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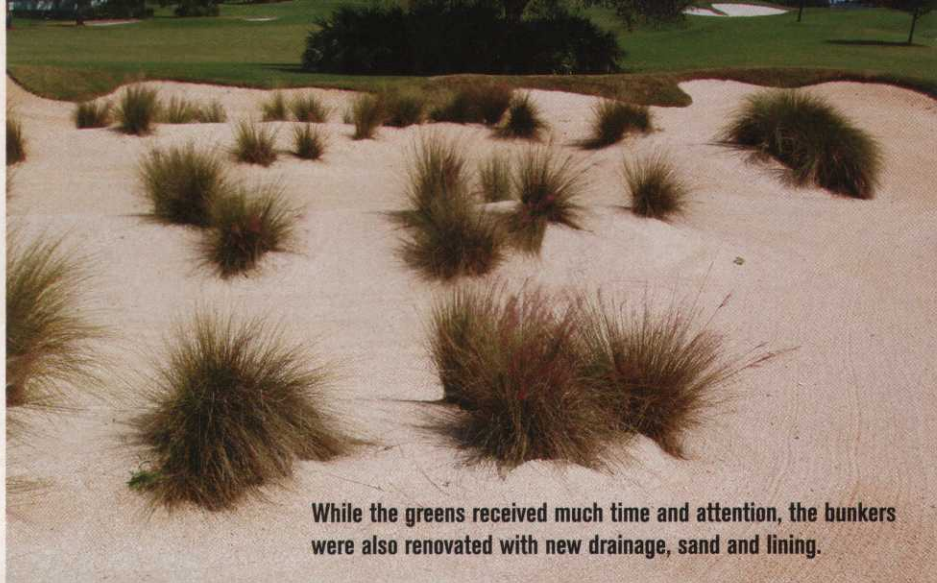
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They champion Champion



While the greens received much time and attention, the bunkers were also renovated with new drainage, sand and lining.

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to haunt some of those superintendents with sick turf, Miller adds.

That's when Champion was introduced.

It's easy to get Champion greens rolling at 10 feet on the Stimpmeter, Miller says. And 12 and 13 feet are never out of reach. "That was unheard of 10 years ago," he adds.

Champion also displays excellent disease tolerance, despite heavy traffic and low mowing heights, Miller says. That said, Taylor says the maintenance crew is careful when it manages Champion, which when injured will take longer to recover. Hence, verticutting and grooming practices are light during the hot summer months.

Keeping Up With the Competition

The greens are as smooth as LeBron James sailing through the air on his way to the hoop. The bunkers are as handsome as Leonardo DiCaprio in a tuxedo.

The PGA Golf Club's Wanamaker and Ryder golf courses look like they just received an expensive makeover. They should, because they're fresh off a multi-million-dollar renovation. The courses, known as the North and South before the renovation, reopened last fall with new names after being closed for six months.

The PGA Golf Club, located in Port St. Lucie, Fla., debuted 11 years ago. It is the only public PGA facility in the country. When it opened, the PGA's goal was to provide a world-class golfing experience. Ten years later, the PGA decided it wanted to take that experience to another level. Last May, while celebrating the club's 10th anniversary, the PGA brass announced plans for the renovation, which was headed by Tom Fazio's design team, the courses' original architects.

"Our goal has been to keep pace with the changes that are necessary in all golf facilities," says Brian Whitcomb, vice president of the PGA of America.

Ten years might not seem like a long time, but it is in the ever-changing, got-to-stay-up-to-date golf business. Rounds might be flat across the country, but competition is at a premium, and golf courses are still battling for wallet share. And South Florida is a very aggressive and very competitive market from a standpoint of new development.

One of the renovation's goals was to provide a facility that's enjoyable for all golfing skill sets because it's open to the public, but to retain its championship characteristics for the talented PGA members who play the club and for other top-caliber players who play in the club's national tournaments.

— Larry Aylward

While the greens at the PGA Club received much time and attention as part of the renovation, other course areas weren't overlooked.

The bunkers were a primary component of the renovation. The club has about 250 bunkers on its two courses — almost 350,000 square feet — and many are maintenance intensive because of their high faces. The bunkers would wash out after heavy rains, and it would take up to 10 staff members three or four days to repair them at a cost of almost \$7,000.

The bunkers were completely renovated with new drainage, sand and lining. The bunkers' faces were modified to let less water enter them during storms. Now that the bunkers have been renovated, it takes about five staff members four hours to repair them at a cost of about \$800 after a heavy rain.

The course's drainage was also improved.

"We improved infiltration into all of the catch basins," Miller says, citing organic buildup in the soil as a hindrance to drainage.

Another component of the renovation involves the PGA Golf Club's 10-year deal with Jacobsen to be "The Exclusive Turf Equipment Supplier to PGA Golf Properties" and "The Official Turf Equipment Supplier to the PGA of America." The club's equipment fleet includes fairway mowers, triplex mowers and walking greens mowers. Another reason Jacobsen was selected is because it's a leader in electric technology. Taylor and others believe electric equipment would benefit the maintenance operation in myriad ways, from reducing gas consumption to using quieter equipment.

And by going electric, the new Champion greens will be safe from the threat of hydraulic leaks posed by gas engines. ■

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Employee Time Card

Name: **DAVID B.** Dates: **9-13**

Day	Start	Lunch	End	Jobsite	Activity	Hours
Monday	7	1/2	3:30	Brentwood/Gen		8
Tuesday	7	1/2	3:30	"	"	8
Wednesday	7	1/2	4	"	"	8 1/2
Thursday	7	1/2	4	Crestle	:	8 1/2
Friday	7	1/2	4	"	"	8 1/2

Employee Signature: *David B.* Total Hours: **41 1/2**

WHEN YOU CAN HAVE THIS.

Employee Report

Burns, David Date Range: 4/9/2007 through 4/13/2007

Day	Date	Jobsite	Start	Stop	Cost Code	Hours	Total
Mon	4/9	Brentwood 1	7:08 AM	12:05 PM	Placing The Pin	4:57	
			12:41 PM	3:22 PM	Bunker	2:41	7:38 hours
Tue	4/10	Brentwood 1	7:12 AM	12:07 PM	Placing The Pin	4:55	
			12:43 PM	3:23 PM	Mowing	2:40	7:35 hours
Wed	4/11	Brentwood 1	7:12 AM	12:02 PM	Placing The Pin	4:50	
			12:46 PM	3:49 PM	Bunker	3:03	7:53 hours
Thu	4/12	Brentwood 2	7:17 AM	12:19 PM	Placing The Pin	5:02	
			12:50 PM	3:46 PM	Bunker	2:56	7:58 hours
Fri	4/13	Brentwood 2	7:13 AM	12:07 PM	Placing The Pin	4:54	
			12:44 PM	3:39 PM	Mowing	2:55	7:49 hours
Total						38:53 hours	

Signature: *David B.* Burns, David

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The Bridges at Santa Fe features G6 putting greens.

Tried and True

Newer bentgrass varieties boast lower inputs than older types

BY DAVID FRABOTTA, SENIOR EDITOR

Speculation that newer bentgrasses could require more intense maintenance practices might have slowed early adoption, but those who ventured into the A and G varieties appear pleased with their performance, and so are their members.

"They're a lot easier to maintain than people would have you believe," seasoned superintendent Mike Hathaway says about his G6 putting greens at The Bridges at Santa Fe in California.

The As and Gs emerged through natural selection on Augusta, Ga., golf courses. (Many speculate they came from the par-3 course at Augusta National, hence their names, A for Augusta and G for Georgia.) They've evolved presumably from Penncross, the 62-year-old variety that spawned many new cultivars and is still the most widely used bentgrass today. The specific details on where and how they came to exist are trade secrets.

But there's no secrecy surrounding their development. Dr. Joe Duich of the Pennsylvania State Turfgrass Research Center and

breeding program collected samples and brought them back to his experimental putting green in University Park, Pa. Once he tested them there, he conducted field tests at Pinehurst Golf Club (which eventually selected G2 on all its courses) and the cultivars became commercially available to superintendents in 1997, a full 10 years after Duich began gathering samples from around Augusta, says Bill Rose, president of Tee-2-Green, which markets and distributes the Penn As and Penn Gs.

Today, hundreds of courses don A and G varieties, which were ultimately selected from trials for their canopy density, color, disease resistance, heat tolerance, upright growth and tolerance to low mowing heights.

"There is no doubt that the new bentgrasses, with the density of the turf and the ability to mow them lower, has brought a higher quality to putting surfaces," says Steve Merkel, agronomy manager for Landscapes Unlimited.

Some of the maintenance hallmarks for the As and Gs include lower fertility requirements, less-frequent irrigation and lower overall water

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At Syngenta we understand why some golfers spend their entire lives—or maybe even longer—looking to play a course with pristine conditions.



Tried and True

Equipment advances supplement traditional cultural practices to help control thatch.



Continued from page 34

consumption. Many superintendents also cite fewer disease problems, partly due to better disease resistance compared to older bentgrasses and partly due to maintenance practices.

Cultural practices, mainly topdressing and aerification, haven't posed the challenge that skeptics thought they would, either. For the most part, managing organic matter is similar to older bents despite the denser canopy of

the As and Gs. And some of the early problems reported in these varieties likely stemmed from cultural practices held over from the older bents.

"The perception used to be that they were high maintenance, but all the problems people were having were being created by what they were doing," says Chris Gray, director of golf course operations at The Marvel Golf Club at Kentucky Lake.

Foliar feeding

As many in the turf maintenance industry continue to debate benefits of granular or root feeding versus liquid feeding, most A and G turf managers gravitate toward spoon-feeding foliar nutrients.

Denser canopies, lower mowing heights and desires to maintain consistent growth all contribute to the liquid feeding frenzy, says Cale Bigelow, Ph.D., a professor with Purdue University.

"It all comes back to trying to manage those growth flushes with the topdressing,"

PHOTOS BY: TIM CARPENTER



he says. "Matching those up is pretty critical."

By and large, superintendents are feeding A and G putting greens every seven to 10 days with low rates.

"I've broken it down to about 1/10 of a pound a week," Gray says.

His 3-year-old A1/A2 greens get about 4 pounds of nitrogen a year, compared to 6 pounds to 7 pounds with older varieties. He says the lower rates, in conjunction with more frequent applications, allows him to coordinate growing rates with his topdressing program and keep turf plants healthy while keeping stress levels low.

"It's lean and mean. You have a leaf blade that is substantially thinner than the older bents, so they really don't need the amount of nutrients like older bents," Gray says. "If you overfeed, then you are going to get a lot of thatch and you are going to get a puffy look to them because now you have a fat little grass plant that needs to go on the Atkins diet."

Similarly, Tim Carpenter, superintendent

at the Gaston Country Club in Gastonia, N.C., has pulled back to about 4 pounds to 4.5 pounds of nitrogen a year on his 3-year-old A4 greens. In addition, he uses about 2.5 pounds of phosphorous, 14 pounds of potassium and 24 pounds of calcium.

"Sand-based greens have prompted calcium to get a lot of attention for the overall vitality of the soil and nutrient exchange between the plant and the soil," Merkel says.

Potash gets its fair shake, too. At The Bridges at Santa Fe, Hathaway uses a 1-2-4 ratio, he estimates.

If nutrients are best used a little at a time, irrigation is just the opposite.

Water analysis

In an era where news crews conduct live broadcasts about freshwater conservation in front of water-spewing golf properties, superintendents will be happy to know that weekly deep irrigation works well with the As and Gs.

Continued on page 38



Tim Carpenter's weekly deep irrigation at Gaston Country Club forces roots deep into the soil profile in search of water.

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Tried and True

Core harvesting two to three times a year manages the thatch layer of As and Gs successfully despite their denser canopies.



Weekly deep irrigation can limit disease occurrence by limiting excessive moisture that can attract pathogens.

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"If I had to pick just one major difference, then I'd have to say it's with the irrigation practices because the As and Gs don't like to be watered nightly," Gray says.

Superintendents are giving newer bents a good soak, between 30 minutes to 90 minutes, generally one day a week. Then as dry spots appear toward the end of the week during hot months, hand watering with wetting agents is enough to maintain them until the next flush.

With that protocol, roots systems reach well into the 12-inch sand profile for the necessary root development that helps them thrive in hotter months. Also, disease occurrence falls due to limiting excessive moisture that might attract pathogens.

"Whenever you can only put down water that you absolutely need, then that's your best-case scenario," Gray says.

As a cumulative result of closely managing growth flushes, less-frequent watering and perhaps heightened disease resistance, Gray eliminated two to three fungicide applications.

"I really saved more money because I didn't need to go out there and spray because I wasn't putting the water on that would really bring the dollar spot, brown patch and, in the worst-case scenario, the pythium," he says.

Cultural practices

Managing organic matter was an early concern for many of the newer, denser bentgrass varieties, so many early adopters augmented topdressing and aeration programs to combat suspected thatch layers.

"Some people were so scared that they got real aggressive and ended up shooting themselves in the foot," Bigelow says. "They were topdressing too much during stressful times of the year and maybe dragging it in and causing some mechanical damage."

So as it turns out, the thatch hasn't developed measurably faster than older varieties, and the layer that has developed has been minimized by slightly more-frequent topdressing.

"Now we're throwing topdressing on so much more often and so lightly that you don't need to brush it in; you can just water it in," Merkel says. "So the maintenance arsenal is about the same, superintendents are just doing it differently."

Carpenter says the greens at Gaston regularly test between .3 percent and 1.5 percent organic matter.

"We had pretty high organic matter before we rebuilt the greens (in 2004) — up around 5 percent on some," he says.

Part of the reason, Carpenter says, was that his predecessor reduced the size of aeration tines to quarter-inch pegs because golfers were complaining about play disruptions. But Carpenter went back to a larger tine to control the course's thatch layer, and he punches the greens twice in the spring and once in the fall, which was the same protocol he used with PennLinks, the previous putting surface at Gaston.

"I have stepped up my topdressing program a bit," he says. "Last year I put down about 35 cubic feet of sand per 1,000 (square feet) on my green. And that was basically 10 to 11 cubic feet from three aerifications. The rest was bi-weekly 1 to 2 cubic feet (per 1,000 square feet) topdressing to make up the difference."

Now that agronomists have wrapped their brains around the best maintenance practices with some of the 10-year-old cultivars, the industry prepares for a whole new guessing game with the newest cultivars that inevitably will make their way to a golf course near you soon.

Among the most promising for putting greens are Declaration for its dollar spot resistance, Alpha for its genetic color and LS-44 for its overall visual quality and heat tolerance, according to results from the National Turfgrass Evaluation Program. ■

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A Good Soak

Deep irrigation and hand watering will mitigate disease occurrences

BY PETER BLAIS

Irrigation is similar to most of the better things in life. Like pizza, beer and key lime pie, water on golf greens is best enjoyed in moderation.

“The recipe for disaster is still the same — overwatering,” said Bud White, United States Golf Association (USGA) Green Section director for the Mid-Continent Region. “Overwatering is the most common cause for wet wilt, disease and algae.”

Superintendents should water deep and infrequently to promote optimum turf health and playability, White explained. As summer stress approaches, deep watering has to be balanced with syringing based on a particular facility’s green construction, irrigation-system quality, water quality and environmental conditions.

There are no hard-and-fast numbers or schedules that apply to every course, according to USGA Green Section Florida Region agronomist Todd Lowe. The idea is to provide what is needed for plant growth.

“It is easy to over irrigate, creating soft playing conditions and making the soil more

prone to compaction and the turf more prone to disease,” Lowe explained. “Pythium thrives in saturated soils, and turf loss can occur from extended soil saturation. Anaerobic soils can also occur and black layer develops. Even less irrigation is needed on nonoverseeded bermudagrass in winter because the grass isn’t growing.”

Irrigation schedules usually change, not only over the course of the year, but also from year to year, according to USGA Green Section Mid-Atlantic Region Senior Agronomist Keith Happ. Each year is different, and adjusting to changing conditions is critical.

Last spring, for example, Pennsylvania was under a drought watch requiring a voluntary cut in irrigation applications. Fortunately, if there is a good time to allow the soil to dry, it is springtime in the Mid-Atlantic.

“In June we had rains and cooler temperatures,” Happ says. “Those who held off on regular irrigation cycles during the early spring benefited. You can always apply more water, but you cannot take it away.”

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