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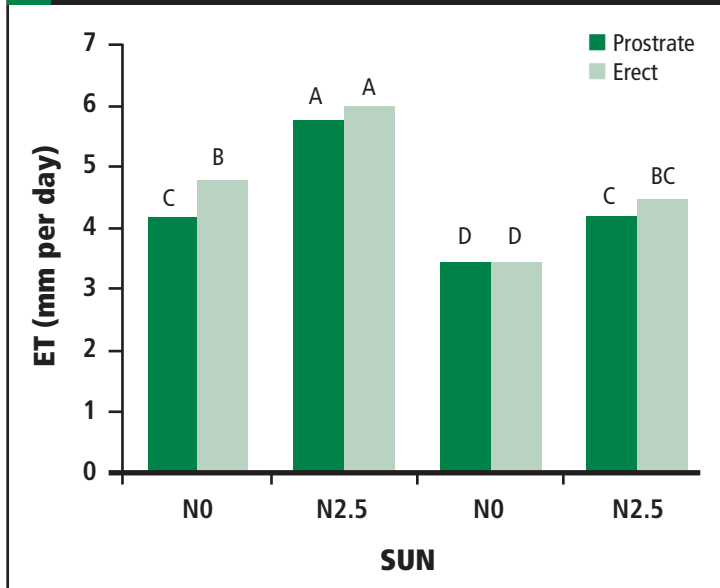
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FIGURE 2



Daily ET rates for erect (red) and prostrate (blue) growing zoysiagrass cultivars in sun and about 50 percent shade with nitrogen treatments 0 (N0 and N2.5) grams per square meter in early July in Gainesville, Fla. Bars with the same letter do not differ significantly.

Continued from page 50 native fine sand was added to 24-inch long by 6-inch diameter PVC pots. Two coarse textured zoysiagrass cultivars were selected for erect and prostrate growth habit (Figure 1).

Empire zoysiagrass was selected for its prostrate leaf growth habit (mean leaf inclination of 17 degrees), while experimental TAES 5343-22 from the UF Turf Breeding Program in collaboration with Texas A&M was selected for its erect leaf growth habit (mean leaf inclination of 37 degrees). The field plugs were transplanted into the experimental pots in early April 2009, and were allowed to establish outside for three months before the experiment began.

Half of the pots became established under full natural sunlight, while half were under shade of about 50-percent full sunlight. Nitrogen treatments were 0 and 2.5 grams per square meter initiated three days before collection of water-use data in early July. PVC pots were weighed at sunrise and sunset of each day to measure water-use rates. After seven days of data collection, pots were harvested and turf growth and leaf area were measured. Each treatment was replicated three times.

Across the range of treatments, daily ET rates varied almost two-fold, averaging between 0.14 (3.5 millimeter) and 0.24

(6 mm) inches per day (Figure 2).

Nitrogen fertilization increased daily ET rates between 20 percent and 38 percent among all treatments. Similarly, turf growing in full sunlight also showed greater water-use rates compared to plants growing in the shade. The erect cultivar was associated with greater ET rates, but the effect of orientation differed with nitrogen fertilization and light environment. In full sun, the prostrate cultivar used less water but this effect appeared to diminish with increased N fertilization. In the shade, the prostrate cultivar used less water with increased N fertilization.

Water use was generally related with the amount of leaf area per pot and changes in leaf area per unit leaf weight. Thus, reduced water use by the prostrate cultivar was associated with reduced leaf-area density and leaf growth.

The take-home message from this study for turfgrass management is that we can achieve our goal of reduced water use through integrated approaches that include both cultivar selection and fertility management. I found that prostrate growth was associated with reduced water-use rates, but that the effects of prostrate growth on water use depended on N fertilization and light environment.

For superintendents looking to reduce water use, selection of a prostrate-growing cultivar coupled with a relatively low N fertilization has the potential to substantially reduce water use (about 30 percent in the present study). But keep in mind this also was associated with reduced turf growth.

Ongoing research will look at the effects of these factors on growth and quality as well as other factors that may influence water use.

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Accessory City

Check out what companies are offering to help you spruce up and manage the golf course

There are several new accessories on the market, from items to dress up the course to tools that superintendents and their crews can use to make their jobs easier. *Golfdom* checked in with accessory manufacturers recently and asked them what they had cooking on the new-product front in addition to their tried-and-true products. We learned one thing — it's never a dull segment.

For instance, at the Golf Industry Show in February, the Standard Golf booth was buzzing with interest in the **E-ZEE White Hole Whitener** ① system, which Standard Golf says makes painting the 1-inch area above the golf cup quicker and easier.

The patented E-ZEE White Hole Whitener tool comes in one complete piece with no assembly required. The design has a built-in shield that protects the cup and the green from overspray. By inserting a can of E-ZEE White Hole Whitener paint into the tool, paint is applied by simply rotating the can. The E-ZEE White paint can requires no purging between uses and the paint is specially formulated for maximum whiteness on a dirt surface.

The E-ZEE White Hole Whitener tool retails for \$59. Six 15-ounce cans of E-ZEE White spray paint also retails for \$59. Standard Golf is offering an E-ZEE White Hole Whitener starter kit, which includes the tool and six 15-ounce cans of paint for a retail price of \$99.

Eagle One Golf Products offers the **Exelys BreakMaster Digital Green Readers** ②, which aids golf course superintendents in setting up hole locations on the green. The BreakMaster is a precision electronic device that accurately locates the downhill direction (or fall line) of the green, measures the precise angle of slope (from 0.0 to 9.9 degrees) and provides a full readout on its LCD display. It's a vital tool in helping to determine critical slope, marginal slope and recommended slope as well as hole positions for tournaments and daily play. The BreakMaster is compact and can measure green slope in all directions.

While Reliable Golf Course Supplies has had its **Tee Sentry blind drive wait/go indicator** ③ in its product line for several years, it's now offering the product in a new design and look that's a solid fit for the 21st century.

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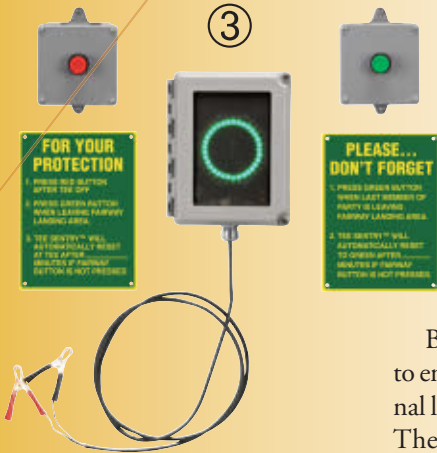
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The new Tee Sentry takes advantage of LED technology that increases visibility and eliminates all moving parts. It has combined electronics and visual devices in one compact circuit board at a lower cost.

New and more-efficient wireless technology also allows the Tee Sentry to be used, not only in blind shot applications, but any place a wait/go signal is needed, the company says. Custom designs are also available.

Bayco Golf is offering the **Pro Hole Cup**, which is new for 2010. It's designed and finished to exacting standards and features a locking ferrule system.

Bayco also offers its **Internal Speed Wrap Liner** to ensure cups stay white with its white internal liners, eliminating the need for painting. The wraps (supplied flat) can be changed on a weekly basis or for special events. Full-color logos can also be added for corporate events.



Par Aide's newest product is its **360 Hole Painter**

④, which the company says is a simpler and better way to paint holes. It allows you to paint the top 1 inch above the cup bright white using a patent-pending nozzle that sprays 360 degrees all at once. There's no rotating of the can and no shadows left after painting. A shield prevents paint over-spray on the green, and a cup protector keeps the cup clean. The 360 is an easy and cost-effective tool for painting cups.

From Tee to Green offers **AwayWithGeese**, a pond float that effectively eliminates problems of droppings, aggressive behavior and damage brought on by nesting geese, according to the company.

Working on the principle that Canada Geese are generally lazy and like to sleep undisturbed at night, AwayWithGeese is a



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simple, compact and maintenance-free geese deterrent for lakes and ponds. The patented device is a flashing light, charged by photo-cells and automatically activated with a light sensor for nighttime use. This LED light is mounted to an enclosed weatherproof float that is positioned in the center of the afflicted pond or lake. The light flashes once per second at night to discourage the geese from foraging and nesting.

The compact device is harmless to the environment and eco-system of the pond and is visually innocuous, measuring only 15 inches wide and 12 inches above the water line. A land-based unit is also available.

Fairway Stone holds the only patent in the industry on an **installation system for pylon tee signs** ⑤. The company sells pylon, pedestal, slant and in-ground tee signs. It



also sells tee yardage, tee, fairway, and driving range markers.

The company has produced granite tee signs and markers for more than 1,000 golf courses, parks, corporations and communities.

White Metal Golf is offering the **Tidy White Revolution** ⑥, which the company says

is an easy, fast and economical way to turn the soil above the cup bright white. The one-piece design requires no set up and no clean up, and it leaves no drips or over-spray.

White Metal Golf also offers the **BRASS White Metal golf cup**, a patented design featuring a solid brass base. The replaceable polycarbonate crown is pure white, so it never needs to be painted. It's also available in aluminum. ■



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Dumb and Dumber

I learned a valuable lesson while attending this year's Players Championship at TPC Sawgrass in Ponte Vedra Beach, Fla.: Tour professionals have absolutely no clue about what goes into preparing a golf course for a tournament.

I know, I know — the exclusives you read like this in the pages of *Golfdom* can be downright shocking. Many of you are saying right now: Geoff, how can you say that? Golf pros are some of the smartest people on the planet. They make a lot of money batting a ball around and wearing an unusually high number of logos, so they *must* know what they're talking about — especially when the topic is golf course maintenance.

Nope. Listen to this story.

They had a miserable winter in Ponte Vedra Beach. It was cold, nasty and pretty much unprecedented. TPC Sawgrass no longer overseeds, so it can present an all warm-season grass course for the tournament's May date. Problem was, the bermudagrass had 15 weeks of dormancy this year. Normally, there's none.

Online rumors and the occasional viral photo circulated online showing a virtually unrecognizable course. As much as some of us would love to see the TPC return to its original medieval Pete Dye aesthetics — complete with massive pine-scrub areas, rough sandy waste and an overall vital environmental statement from the PGA Tour — this was not the kind of rustic anyone wanted to see.

Golf course superintendent Tom Vlach and TPC course supervisor Clay Breazeale had to rally their crew

PGA TOUR PLAYERS JUST DON'T GET IT WHEN IT COMES TO AGRONOMICS. WHAT HAPPENED AT THE PLAYERS CHAMPIONSHIP IS EVIDENCE OF THAT

BY GEOFF SHACKELFORD



and pull off a maintenance miracle to get the heavily played course ready. With help from PGA Tour agronomists Cal Roth and Paul Vermeulen and a crew of 75, the remedies included everything from black sand, tarping and, most glaring of all, a last-minute resodding of the famous island green 17th that would probably impact one of the tournament's traditional hole locations, not to mention show up on television.

Miraculously, they pulled it off. The course was in sensational condition for the tournament. Most media noted it in preview stories, and the PGA Tour's communications department even offered up Vlach and others beforehand to tell this miracle story. A few articles were written and the tour's Florida residents were well aware of what the TPC faced in preparing for the Players Championship.

While early-week comments were mildly effusive in praise, there were plenty of grumblings about the course being a bit spotty. I, having not seen the course when I first read these comments, was shocked to arrive on Wednesday and find it in immaculate condition.

Some nice rains on Tuesday and Wednesday softened the course, lead-

ing to a scoring onslaught. So players suggested the course be firmer, apparently unaware that rain and high humidity make it difficult to firm up turf.

I know, I know, this is complicated stuff.

But things turned downright hilarious when, after a week of intense mowing and rolling, a forecasted cold front blew through and delivered dryness that finally helped bring the firm Sunday greens everyone wanted. And what did players do Sunday night? They complained!

Most media defended Vlach et. al, but one outlet irresponsibly floated stupid theories about the PGA Tour's intentions or inability to present a more consistent test.

Never have we hit such a low point of professional golfing ignorance. The game has apparently reached a point where the PGA Tour player is so spoiled, so ignorant and so downright dim that the slightest bit of information is out of his reach.

It's a cryin' shame for all of those who work in the golf course maintenance profession.

Follow Shack, *Golfdom's* contributing editor, at www.geoffshackelford.com or via [Twitter.com/GeoffShackelford](https://twitter.com/GeoffShackelford).



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