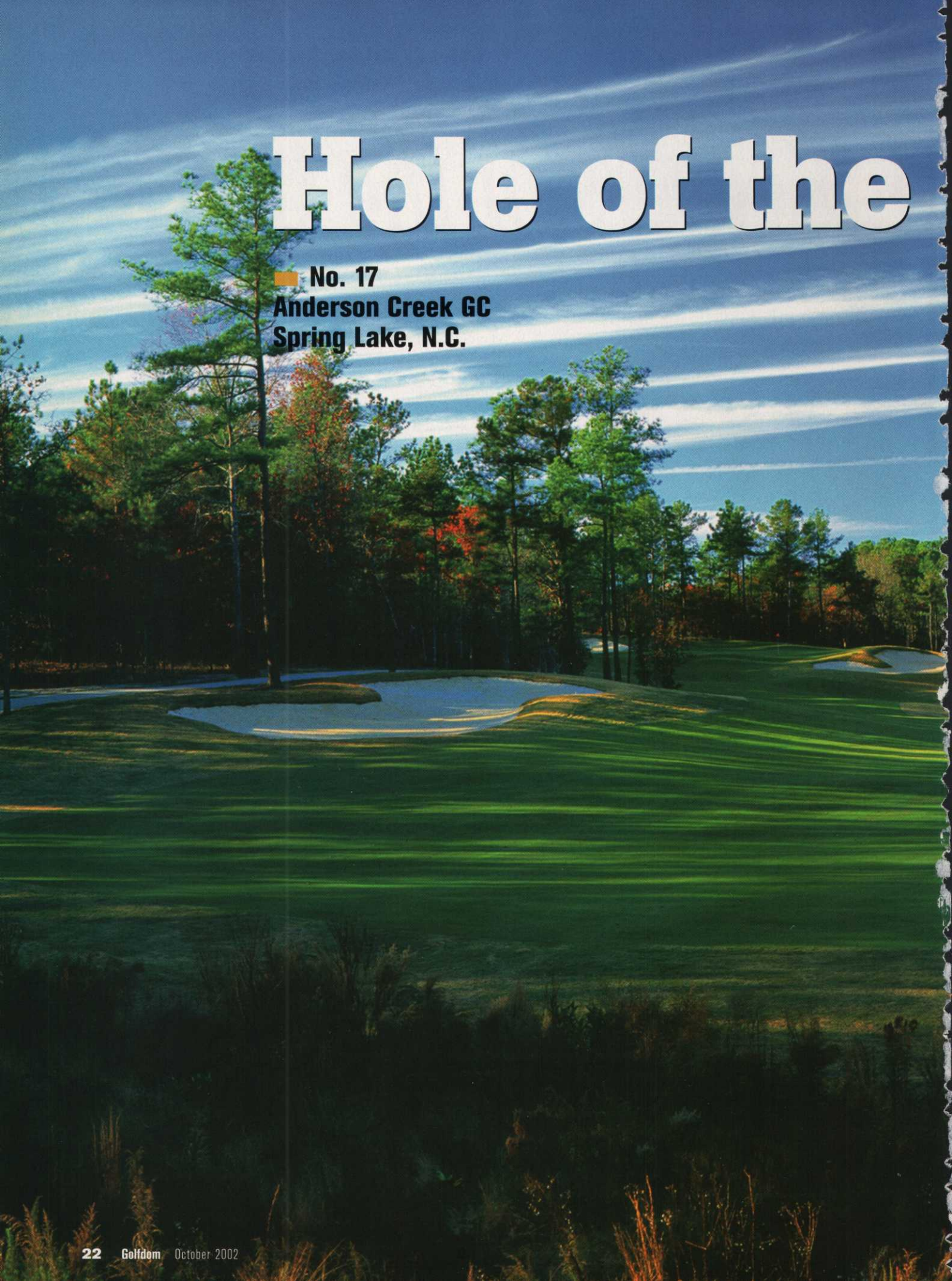

Month

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When brothers Davis and Mark Love formed their golf course design company, Love Enterprises and Associates in 1994, they vowed to create courses that "blend naturally with the land." That said, North Carolina native Davis Love says he's never seen a property more perfect for a golf course than Anderson Creek GC, located in the historic sand hills of Spring Lake, N.C.

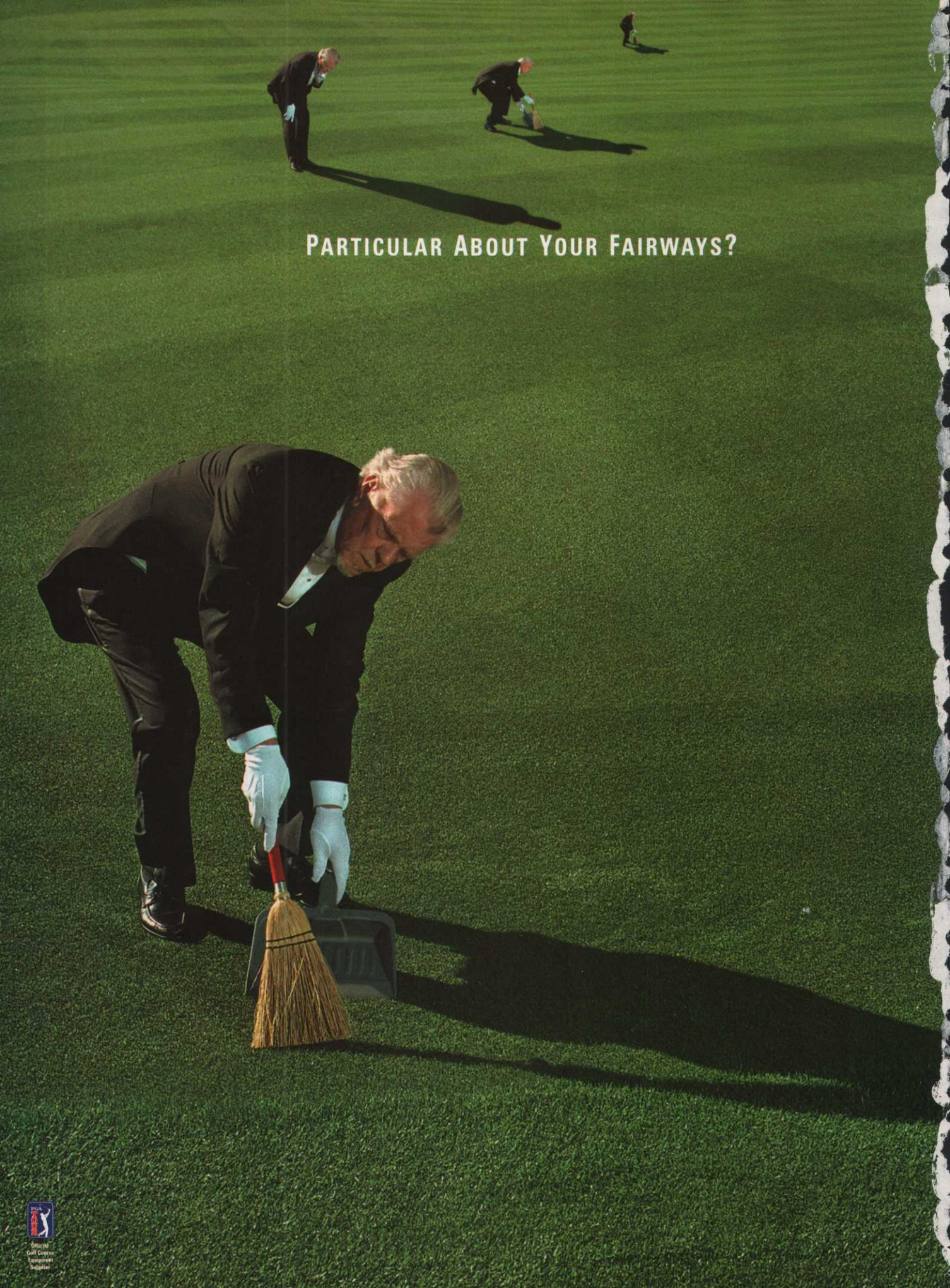
The 476-yard, par-4 17th hole, pictured here, features the toughest tee shot on the course, says Davis, who should know. "But there's plenty of room to drive the ball, so take a deep breath and put your best swing on it," he says.

Burr Johnson, the course's certified superintendent, says the hole plays long and tough. "Unless you hit your tee shot perfectly into the landing area, you'll have a side-hill lie," he adds.

Johnson, who helped build Anderson Creek, says the Love brothers didn't move much dirt to build the course.

"It was carved out of the rolling hills," Johnson says. "They did an excellent job. Most everybody who plays it enjoys it."

MIKE KLINE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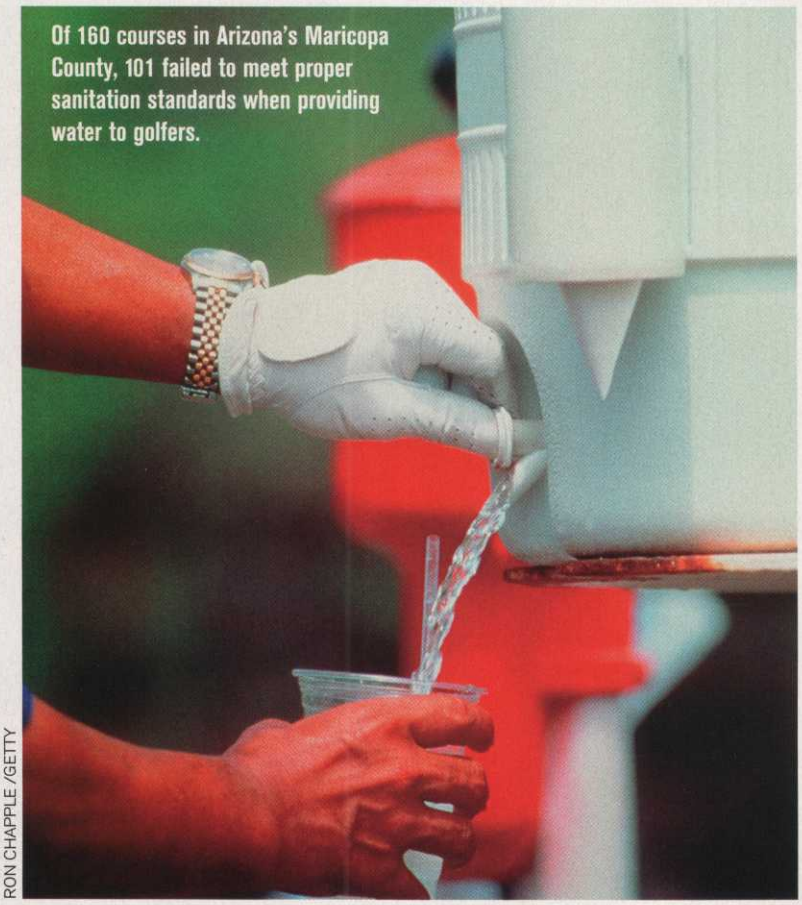
Clean Water Act

Disease outbreak causes Arizona golf courses to revamp drinking water sanitation standards

BY JAMES E. GUYETTE

Golf course employees nationwide should apply food-service-quality sanitation procedures to their handling of on-course drinking water supplies, according to health officials who investigated a water-borne disease outbreak at Thunderbirds GC in Phoenix in July.

In the wake of the outbreak, investigators from the Maricopa County Department of Public Health examined water-handling practices at 160 other county courses and discovered that 101 failed to meet proper sanitation standards when providing water for golfers. A common scenario was using a garden hose to mix chemicals and fill drinking jugs.



Of 160 courses in Arizona's Maricopa County, 101 failed to meet proper sanitation standards when providing water to golfers.

RON CHAPPLE /GETTY

Maricopa authorities cited tainted drinking water as a possible cause in the death of 15-year-old golfer Nils Beeman, who died shortly after playing in the Junior Golf Association of Arizona Tournament at Thunderbirds in July. More than 80 people attending the event became ill with vomiting and diarrhea from the Norwalk virus, a common stomach disorder caused by human fecal contaminants. Although an initial examination of Beeman's body was inconclusive, it's suspected he contracted the Norwalk virus, became ill and died from choking on his vomit. People with the virus usually recover within two or three days without serious or long-term health effects.

Water and ice are sources of the Norwalk virus. It's suspected that water jugs at Thunderbirds GC were contaminated.

Initially dubbed "golfer's sickness," puzzled public health officials conducted a full investigation to find a cause and common link among those ill. The mystery was further compounded when investigators could find no mention of a similar golf course-related problem in existing medical literature. Also, Beeman was seen licking his golf ball while on the links (most likely to remove a grass stain), which further widened the scope of the probe to include toxic substances from pesticides as a cause of his illness.

Because Beeman also played recently at the Raven GC at South Mountain, that course was also investigated. But Raven was later cleared of any connection to the events at Thunderbirds.

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TURFGRASS TRENDS

Section II • Volume 11, Issue 10 • **October 2002**

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DISEASE MANAGEMENT

Anthracnose Update

Cultural practices affect spread of disease in Northwest

By Paul Backman, Gwen Stahnke and Eric Miltner

Anthracnose basal rot (ABR) is a serious and common disease of annual bluegrass and creeping bentgrass putting greens. Incidence and the severity of ABR outbreaks greatly increased throughout the Midwest, Northeast and the Pacific Northwest in the late 1980s and 1990s.

This highly destructive disease rapidly became one of the most difficult and challenging management issues for many superintendents.

Anthracnose basal rot is caused by the pathogen *Colletotrichum graminicola*. Once established, ABR can quickly destroy the stems, crowns and roots of susceptible turf, compromising plant health, playability and appearance. This disease is highly destructive, difficult to manage and quite variable in symptom development and expression. Anthracnose basal rot development has been associated with nutrient deficiencies, low mowing heights, compaction, poor drainage and wounding caused by aerification and topdressing.

ABR was first confirmed in Washington in 1995. Several years prior to this, researchers noted that following aerification and topdressing, some *Poa* greens would wilt and collapse, but a disease or causal organism was not identified. This wilting typically followed a hot, dry period when the superintendent had been

Continued on page T2

Combination of fungicides stems tide in mid-Atlantic

By David Spak

The increasing demand for tournament-level course conditions on a daily basis puts a strain not only on superintendents, but also the greens they're maintaining. The ill effects of the intensive manicuring needed to produce such conditions are no more visible than in the mid-Atlantic region, where basal rot anthracnose, once only a summer stress phenomenon, has become a nearly year-round, annual problem on courses.

Basal rot and foliar blight are the two dominant biotypes of anthracnose, a fungal disease first reported on greens in the United Kingdom in the 1950s. Principally a disease of *Poa annua* and creeping bentgrass greens, basal rot is the more prolific and widespread of the two and has begun appearing in March through November on *Poa* greens in the mid-Atlantic.

Early basal-rot infections have done the most damage on older mid-Atlantic courses. Henry Wetzel, superintendent at St. David's GC in Wayne, Pa., has encountered basal-rot anthracnose problems on his 76-year-old greens since the mid-1980s.

"These are old *Poa* greens built in 1926," Wetzel says. "Back in 1985, we had our first problem with basal rot, and we've been battling it ever since."

Difficult diagnosis

Basal rot infections in *Poa annua* first appear during cooler, moist weather conditions,

Continued on page T6

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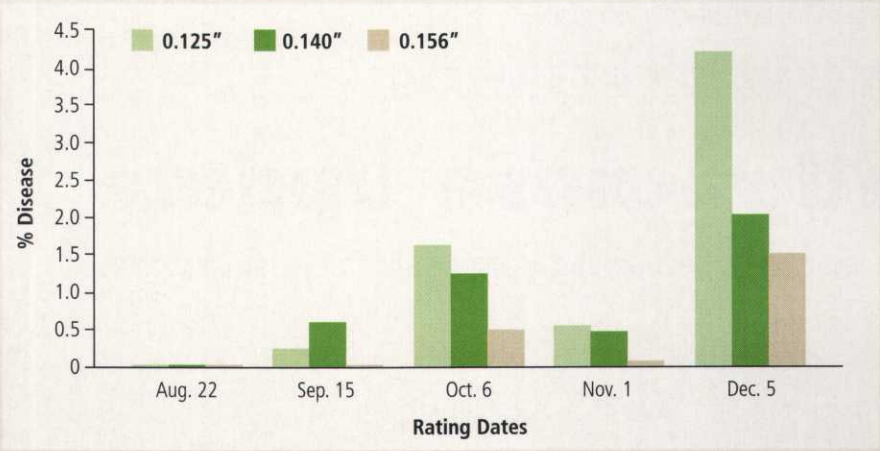
FIGURE 1

Effects of three mowing heights on anthracnose basal rot severity



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spoon-feeding the greens with minimal fertility. In recent years, some superintendents have shifted their fall aerification practices several weeks earlier in the season to promote quicker healing.

Light brushing has also been used in these cases instead of dragging the sand into the surface. Dragging with a heavy mat opens up more wounds on turfgrass plants where infection can occur. When azoxystrobin became available to superintendents nearly five years ago, it provided exceptional control of ABR when it was used preventatively. However, there have been reports of possible anthracnose resistance to azoxystrobin after several years of use in the Pacific Northwest.

West of the Cascades

In the Pacific Northwest, west of the Cascade Mountains, the greens on older, established golf courses are predominantly annual bluegrass. The newly constructed golf courses are almost all planted with newer cultivars of creeping bentgrass.

The annual bluegrass greens are usually more susceptible to anthracnose infection than the creeping bentgrass greens. However, in early summer 2002, when temperatures were 85 degrees to 95 degrees Fahrenheit for several days, there were some cases of anthracnose infection on creeping bentgrass. Certain cultural practices, such as verticutting and heavy sand topdressing, may have increased the severity of anthracnose infection.

Due to increased frequency of irrigation, the anthracnose infection on the leaves moved into the crowns of the plants. Aerification, overseeding and fungicides were used to stop the spread of the fungus and speed recovery.

If ABR does occur, early and correct diagnosis is essential for management. On newly infected annual bluegrass plants, a dark brown to black color appears in the crown. Then the foliage begins to turn yellow, initiating at the tips of the outer, oldest leaves first. Then it progresses to the sheath.

Turfgrass suffering from these symptoms form mottled or irregular patterns, roughly 1 to 12 inches in diameter. Those patches often affect large areas.

ABR symptoms are most severe when the turfgrass is experiencing physiological stress, particularly if the stress occurs when the weather conditions are optimal for infection.

Stress can result from a wide range of factors, including nutrient deficiencies, low mowing heights, compaction, poor drainage, wounding caused by aerification and topdressing, or shade.

Strategies for fall fertilization

A strong turf fertilization program is designed to ensure maximum performance of turfgrass stands by providing necessary nutrients at the proper time. Golf courses are generally evaluated by the playability of the greens, tees, fairways and roughs, although standards vary considerably. An important aspect of a good turf management program is the proper selection and timing of fall fertilizers for both cool- and warm-season grasses.

For cool-season grasses, research indicates that fall applications of fertilizer improve turf density, color and the ability of turf to withstand winter stress, as well as providing early spring green-up. As top growth slows or stops in the fall, more nutrients are stored in the forms of carbohydrates and proteins in the crown and root system. The first step of an effective fall fertilization program is to improve turf density and recovery from summer stress by making a late-summer/early-fall application, which will help to prepare the turf for another application in late fall.

The late-fall application should be made to coincide with the last regular mowing, or when the rate of growth has significantly slowed in warmer areas. Slow-release nitrogen sources at rates of .75 to 1 pound of nitrogen per 1,000 square feet can be applied at this time. Equivalent rates of potassium are also beneficial. This timetable will vary, however, with the source of nitrogen applied. As soil temperatures drop in the fall, fertilizers that are highly influenced by soil temperature should be applied three to four weeks earlier than more soluble sources to provide an effective late-season response without reducing spring green-up. Applications must be made before the ground is frozen or close to freezing so that the nutrients will be available to the plant.

In the South, fall fertilization creates several benefits to bermudagrass prior to and through the dormancy period. The objective is to provide adequate nitrogen, phosphorus and potassium through the fall to have controlled growth and color throughout the remainder of the season. This results in storage of carbohydrates to aid cold tolerance and spring green-up without excessive spring growth. It's important to remember that bermudagrass roots continue feeding long after the top growth has ceased, which is the perfect time to store food. Application timing will vary upon climatic conditions running from September through December. Nitrogen and potassium rates will vary from a 1:1 to 1:4 ratio depending on the needs for fall growth and color.

Warm-season grasses slated for overseeding require a little different program. Nitrogen amounts should be minimal leading into seeding to reduce competition with the ryegrasses. At overseeding time, a quality starter fertilizer that serves a dual purpose of feeding the bermudagrass and providing stimulus to the ryegrass seedlings is desirable. Ratios can vary from a 1:2:2 to 1:2:1. If phosphorus is already ample, a formula such as 10-15-30 or 15-0-29 will complete the task.

The Andersons produce a variety of coated- and methylene-urea based slow-release fertilizers designed to meet the diverse agronomic and climatic conditions throughout the country.

The Andersons Poly-S and Poly NS-52 are polymer-sulfur coated urea fertilizers, whose release is primarily dependent on coating thickness and moisture and less on temperature. In Western states, 17-3-17 w/63% Poly NS-52 plus 3% Iron & 2% Manganese provides an excellent initial green-up from ammonium sulfate and sustained feeding from the NS-52. In the North, 30-3-9 w/50% Poly-S and 28-3-10 w/50% Poly NS-52 are popular choices for fairways in the fall. In Southern climates where a 1:2, nitrogen-to-potassium ratio is desired, 15-0-29 w/ 100% Poly-S is a good choice. If a 1:1, nitrogen-to-potassium product is desired, 20-3-20 w/ 40% Poly-S and 2% Iron is popular.

The Andersons produce many methylene-urea formulations that rely on water-soluble and slowly available water-soluble nitrogen features to insure an effective response even under cool fall soil conditions. Several of the Andersons methylene-urea based Contec® greens formulations fall into this category. They are 17-3-17, 18-9-18 and 9-18-18. Nutralene®-based products are also available. Golf courses in the North and West have found the Andersons 31-3-10 homogenous methylene urea with minors to be an outstanding fall fertilizer for low-cut fairways requiring small particle sizes. In the North, 25-5-15 w/50% Nutralene/Iron and Micros is ideal for bentgrass fairways cut below one-half inch. In Southern turf, 20-5-20 w/50% Nutralene/2% Iron and Micros or 10-5-25 w/50% Nutralene are popular choices on low-cut bermudagrass fairways.

Research goals

The research discussed in this article was designed to minimize the occurrence of basal or crown rot through cultural practices. The objectives of this study were threefold:

- to evaluate how mowing heights and nitrogen fertility predispose annual bluegrass to ABR and determine how the same cultural factors help annual bluegrass recuperate from ABR damage;
- to document the environmental factors that contribute to ABR outbreaks in the Pacific Northwest; and
- to develop an effective ABR management strategy for superintendents, based on sound cultural practices.

At the Washington State University-Puyallup Turfgrass Research Facility, a 4,800-square foot annual bluegrass putting green was established using hollow-tine aeration cores acquired from putting greens at local golf courses.

Mowing heights of .125 inch, .141 inch and .156 inch were established. Each mowing height was fertilized at three different nitrogen rates: 3 pounds, 5 pounds and 7 pounds of nitrogen per 1,000 square feet per year.

In 1998, a severe ABR outbreak occurred in early September as a result of prolonged hot summer conditions, which required frequent irrigation. It was after symptoms developed that the mowing height and nitrogen treatments were put in place. The results of the project clearly showed that the highest mowing height and highest nitrogen rate produced the best turf quality and significantly increased the turf's recuperative ability from ABR.

In 1999 and 2000, mowing heights and nitrogen treatments were in place prior to the appearance of ABR symptoms. Again, the plots that were mowed the highest rate and received the most nitrogen produced the highest quality ratings and the least amount of ABR symptoms.

The poorest quality plots exhibiting the most ABR were those that were maintained at the lowest mowing height and received the lowest nitrogen rate.

In the Pacific Northwest, ABR can occur in spring, summer, fall or winter. Over the duration of this study, heat stress in the summer was the most critical environmental condition leading to ABR. Hot, dry summers can lead to severe symptoms in the summer or earlier symptom development in the fall. Mild summers lead to symptom development in late fall or winter.

To summarize the impacts of management practices on ABR:

- Mowing heights and fertilization intensity have a significant impact on the quality and health of annual bluegrass putting turf.
- Healthy turfgrass is more resistant to ABR outbreaks.
- Prolonged heat stress predisposes annual bluegrass to severe ABR outbreaks.
- Lower mowing heights and lower nitrogen rates increase annual bluegrass' susceptibility to ABR.
- Once an ABR outbreak has occurred on annual bluegrass, fungicides are not effective at eliminating the symptoms.

This project showed that raising the mowing heights and increasing the nitrogen levels could reduce ABR symptoms that are already present in the turf stand.

Backman is the executive director of the Northwest Turfgrass Association and the Western Washington GCSA. Stahnke is an extension turfgrass specialist at Washington State University (WSU)-Puyallup. Miltner is an assistant turfgrass research agronomist at WSU-Puyallup.

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CIRCLE NO. 142

Continued from page T1

which are typical in late spring or early summer. First signs of infection include irregular patches of orange-to-yellowing turf (also known as "winter anthracnose") in March.

Later, infected plants collapse, which is often mistaken for bacterial wilt. Hair-like black, fruiting bodies at the base of plants are a telltale sign of anthracnose outbreaks, but by the time these hairs are visible with basal rot infection, it's already too late to respond with fungicide applications. Strains of the disease tend to attack the dominant grass type in a green while leaving lesser types untouched.

While there is no true fix on the exact conditions that have prompted the early appearance of basal rot, one can look at a mix of environmental and man-made factors as possible causes. Unusual weather patterns in the mid-Atlantic (from record highs one summer to unseasonable lows the next) contribute. Combine this with management practices meant to increase greens speeds, including low mowing heights, decreased nitrogen and topdressing, and the turf is weakened to a point where it is much more susceptible to disease. Poor drainage practices and reduced sunlight have also been shown to aggravate the spread of the disease.

"The methods superintendents use to maintain their greens, including increased mowing frequency, double- and triple-cutting and verticutting, have taken away their turf's ability to fight infection," says Dr. Bruce Clarke, director of the Center for Turfgrass Science at Rutgers University in New Jersey. Clarke is currently overseeing a series of fungicide trials for preventive control of basal-rot anthracnose on *Poa annua*/bentgrass greens.

"In the mid-Atlantic, the tremendous heat stress on turf recently only encouraged the development of the disease," he continues.

One thing is certain about basal rot infections: Without early detection or prevention, plants will ultimately die.

Cultural control

Most superintendents and researchers agree that extreme manicuring practices strain turf. Since this strain is self-inflicted, superintendents can adopt practices to minimize the damage caused by basal rot.

Recommended practices include raising mowing heights, decreasing mowing frequency and using "floating" walk-behind mowers. Other recommendations for turf care while the disease is active include avoiding topdressing, vertical cutting, rolling and other injurious practices, as well as diverting traffic off greens.

When Wetzel encountered a particularly bad outbreak at St. David's last year, he decided to alter his manicuring practices.

"We had been mowing our greens at one-eighth of an inch," he says. "Last year's basal rot was particularly bad, so we finally raised mower heights to five-thirtyseconds of an inch, and this seemed to clear up the problem."

While these cultural practices provided Wetzel with a short-term solution for his basal-rot problem, the issue of players' demands for faster greens still remains.

"We've continued to mow at this height, but I don't know how long we can maintain that with the pressure we're getting from our players. Once I lower the mowing heights, I know the disease will be back."

In a basal-rot trial conducted by Clarke, measures to increase plant health have also resulted in noticeable disease improvements.

"We applied an additional one-eighth of a pound of nitrogen in the form of urea every two weeks," Clarke says. "These plots were visually less diseased."

Fungicide management

When superintendents do not have the option to commit fully to a basal-rot control program using cultural practices, fungicides become a necessity to prevent the disease. In these cases, applying both contact and penetrant fungicides, often in combination, has shown some success.

Because the timing and location of basal-rot infections are often unique to a specific course, superintendents should draw on past experiences, such as timing and environmental conditions present at the time of past infections.

Applications should be made at least two to four weeks prior to anticipated disease activity, and at 14-day intervals for maximum disease prevention. Making early applications is important, as basal rot is often difficult to detect in its earlier stages. Basal rot has proven to be a recurring problem. Rotating fungicides and applying multiple fungicide chemistries will reduce the risk of resistance.

Clarke's ongoing trials began in May 2002. For these trials, he identified the four most widely used fungicide chemistries in use for anthracnose control — benzimidazoles, benzonitriles, demethylation inhibitors (DMIs) and strobilurins — applying a range of fungicide treatments that included them all. Clarke employed a spray interval of 14 days at varying rates.

"The benzonitriles and DMIs showed effective control, but the results from DMIs were variable," Clarke says. "In contrast, the strobilurins and benzimidazoles didn't provide effective control."

Best of both worlds

Since basal rot thrives on weakened turf, maintaining plant health is a necessity when balancing disease prevention with providing top-flight green speeds. Chipco Signature fungicide has shown an ability to improve turf health under stress conditions, and a new label including anthracnose-control recommendations allows for even greater application flexibility.

Whitford CC in Exton, Pa., like many older courses in the mid-Atlantic, had regularly experienced basal-rot problems. Most of the greens at Whitford are comprised predominantly of *Poa*, with percentages ranging from 30 percent to 70 percent. Situated in a valley, these greens are push-up type with little drainage, adding to the basal-rot problem that has appeared as early as February. Kris Givens, superintendent at Whitford CC, tried a number of methods to solve the disease problem.

"We tried organic products, along with ammonium sulfate every two weeks, for basal-rot control," Givens says. "We also tried fungicide treatments. Two greens were also reconstructed to USGA specifications, while drains were installed on four of our worst greens to alleviate standing water."

In field trials conducted last summer at Whitford CC, treatments of Chipco Signature+Daconil were applied, along with a range of other fungicides. The Signature+Daconil applications provided the highest levels of control and turf quality, preventing the appearance of basal rot through July.

"Basal-rot plot testing was conducted in April 2001 on our 13th green," Givens says. "We noticed no basal-rot activity on the plots with Chipco Signature+Daconil. In contrast, anthracnose was severe outside of the Signature + Daconil plots."

Field trials at Whitford CC in Exton, Pa., show a combination of fungicides work best against anthracnose basal rot in the mid-Atlantic region.

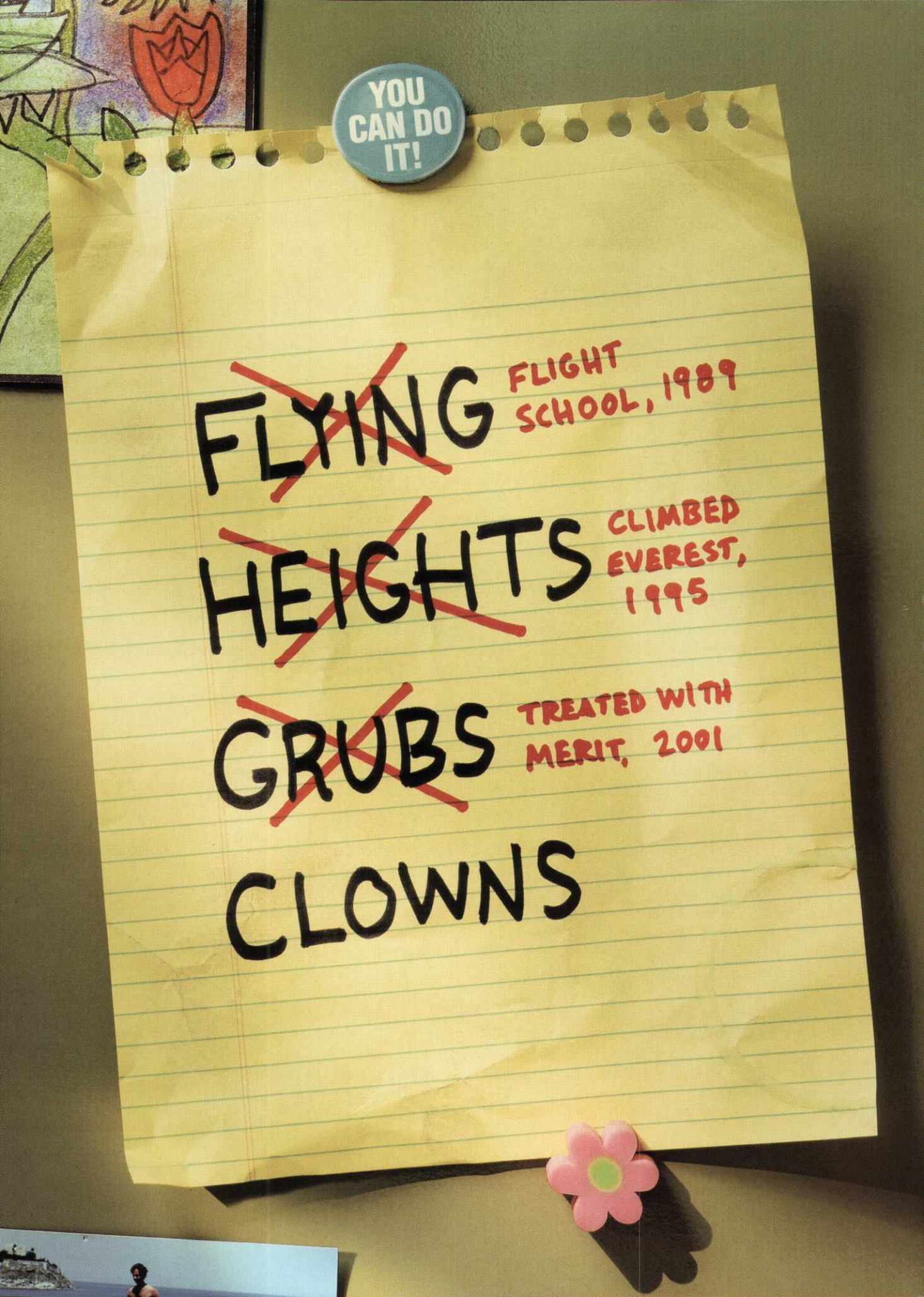
Clarke applied Chipco Signature (4 ounces per 1,000 square feet) both alone and in combination with a number of products. "The Signature applications worked well through mid-August, but then experienced a drop-off," Clarke says. "However, a combination with Daconil Ultrex (3.2 ounces per 1,000 square feet) achieved higher control levels. While both the Signature and Daconil treatments provided strong anthracnose prevention, the two worked even better in combination."

Overall improvement

"I've used Chipco Signature in trials for a number of years, and each time I see enhanced density and turf quality," Clarke says. "I believe what we're seeing is a combination of both fungicidal activity and an overall improvement in plant health. Anthracnose is a plant health disease, so applying Signature in combination with your anthracnose treatment will certainly increase your control."

Whether using fungicides or cultural practices for basal-rot prevention, maintaining healthy greens is certainly everyone's top priority. It is up to superintendents to choose the best way to maintain that plant health with the resources they have available.

David Spak is a field development representative for Bayer Environmental Science.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CIRCLE NO. 141

Unusual Grasses Need Special Care

By Doug Brede

In past issues of *TurfGrass Trends*, we've looked at oddball, rarely used grasses that have bona fide applications to mowed turf. The grasses we've covered have niche functions for sites where ordinary lawn grasses — bluegrass, bermudagrass and the like — won't persist due to drought, shade, salt and so on. This installment looks at a different function for these unconventional grasses: as ornamental landscape plants.

Ornamental grasses have received a lot of coverage in the landscape and gardening periodicals in recent years. You've undoubtedly viewed vivid photographs of the 300 individual varieties of Miscanthus, fountaingrass and pampasgrass available and read about their care.

Eulalia, fountaingrass and pampasgrass are vegetatively propagated grasses, meaning that shoot cuttings are taken from a mother plant to start new daughter plants. Vegetative grasses are container-grown in nurseries, similar to how herbaceous and woody ornamentals are produced. This tedious process is necessary to perpetuate the interesting colors, textures or variegations of the original.

Seed-grown ornamentals

In this article, however, we're going to look at ornamental grasses that can be sown from seed, minimizing their establishment cost. They can be direct-sown with a drill or broadcast seeder. With specialized grasses, you can sow starter plants in the greenhouse and later transplant them as needed.

Nearly all grasses produce viable seed. (The notable exceptions are a few tropical grasses that are essentially seedless.) Seed produced from variegated or colorful clonal varieties generally do not breed true-to-type. In other words, the offspring do not resemble the mother.

For example, let's say you go down to your local nursery and purchase a potted plant of Heavy Metal switchgrass. Switchgrass is a seed-propagated native grass, and the variety Heavy Metal has interesting steely-blue upright foliage.

In the early fall, you can strip mature seeds from the heads of switchgrass and sow them into greenhouse flats. Each seed, over a period of months, will produce its own ornamental clump of grass. Trouble is, only a percentage of the offspring will possess the interesting metallic appearance of the mother. Most will revert to the look of common switchgrass. Not that that's unattractive, but it won't possess the star power to be the focal point of a flower garden.

The focus of this article, however, is on the ornamental grasses that can be grown successfully from seed. These ornamentals may not have the show-stopping appeal of a mature, clonal mound of dwarf pampasgrass. But they do have attributes the clonals lack: Seeded ornamental grasses can be sown over large expanses, such as outer roughs of golf courses and virtually anywhere foot traffic and upkeep are at a minimum. The cost of obtaining and sowing the seed is usually the smallest part of the establishment process.

Selection

Ornamental grass planting requires a bit more preplanning than normal turfgrass establishment. One reason is the number and diversity of species available. Figure 3 lists ornamental grasses that can be sown from seed. Seeds of most of these grasses are available regularly at reasonable prices. However, seeds of certain highly prized grasses can be expensive. They might need to be obtained from heirloom or native seed sources, where the seed is harvested from the wilds by hand. It's not unheard of to discover prices of $200 per pound being charged for one-of-a-kind seed.

The next obstacle is matching heights and zones. Many of the most attractive ornamental grasses lack winter-hardiness. They persist a year or even two in the north, but they finally succumb to a harsh winter. Therefore, if you're in a Northern location, you'll want to consult

the zone numbers listed in the table (note these zones are *not* the same as U.S. Department of Agriculture zones).

Ornamental grasses are prized for their attractive seedheads. Grass seedstalks are most colorful during their pollination period, generally in the middle of the summer. After pollination, colors fade to a straw brown by autumn. By carefully crafting the species mix, it's possible to have something blooming from May to early September, as swirls of color jump from plant to plant.

Establishment

Whenever I give speeches on ornamental grasses, the No. 1 question I'm asked is: "How do I get the grasses to look 'clumpy?'" The answer to that question is not simple. By their very nature, grasses want to form clumps, but the agronomics of accomplishing this feat are challenging.

One way it can be done is by lowering the seeding rate. Most turfgrass species are sown at rates in excess of 100 pounds per acre. The best seeding rate for ornamental grasses, to achieve the clumpy look, is 10 pounds per acre.

The problem at this seeding rate, as you might have guessed, is, "What grows in the spaces between clumps?" The answer, of course, is weeds.

Eliminating weeds is an annual routine with ornamental grasses. If your grass mix is all cool-season or all warm-season grasses, there are selective preplant herbicides that can be used to thwart weeds from taking over these rather slow-growing ornamentals. I'm not aware of any preplant herbicides that work with mixtures of cool- and warm-season grasses. Broadleaf weeds in ornamental grass areas can be remedied by a once-yearly application of phenoxy herbicide. Perennial grassy weeds are another story.

Volunteer bermudagrass in the South or quackgrass in the North can be the worst enemy of ornamental areas. These noxious grasses must be controlled before planting.

Some seed companies add companion grasses to their ornamental grass mix to help compete against weeds. The idea of a companion or nurse grass is to provide a temporary, fast growing grass to nurse along a slower moving ornamental until it eventually fills the stand.

FIGURE 2

Seed sources of ornamental grasses

- **Arkansas Valley Seed Solutions**
  4625 Colorado Blvd.
  Denver, Colo., 80216
  877-957-3337
  www.seedsolutions.com/seed.cfm
- **Ernst Conservation Seeds**
  9006 Mercer Pike
  Meadville, Pa. 16335
  814-336-2404
  www.ernstseed.com/Pricelist/nativerelclamation.htm
- **Granite Seed**
  1697 West 2100 North
  Lehi, Utah 84043
  801-768-4422
  www.graniteseed.com/species/index.html
- **Jacklin Seed/Simplot**
  W. 5300 Riverbend Ave.
  Post Falls, Idaho 83854
  800-688-7333, ext. 212
  www.jacklin.com
- **S&S Seeds**
  P.O. Box 1275
  Carpinteria, Calif. 93014-1275
  805-684-0436
  www.ssseeds.com/reclamation_mixes.html
- **Seeds Etc.**
  17-92nd St. N.W.
  Marysville, Wash. 98271
  360-659-6889
  www.seedsetc.com/grasses.htm
- **Sharp Bros. Seed Co.**
  202 S. Sycamore
  Healy, Kan. 67850
  620-398-2231
  www.sharpseed.com
- **Sunmark Seeds International**
  845 NW Dunbar Ave. #101
  Troutdale, Ore. 97060
  888-214-7333
  www.sunmarkseeds.com/natgrass.htm
- **The GreenWeb Co.**
  P.O. Box 1657
  Glendale, Calif. 91209
  Fax: 866-557-9736
  www.boldweb.com/greenweb/orngrass.htm

**Note that most of these companies sell in 25-pound quantities or more. Many, but not all, will fill mail orders. A few have convenient online ordering mechanisms on their Web sites.*

In a study at The Ohio State University, researcher Michael Knee (1999) found that "the inclusion of annuals and fast-maturing perennials in mixes [with ornamental grasses] makes them attractive in the early stages of establishment, but may add to the competitive pressure on slower-growing perennials. Grasses seem to be particularly vulnerable to competition early in establishment. Mixtures based on short grasses seem to be particularly difficult to establish, and it appears to be more important to match the species to the moisture status of the site."

In other words, you may be better off in the long run without the companion.

Ornamental grasses can be sown using conventional planting tools, such as drills, drop spreaders or spinners. Grasses with large awns or very cottony seed are best planted through a hydroseeder. Bear in mind that if you sow them in straight lines, these grasses will emerge and grow in straight lines, which is not the look of grasses in the wilds. It may take a little coaxing to get your tractor driver to curve and meander to get the natural look you desire.

FIG. 3

Ornamental grasses that can be grown from seed

See footnote for seed cost and zone information.

Grass	Height (feet)	Seed cost*	Bloom month	Zone*	Cool-/Warm-season grass	Remarks
Very tall grasses						
Eastern gamagrass *Tripsacum dactyloides*	7	2	7	3,4,5	W	Widespread grass of the American tallgrass prairie. Wide cornlike leaves. An interesting, persistent background grass for ornamental plantings.
Mammoth wildrye *Leymus racemosus*	6	2	8	1,3,6	C	Useful for stabilization of dunes, rocky slopes. Spreading rhizomes may be invasive into other plantings. Produces variable plant forms from seed. Blue-gray, 1.5-cm-wide leaves.
Beardless wildrye *Leymus triticoides*	6	2	7	1,2,3, 6	C	A tall, background grass that prefers moist sites. Brown to gray winter color. Bearded wildrye is considered a variant of this species.
Basin wildrye *Leymus cinereus*	6	2	7	1,2,6	C	Attractive ornamental grass with a distinctive blue color. Drought tolerant, good soil binder.
Prairie cordgrass *Spartina pectinata Link*	6	4	7	1,2,3, 4,6	W	Shiny saw-edged leaves with yellow edges. Grows through thick, scaly rootstocks with dense, wide, rough-edged basal foliage. Interesting seed spikes made up of 40 paired spikelets on one side of spike with bristly awns.
Tall grasses						
Tall wheatgrass *Thinopyrum ponticum (Podp.)*	5	1	7	1,6	C	Tall, coarse prairiegrass, useful as a natural windbreak or snow fence. Strongly blue colored under alkali or drought stress. Remains green six weeks longer into summer than other wheatgrasses. Provides excellent nesting and cover for birds.
Switchgrass *Panicum virgatum L.*	5	2	8	1,3,4, 5	W	Classic prairiegrass useful for recreating a tallgrass prairie appearance. Feathery green to pink flowers. Grows primarily in clumps, often with reddish-purple bases.
Indiangrass *Sorghastrum nutans (L.)*	5	2	8	1,3,4, 5	W	Beautiful ornamental prairiegrass with rather undistinguished foliage, but showy, medium-sized white plumes. Medium spring green-up rate. Relatively slow establishment.
Big bluestem *Andropogon gerardi*	5	2	8	1,3,4, 5	W	Classic, tall prairie grass. Purple and yellow seedheads. Bluish green stems that turn purple in winter.
Russian wildrye *Psathyrostachys juncea*	4	2	6	1,2,6	C	Striking, bushy ornamental rangegrass. Drought, elevation tolerant. Some shade tolerance. Slow to establish.
Canada wildrye *Elymus canadensis L.*	4	3	7	1,2,3, 6	C	A useful grass for soil stabilization under adverse conditions. Widely adapted to a range of soils. Quick establishment. Attractive arching foliage.
Bluebunch wheatgrass *Pseudoroegneria spicata ssp. spicata*	4	2	7	1,2,3	C	Tolerates slopes, elevation and poor soil. Does well on coarse-textured soils or deep well-drained loams. Weakened by constant mowing, particularly when flowering.
Smilo grass *Piptatherum miliaceum (L.)*	4	2	5	2,3,4	C	Stout, vigorous, erect grass with a decumbent base. Adapted to a Mediterranean climate, where it may naturalize and escape. Greens up in spring when moisture is available and goes dormant in dry summers and cold winters.
Prairie sandreed *Calamovilfa longifolia*	4	2	8	1,2,3, 6	W	Adapted for dune stabilization. Coarse, woody. Slow seedling establishment. Greens up in late spring and stays green until frost.
Bluejoint reedgrass *Calamagrostis canadensis*	4	3	7	1,2,3, 6	C	Silver-green showy seedheads persist into early autumn as a golden brown. Resembles redtop. Forms large patches in temperate bogs. Cold tolerant to Arctic Circle.
Needle and thread *Stipa comata*	4	3	7	1,3,4, 6	C	Rangegrass species with curious tan seedheads have long, tangled, sharp spikes that can scratch. Huge awns (seed whiskers) up to 4 inches.
Reed canarygrass *Phalaris arundinacea L.*	4	2	5	1,2,3, 4,6	C	Tough, vigorous, pond-edge grass, tolerant of periodically wet soil. Vegetative cultivars Picta and Feesey are variegated.
Yellow bluestem *Bothriochloa ischaemum*	4	2	7	3,4,5	W	Yellow bluestem derives its names from its blue foliage and yellow heads. Vigorous prairiegrass. Two botanical varieties exist: ischaemum and songarica, of which King Ranch belongs to the latter.
Little bluestem *Schizachyrium scoparium*	4	2	8	1,3,4, 5	W	Classic rangegrass of the shortgrass prairie. Blue-green foliage, turning red/orange/purple in autumn to red by winter. Retains leaves and color through winter. Tufted, leafy, greenish white stems. Fluffy, zigzag seedheads ripen in late fall to buff color.
Caucasian bluestem *Bothriochloa caucasica*	4	2	7	1,3,4	W	Strongly pink to purplish seedheads. Useful in prairie mixtures. Good heat and drought tolerance. Seed quality is a problem. Seedlots typically have less than 30% pure live seed.
Foul bluegrass *Poa palustris L.*	4	2	6	1,2	C	Heads are yellowish-green to purple, turning golden brown at maturity. Short-lived perennial bluegrass, similar to *P. trivialis*. Valuable for wetlands.

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FIGURE 3 CONTINUED

Ornamental grasses that can be grown from seed

See footnote for seed cost and zone information.

Grass	Height (feet)	Seed cost*	Bloom month	Zone*	Cool-/Warm-season grass	Remarks
Medium grasses						
Virginia wildrye *Elymus virginicus L.*	3	3	7	1,2,3, 4,6	C	Attractive ornamental grass useful in far roughs of golf courses in most areas of the world. Colorful winter foliage, dark green summer foliage. Erect stems and limp leaves turn an interesting brown. Plants are extremely variable in form, from light to dark green, from fine to coarse and stemmy.
Blue wildrye *Elymus glaucus*	3	3	6	1,2,3, 6	C	Aggressive, invasive, short-lived perennial. Attractive blue color. Plants go dormant in the summer in dry climates. Hardy to 5,000 feet elevation.
Altai wildrye *Leymus angustus*	3	2	7	1,2,6	C	Leaves stay erect, protruding through snow in winter with fairly attractive seed spikes. Seedlings are slow to establish. Low seed yields make for an irregular supply.
Timothy *Phleum pratense L.*	3	1	7	1,2,3, 6	C	Vigorous foragegrass with interesting purplish green, bottlebrush seedheads. Produces fewer, smaller heads in hot climates.
Redtop *Agrostis gigantea*	3	2	7	1,2,3, 6	C	Flowers are a brilliant red-purple, turning slowly to a white-tan. Fast germination, tolerates heavy metals, low pH, shade, poor soils and clay.
Purple needlegrass *Stipa pulchra*	3	3	6	3,4,5	C	Immense, drooping whiskers on panicles. Effective for ground cover or erosion control. Vegetative propagation is difficult and seed is expensive. Drought tolerant, coastal, Mediterranean grass.
Natal grass *Rhynchelytrum repens*	3	3	7	4,5	W	Valuable ornamental grass with showy, attractive pink, fluffy seedheads with reddish, long, silky hairs. Short-lived perennial. Naturally invasive in mild climates and may escape cultivation.
Fowl manna grass *Glyceria striata (Lam.)*	3	3	6	1,2,3, 4,6	C	Interesting purplish seed spikes. Has smaller flower clusters than other Glycerias. Tolerates standing water. Useful in streambank erosion control.
Weeping lovegrass *Eragrostis curvula*	3	2	7	3,4,5	W	Weeping lovegrass has become the gold standard of cascading grasses on slopes, and if anything, has been overused for that purpose. Medium-green, fine-bladed foliage, turning light to dark green by autumn. Retains slender seedless stalks into early winter.
Short grasses						
Sand lovegrass *Eragrostis trichodes*	3	2	6	3,4	W	Wispy pink seedheads. Drought hardy and persistent, it is pH tolerant down to 4. Will tolerate moist, sandy soils.
Boer lovegrass *Eragrostis curvula var. conferta Stapf*	3	2	5	4,5	W	More drought tolerant than weeping lovegrass but lacks cold tolerance. Develops chlorosis on alkaline soils.
Kangaroo grass *Themeda triandra*	3	3	5	3,4,5	W	Light green bunchgrass with reddish-brown tinge on older leaves. Responds well to fertilizer, but may be outcompeted by weeds. Some seed available from Australia.
Western fescue *Festuca occidentalis*	3	3	6	1,2,3, 6	C	Short, tufted, dryland grass. Drooping panicles have long, slender, showy whiskers. Looks similar to hard fescue. Best at low to mid-elevations.
Prairie dropseed *Sporobolus heterolepis* (A. Gray)	3	4	9	1,2,3, 6	W	Tufted, erect, slender rangegrass with gold fall color turning creamy brown by winter. Fairly slow growing. Fine-textured, arching leaves. Useful on arid prairie sites.
Deer tongue grass *Dichanthelium clandestrinum (L.)*	3	3	7	1,2,3, 4	W	Curious-looking, broad-bladed, soil-stabilizing grass. Seedhead is a small, panicle that rapidly fades. Unique, ornamental, spade-shaped blades borne on brownish purple, extremely hairy stems. Suffers in hot, dry climates.
Plains bristlegrass *Setaria macrostachya*	3	2	5	3,4,5	W	Adapted to drier sites and higher elevation. Seed is valuable for attracting birds and other wildlife to naturalized areas. Greens up in mid to late spring.
Blowout grass *Redfieldia flexuosa*	3	3	7	1,3	C	Flowers well into autumn. Stems erect, coarse, tough, hairless. Large open panicle bloom. Sand-stabilizing grass; grows in colonies primarily in the short-grass prairie region.
Silver beardgrass *Bothriochloa saccharoides*	3	3	7	3,4,5	W	Attractive, white puffy seedheads. Smooth, blue-green foliage. A dual turf and ornamental grass. Can escape cultivation and become a weed, particularly in bermudagrass turf. Begins growing in spring when temperature reaches 75 degrees F. Flowers emerge three to four weeks later.
Western wheatgrass *Pascopyrum smithii (Rydb.)*	2	2	7	1,2,3, 6	C	Sluggish germination from seed dormancy problems, requiring 2 to 3 years to form a full stand. Green in winter. Wildlife graze on seedheads.
Streambank wheatgrass *Elymus lanceolatus Gould ssp. lanceolatus*	2	2	6	1,2,3, 6	C	A drought-tolerant, low-growing, range species that looks similar to Western wheatgrass but is more drought resistant. Unclipped seedheads attract songbirds. Diseases and frequent mowing may thin stands.
Slender wheatgrass *Elymus trachycaulus (Link)*	2	1	6	1,2,3, 6	C	Short-lived perennial. Performs best the first three to four years. Purplish spiky seedheads. Better suited to moister climates than dry prairies.
Crested wheatgrass *Agropyron cristatum (L.)*	2	1	6	1,6	C	Early spring growth. Rapid, vigorous establishment, ample seed yield and favorable turf characteristics. The species has been shown to dominate low-maintenance stands and biologically suppress noxious weeds.

FIGURE 3 CONTINUED

Ornamental grasses that can be grown from seed

See footnote for seed cost and zone information.

Grass **Short grasses**	Height (feet)	Seed cost*	Bloom month	Zone*	Cool-/Warm-season grass	Remarks
Beardless wheatgrass *Pseudoroegneria spicata (Pursh)*	2	2	7	1,2,4	C	Similar in appearance to slender wheatgrass but more leafy. Tolerant of salinity, alkalinity and drought down to 13 inches of annual rainfall. Doesn't tolerate wet soils.
Big squirreltail *Sitanion jubatum*	2	3	6	1,2,3, 4	C	Taller than bottlebrush squirreltail. Best at lower elevations.
Squirrel's tail grass *Hordeum jubatum L.*	2	3	6	1,2,3, 4,6	C	An interesting ornamental grass with long awned, barley-like seedheads. Short-lived perennial. Can become invasive. Considered a noxious weed by some farmers, as the bristles can pierce animals' tongues. Green to purple flowers. Huge flower spikes are easily damaged by wind and rain.
Red grass *Bothriochloa macra*	2	3	7	3,4,5	W	Ornamental red-purple color to heads and stems. Tolerates zero fertilizer but responds if given more. Seed is produced in Australia.
New Mexico needlegrass *Stipa neomexicana*	2	3	6	4,5	C	Attractive, wispy seedheads with long awns. Very drought tolerant desert grass.
Desert needlegrass *Stipa speciosa*	2	3	5	3,4,5	C	Attractive, hardy desert grass. Survives in arid, mountainous regions. Long-lived.
Columbia needlegrass *Stipa nelsonii*	2	3	6	1,2,3, 4,6	C	Primarily an alpine species with broad low-land adaptation. Attractive seedheads with prominent awns up to 2 inches long. Poor seed germination, but once germinated has good vigor.
Plains lovegrass *Eragrostis intermedia*	2	3	5	4	W	Shorter-growing ornamental for dry, low humidity sites. Tall gray to bronze-tipped spikes, turning reddish in alkaline soils.
Prairie june grass *Koeleria cristata (L.).*	2	3	5	1,2,3, 4,6	C	Widely adapted. Thrives in dry or sandy soils. Early spring green-up. Difficult to establish.
Tufted hairgrass *Deschampsia caespitosa*	2	3	6	1,2,3, 4,6	C	Attractive ornamental grass with a purplish seedhead. Prefers moist soils. Performs poorly in hot climates. Seedheads remain in place well into winter.
Sideoats grama *Bouteloua curtipendula*	2	2	8	1,3,4	W	Less drought-hardy than blue grama but with showier seedheads. Early greenup for a warm-season grass.
Blue grama *Bouteloua gracilis*	2	2	8	1,3,4, 5	W	Produces a stemmy, blue turf. Dormant during dry summers. Long stand life.
Meadow foxtail *Alopecurus pratensis L.*	2	2	7	1,2,3, 6	C	Valuable on wet soils, low pH. Bottlebrush seedheads. Ornamental vegetative cultivars are available.
Idaho fescue *Festuca idahoensis*	2	2	5	1,2,6	C	Very fine textured and useful in mixtures with turf fescues. Slow to establish — may take years to fill.
California fescue *Festuca californica*	2	2	5	4,5	C	Shade tolerant ornamental. Bluish foliage turns purplish to brown after frost. Thrives in dry soil.
Arizona cottontop *Digitaria californica*	2	3	7	5	W	Drought-hardy ornamental grass. Plants are erect, fuzzy and often purplish. Seed set is good. Light, fluffy seed is favored by wildlife.
Meadow barley *Hordeum brachyantherum*	2	3	6	1,2,3, 4,6	C	Fast growing, short-lived perennial. Wide adaptation.
Wallaby grass *Danthonia semiannularis*	1	3	7	3,4,5	C	Pale straw-brown bristly seedheads and stems. Fine leaves with light gray color. Classic low maintenance grass of Australia.
Bottlebrush squirreltail *Elymus elymoides*	1	3	6	1,2,3, 6	C	May flower twice a year if moisture is favorable. Seed spikes resemble bottlebrushes, as its name implies. Tolerant of drought and shallow soil. Short-growing, short-lived plants. Greens up early in spring.
Crested hair grass *Koeleria macrantha*	1	3	5	1,2,3	C	Widely distributed in nature but best suited to Zone 2. Adapted from roadsides to golf fairways.
Sheep fescue *Festuca ovina L.*	1	2	5	1,2,3, 4	C	The seeded version of the Elija Blue ornamental cultivar. Tolerant of poor, sandy soils.
Red brome *Bromus rubens L.*	1	2	4	1,2,3, 4	C	Seedheads have interesting, long whiskers up to 1 inch long with a reddish-purple cast.
Upland bluegrass *Poa glauca Vahl ssp. glaucantha*	1	3	7	1,6	C	Tufted, wiry grass with dark blue-green blades, sometimes with a strong whitish cast. May exhibit summer dormancy in drier climates.
Idaho bentgrass *Agrostis idahoensis Nash.*	1	2	7	1,2,3, 4,6	C	U.S. native bentgrass found in nature along the Rocky Mountains from New Mexico to Fairbanks, Alaska. Vivid purple seedheads in August. Slender and low-growing. GolfStar variety tolerates mowing.

* Seed cost: 1=under $1, 2=$1 to $5, 3=$5 to $20, 4=More than $20 (per pound). Note that seed price and availability of these grasses fluctuate widely from year to year, especially in high fire years such as this.

* Adaptation zones:

Zone 1 = Southern Canada and the states not mentioned below.

Zone 2 = West coast of Washington and Oregon, and the east coast of New England.

Zone 3 = Virginia, West Virginia, Kentucky, Missouri, Kansas, the southern parts of New Jersey, Illinois and Utah.

Zone 4 = The Carolinas, Tennessee, Arkansas and the northern halves of Texas and New Mexico.

Zone 5 = Florida, Southern California, Arizona and along the Gulf Coast.

Zone 6 = Central and Northern Canada and the U.S. Rocky Mountains.

Aftercare

Maintaining that "clumpy appearance" over the long haul is one of the challenges of ornamental grasses. Most turf managers, when they see something going awry, want to apply something to make it better. With ornamental grasses, that's the wrong thing to do.

Ornamental grass areas are at their best when they are fertilized lightly and infrequently (only once yearly, generally in the spring) and watered infrequently or not at all. The easiest way to fail with ornamental grass is to manage it like regular turf, with pop-up sprinklers and monthly fertilizer. The resulting plants will lose their clumps and develop into a hayfield. Infertile soil and minimal fertilizer encourages clumping while discouraging weed competitiveness.

Last, but not least, ornamental grasses require a yearly rejuvenation treatment. Ideally, grasses prefer to be burned. Burning eliminates straw, duff and weeds, but burning can be hazardous in residential areas.

In lieu of burning, you can mow ornamental grasses right before or as the new season's growth begins to appear. Cutting grasses back in late winter allows you to enjoy the winter foliage. Grasses can also be mowed or burned in late fall if winter appearance is unimportant. Be sure to remove clippings to prevent them from smothering the plants. A pass with a powerful leaf vacuum is recommended.

In mild climates, warm-season grasses such as kangaroo grass can be sheared in September to force new growth for the fall. This sacrifices the flowers, but the fall foliage that recovers is particularly showy. Warm-season grasses should be mowed to within inches of the ground. Cool-season ornamental grasses are best mowed to half their mature size, no lower than about 6 inches.

Brede is a turf breeder at Jacklin Seed/Simplot and author of Turfgrass Maintenance Reduction Handbook.

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TURFGRASS TRENDS

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"The collected data indicate that those who were sick were significantly more likely to have consumed water from the course's jugs than did those who were not sick," said Dr. Jonathan Weisbuch, director of the Maricopa County Department of Public Health.

Weisbuch noted there were no reports of illness traced back to the course after July 23, when his department changed the water-handling procedures. The golf course's "water-handling, ice-handling and hand-washing practices were substandard" before July 23, Weisbuch said.

David Ludwig, manager of the county's public health division, said the course's employees were not handling the ice and water safely. An unidentified golf course employee who was assigned to dispense the water into plastic jugs also had the virus. Ludwig said it is a "chicken or egg" issue as to whether the course employee spread the virus after getting it from an outside source or if he contracted it while at Thunderbirds.

The drinking water had been prepared in the maintenance facility when it should have been dispensed from the foodservice facility, Ludwig said. "[The course] had a new snack bar where [employees] could have handled the water properly," he added. Also, a reverse osmosis device that removes chlorine to present a spring water-like taste had been attached to the water supply, and the lack of chlorine may have allowed the pathogen to survive, Ludwig noted.

As investigators examined water-handling practices at 160 other area courses, they discovered that 101 failed to meet proper sanitation standards. "Some were worse than others," said Ludwig, who also reported that some operations "were severely challenged" in the way they prepared golfers' drinking water. The county has since produced official standards governing all beverage handling at golf courses. (They can be viewed online at *www.maricopa.gov/envsvc/ENVHLTH/SPPRGM/safepermit.asp.)*

Ludwig said several courses placed public drinking jugs within the watering patterns of irrigation systems that were spraying effluent water. He said containers at some courses weren't cleaned for up to a month, and some operations were using the same garden hose to mix pesticides and prepare drinking water.

At one course, Ludwig said he saw an ice machine in a maintenance facility that had herbicides stored to its right and insecticides stored to its left, while a garden hose lay dripping on the floor. It seemed obvious the hose was used to prepare chemicals and also fill the drinking jugs.

Ludwig said drinking water should come from a separate supply, and a three-compartment restaurant-type sink should be used to clean the drinking containers and nozzles. He said irrigation water should not come in contact with drinking water, and ice consumed by people should not be touched by human hands. Also, ice machines should not be located inside maintenance facilities. Instead, they should be in foodservice-quality structures.

Either bottled water should be served or the dispensers should be secured under lock and key to prevent golfers from accessing the ice, Ludwig added. "The ice is only as good as the golfers' hands that were in there before."

Thunderbirds' officials declined comment, citing repercussions over the ongoing investigation. But local media accounts noted that tee times at the facility were suffering in August. A negative impact was also felt at Raven until the course was officially cleared in Beeman's death.

These are some of the golf course water and ice-handling procedures being enacted by Maricopa County. They also apply to baseball facilities and other athletic sites:

- The spigot shall be of a gravity-flow design to prevent contamination during use.
- Dispensers shall be cleaned and sanitized at least once every 24 hours (in a food-grade, three-compartment sink).
- Cleaning and sanitizing a dispenser nozzle prior to filling containers is required.
- Containers shall not be (placed or stored) on the floor at any time.
- Garden hoses are not approved for water dispersal. Plumbing codes must be met.
- Food-grade hoses are to be used only for drinking water, not for use on other equipment or tasks.
- Ice must be dispensed with an ice scoop without coming in direct human contact.
- Hands must not come into contact with drink/cooling ice at any time.
- Water dispensers must be placed in a tamper-proof setting to eliminate access to the ice or contents of the dispenser by removing the top cover.
- Service cups must be provided and protected at the dispenser. ■

A COMMON SCENARIO WAS USING A GARDEN HOSE TO BOTH MIX CHEMICALS AND FILL DRINKING JUGS.

Guyette is a free-lance writer from Cleveland.

It's *Not* Your Course After All

BY JOEL JACKSON

Superintendent-owners are few and far between, and they are the only superintendents legitimately entitled to say, "It's my golf course." Any other superintendent who thinks of a course being his or her own is suffering from a common delusion that can prove costly in terms of mental health and continued employment.

I'm sorry to have to be the one to tell you, but it's not your golf course. It never was and never will be. All you own is the thankless responsibility of maintaining the course against all natural and manmade pressures that come with the complex piece of real estate you tend.

I know it's easy for you to feel as if you own the course, especially when you may have taken that chunk of land from being an underdeveloped tomato field to a newly minted tournament site. Maybe you lovingly planted hundreds of saplings that are now towering trees framing the golf holes, or perhaps you helped restore a Donald Ross masterpiece to its former glory. It may be true that without you, the course wouldn't look nearly as good as it does.

You reshaped the land with your blood, sweat and tears. You have left a mark on the landscape, and it's soul-satisfying. But you must keep one essential fact in mind: The excellent condition of the course may be your achievement, but it's not your golf course. It belongs to those who pay the bills.

You want proof? Check out the GCSAA's "On the Move" section, which is filled with the names of superintendents evicted from "their" golf courses.

That may be a cold-hearted observation in a profession where the quest for perfect playing conditions often drives superintendents to unbelievable heights of creativity. You find solutions to every challenge visited upon you, often in the face of forces outside your control.

I won't denigrate the effort that superintendents put into the courses they manage by saying, "It's just a job." But superintendents might endure less stress if they can maintain healthy perspectives about their relationships with courses.

YOU RESHAPED THE LAND WITH YOUR BLOOD SWEAT AND TEARS, BUT THE GOLF COURSE BELONGS TO THOSE WHO PAY THE BILLS

It can be very stressful for a superintendent to have to choose between waging an agronomic war with overstressed turfgrass or waging a political war with club owners who don't understand that tournament golf conditions can't be sustained indefinitely.

Turf management is a special vocation, but it isn't a life or death issue unless you happen to be a putting green mowed unhealthily low to meet your club manager's idiotic demand for greens that roll 10 on the Stimpmeter every day without exception. That's an example of arrogance meeting agronomy head-on. Unfortunately, the winner of that argument is not always the superintendent, despite his background in agronomy. The ultimate losers are usually the golfers who now putt on dirt because the turf dies a horrible death.

Veteran superintendents are often so canonized and revered that when new management takes over, it may feel like it's playing second fiddle to the incumbent legend of the links. The worst thing a veteran superintendent can do then is to project the notion that it's "his" or "her" golf course. The survivors of this constant battle know when to be humble and diplomatic.

Innovative golf course architect Pete Dye once said the three most important things in golf course design were "drainage, drainage and drainage." When it comes to course maintenance, the three most important things are communication, communication and communication.

That's the best you can do in the face of unreasonable demands. Your bosses won't always listen or comply, but they don't have to. After all, it's *their* golf course.

Joel Jackson, CGCS, retired from Disney's golf division in 1997 and is director of communications for the Florida GCSA.


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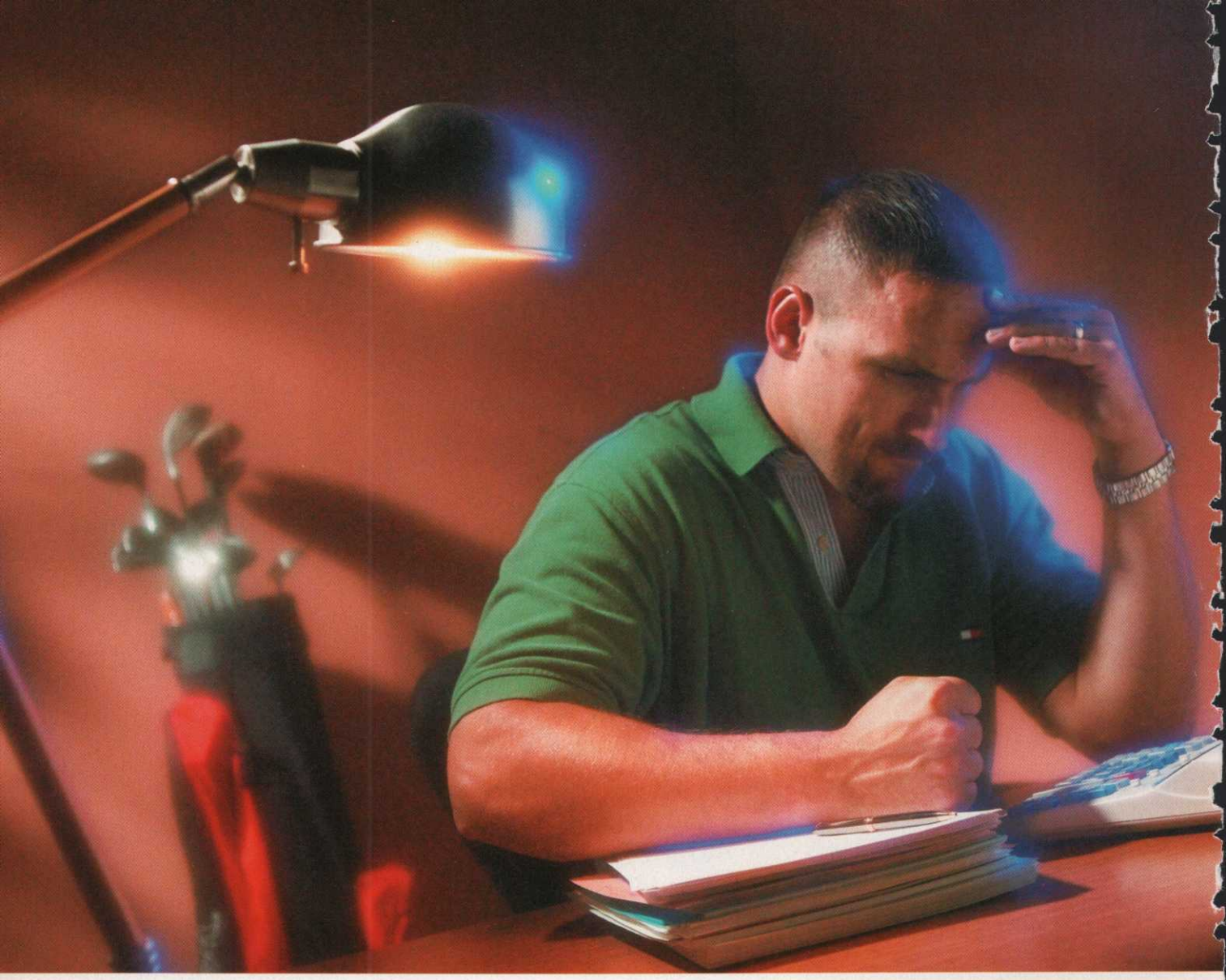

Stress is a major cause of substance abuse, and superintendents face more job-related pressures than ever before.

So how are you Coping?