

A longer, more difficult Isleworth

ARCHITECT STEVE SMYERS UPDATES THE ARNOLD PALMER-DESIGNED COURSE IN FLORIDA WITH ADDITIONAL CONTOURS, AN IMPROVED IRRIGATION SYSTEM AND HILLSIDE BUNKERS

by
MARK
LESLIE

When your members include people known simply by their first names – like Tiger, Shaq and Junior (Ken Griffey); when the foursomes gracing your fairways include Lee Janzen, Mark O'Meara, Darren Clarke, Stuart Appleby, Robert Allenby, Charles Howell III, Craig Parry and Scott Hoch; and when you host what's expected to become the country's premier collegiate invitational tournament, you want to stun golfers with the most challenging golf course in the region.

That's what management at Isleworth Country Club in Windermere, Fla., set out to accomplish when they hired golf course architect Steve Smyers to rebuild completely what they saw as an outdated layout. And that's what Isleworth and Smyers achieved, even while building multiple tees for middle- and high-handicap players, according to general manager Kurt Kuebler. As proof, Kuebler reported that players from 16 of the top university golf teams in the country, competing in the First Annual Isleworth Collegiate Invitational Golf Tournament Oct. 25 and 26, 2004, scored an average 76 in a practice round on the par-72 course. And they weren't even playing from the tips.

"These guys can knock the socks off the ball," Kuebler says. "They were awestruck by the course and our facilities."

Not lost on the collegiate golfers was that the new Isleworth – transformed for the game of high-tech equipment and long hitters – stretches 7,544 yards and carries a rating of 77.5 and a slope of 142. Previously, the course was 7,179 yards long and carried a rating of 77.5 and a slope of 135.

"We're now the longest course with the highest slope in Florida," Kuebler says. "Steve [Smyers] did a terrific job putting

together a great multiple set of tees. So if you play the right tee, you'll truly enjoy this course."

Smyers says the slope could have been higher but the courses he designs always play harder than the slope because he doesn't create penalties, he creates obstacles.

"The way [the U.S. Golf Association] calculates slopes is if you go so many feet and don't have a water hazard, bunker or out-of-bounds marker, it doesn't consider that a penalty," he says. "Our obstacles are in a contour, hollow, mound or angle. Conversely, you can always find your golf ball and have the ability to recover on our courses."

Smyers started from scratch because the old course was torn down.

"This was a massive makeover, not only aesthetically, but from a shot-making perspective," he says.

While challenging great golfers, Smyers kept in mind the fellow who retires, moves to Florida and wants to play well in the latter years of his life. From the far-forward tees, the course plays 5,747 yards.

"Whenever we build, we design so whoever plays it will become a better player," Smyers says. "We keep everybody in mind, but we put an emphasis on challenging their shot-making ability and stimulating their thought process."

A complete change

Isleworth Country Club, which opened in 1986, was designed first by Arnold Palmer and Ed Seay. The 600-acre property, which is almost surrounded by the Butler chain of lakes, serves as Palmer's answer to Muirfield Village in Ohio, which is replete with flowers and flowering shrubs. Ten years ago, Smyers was hired to renovate all of Isleworth's 18

greens complexes and surrounds, infusing them with a better setting that still fits the existing layout. He also converted the putting surfaces from bentgrass to Bermudagrass. This time, Smyers worked with then-superintendent David Steel and current superintendent Steve Keller to replace the turfgrasses and irrigation system and craft a course built for 2020.

"They wanted to improve the golf course for the modern-day player as well as for future generations who would be members," Smyers says. "A lot of the features were outdated and didn't function anymore. Today's players hit the ball right past those hazards."

At the same time, Smyers addressed Steel's and Keller's maintenance needs – most notably, drainage, irrigation and faster green speeds.

That resulted in changing everything. The course was regraded, creating swells and swales of movement and a range of depth where it was previously flat. Trees were cut down and others planted. Before Steel left the project, Smyers worked closely with him on slopes and contours that might impact mowing.

Smyers didn't construct his trademark bunkers on every hole, but where he did use them, he did so to catch the eye – to accentuate hilltops and hollows – as a contrast to help golfers read the course and to set up playing strategy.

Slopes also were designed to shed water off the course quickly and efficiently and help with



Golf course architect Steve Smyers constructed the bunkers at Isleworth to catch the eye, accentuating hilltops and hollows.

Photo: Isleworth Country Club

AT A GLANCE

Isleworth Country Club

Location: Windermere, Fla.

Course type: 18-hole private

Course reopened: December 2003

Yardage: 5,747; 6,409; 6,765; 7,069; and 7,544

Par: 72

Average green size: 6,000 square feet

Number of bunkers: 65

Fairways: Tifway 419 Bermudagrass

Tees: Tifway 419 Bermudagrass

Greens: TifEagle

Slope: 125, 135, 135, 139 and 142

Rating: 68.3, 71.4, 73.1, 74.7 and 77.5

Superintendent: Steve Keller

Developer: Tavistock Group

Construction Co.: Quality Grassing & Services

Architect: Steve Smyers

Owner: Tavistock Group

the growth, establishment and daily maintenance of the turfgrasses. To accomplish quicker green speeds, Steel chose TifEagle.

"The scope of work was bigger than a new course," Smyers says.

Irrigation overhaul

In addition to other work, Lithia, Fla.-based golf course builder Quality Grassing & Services rebuilt 14 greens. The development team worked with the Southwest Florida Water Management District to bring in natural plant material to restore the shorelines and allow the course to feel more in harmony with the lakes. Ten holes interact with water.

Keller, who had recently grown-in 36 holes at Berkeley Hall in Bluffton, S.C., came on board as superintendent during the shaping and irrigation-installation stage. He quickly put his mark on the project, learning the infrastructure, developing a grow-in program, and consulting in the field with Smyers and his design associate Patrick Andrews. He suggested adding drainage basins and adjusting the irrigation system.

"You want to make sure the irrigation heads are located to best fill your needs," Keller says. "More irrigation is always better, and you need to get it when the getting's good – that's during construction. I look at it as if you have only one shot. If you don't do it right the first time, you're stuck for years to come.

"Superintendents will be judged on the quality of your turf," he adds. "As a turf manager, everything is about how water moves and the ability to get rid of it."

Keller says the most critical irrigation ele-

ments for superintendents to understand is the pump station, where the water will be drawn from and making sure it's installed properly.

"I see a lot of golf courses that put their pump stations in too late," he says. "They're concerned about putting in power, and when the pump station comes in, they're scrambling ... in too much of a hurry. I've heard horror stories. Our pump station was put in properly. I recommend you get a diver and let him look at where the water is being drawn from, what type of clearance there is, if it's silty, if you will create a vortex, etc. You should sod the banks of the irrigation lake immediately. When they dig an irrigation lake, over time, the bottom will come up in the process of settling. It's a problem everywhere."

Water quality also is crucial.

"You're only as good as your water, so make sure the area you are drawing from is deep enough and the construction is done properly because silt can be a nightmare."

Keller says Isleworth has good-quality water because it's surrounded by deep lakes.

Defining bunkers

Keeping a close eye on the soils, the water table and contours, Keller contributed to the design in ways that will help maintain the course for years to come.

"Our interaction was on a daily basis on everything, and we're still interacting with them on the landscaping program," Smyers says.

To make sure the owner, Tavistock Group, which also owns Lake Nona in Florida, understood the nature of the property well, Smyers wanted to display the ridges, hillsides

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The course at Isleworth Country Club was regraded, creating swells and swales of movement and a range of depth where it was previously flat.

and cut bunkers into the hillsides to give the course a sand-dune look and feel.

“This is the old dunes of Florida, and we wanted to expose them with high, flashed-up sand,” he says.

To accomplish this, Smyers consulted with Keller to find a product that would prevent bunker erosion. They decided on Bunker-Aid Plus, a fabric to which the sand adheres while allowing water to flow through.

Also, because the bunkers were flashed high, they wanted to ensure the pitch wasn't too great.

“We hold to the hard, fast, firm concept on the greens approaches, so we worked closely with superintendent and irrigation

consultant Mike Pignato on how much water each head controlled, and we made sure we had the right sandy soils to accomplish that,” Smyers says.

Continued work

A treat for Keller was major reconstruction of the maintenance complex. Construction crews gutted and rebuilt everything under the roof, including administrative offices and the locker and break rooms. They also built a recycling and wash-down center, a fueling station and a storage unit for chemicals, fertilizers, divot sand, bunker sand and top soil.

Although the golf course construction is complete, the group at Isleworth con-

tinues to make improvements. Smyers and Andrews are working with Keller to phase in considerable tree planting.

“Even before the hurricanes, our program included transplanting several hundred trees and thousand flowering shrubs and other plant materials,” Kuebler says. “The storms nearly delayed that process, but we have made a remarkable comeback.”

And the landscaping will continue.

“We will keep working anytime we can enhance the property,” Kuebler says. GCN

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Photo: David Wolff

J.D. Franz, superintendent at Cottonwood Creek Golf Course in Waco, Texas, used soil testing to help his course handle more than 53,000 rounds of golf in 2004.

The science of nutrient management

NITROGEN HAS THE GREATEST IMPACT ON TURFGRASS GROWTH

by
DAVID
WOLFF

Ask a dozen superintendents about the nutrient management programs for their greens, and you'll probably get 12 different answers – each one of them correct.

Different climates, root-zone mix composition, golfer expectations and budgets all play a role, making fertility management something of an art. However, recent advances in the understanding of nutrient behavior have put more science into the process.

Researchers at the University of Wiscon-

sin-Madison contend that management of nitrogen stands apart from all other nutrients in its impact on turfgrass growth.

"If you want to increase the content of any other nutrient, you have to put down nitrogen (N) because that is what drives the uptake of everything else," says Wayne Kussow, Ph.D., of the department of soil science. "Our research shows that most soils on greens are perpetually nitrogen deficient. Nitrogen results in a surge of growth, which also requires more phosphorus (P) and potassium (K). That's what we call nutrient demand."

Nutrient demand occurs at the root surface. A precondition is a growth factor such as the supply of a particular nutrient that's limiting shoot growth. When the limitation is overcome, the plant strives to increase its growth rate. The shoots then signal to the roots that additional quantities of other nutrients are required.

"In the way we fertilize turfgrass, nitrogen is the most limiting nutrient and drives plant growth in the absence of heat or moisture stress," Kussow says. "There are times when nitrogen is not the most limiting

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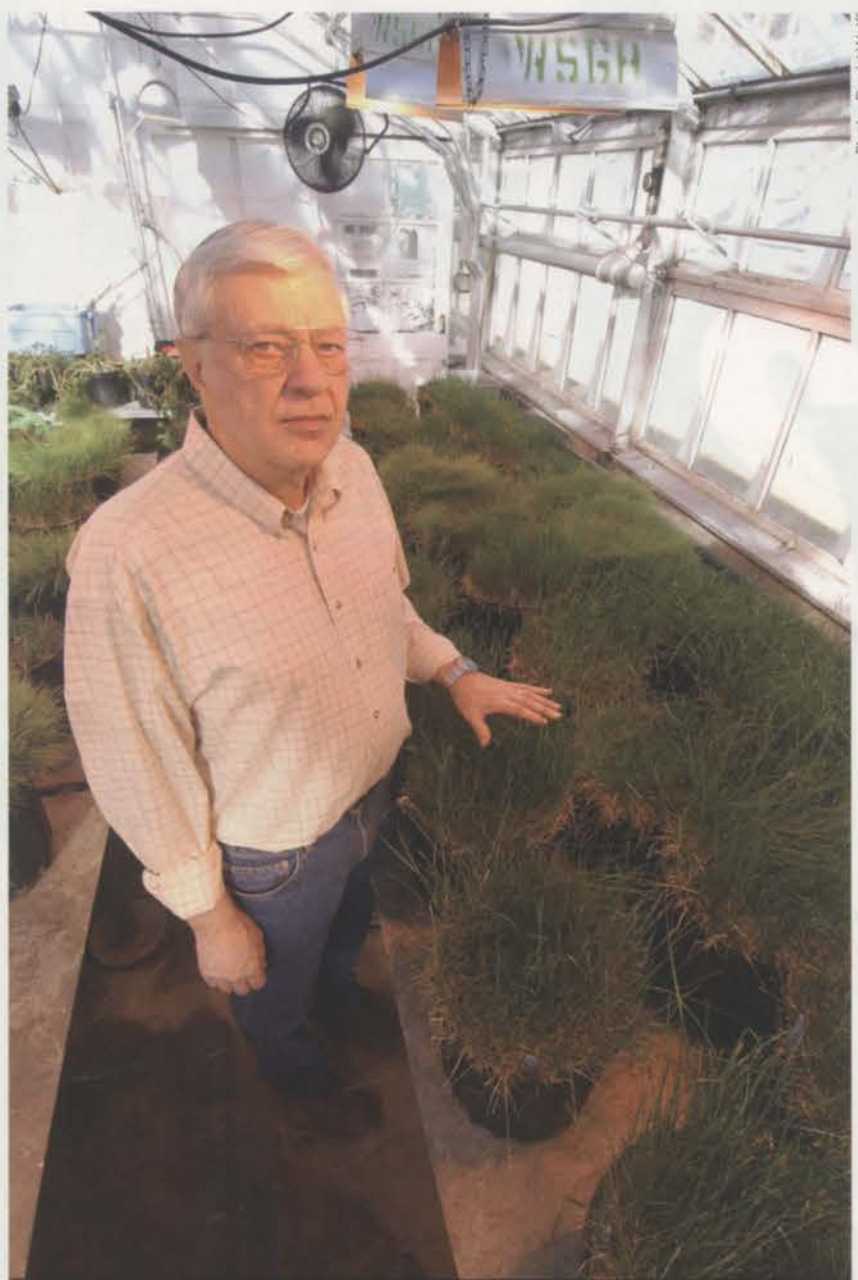


Photo: David Wolff

Wayne Kussow, Ph.D., of the soil science department at the University of Wisconsin, says nitrogen drives plant growth in the absence of heat or moisture.

growth factor, but as a whole, clipping production is limited more by nitrogen supply than anything else. Nitrogen-stimulated growth requires additional phosphorus and potassium, and the uptake of these nutrients becomes a function of the nitrogen supply.”

Consequences

There are several consequences of nutrient demand. First, what constitutes an adequate supply of phosphorus and potassium in sand greens varies with the application rate of nitrogen. The greater the amount of nitrogen, the greater the demand for the other two nutrients.

“We’ve documented this by noting the rate of ‘drawdown’ of soil phosphorus and potassium when increased annual rates of nitrogen were applied to creeping bentgrass,” Kussow says.

A second consequence of nutrient demand occurs when soil levels of phosphorus and potassium are already at levels that satisfy this demand. Applying additional amounts serves no purpose because it has no influence on their concentrations in or the amount of clippings produced.

“In short, once turfgrass demand for phosphorus and potassium is met, there is no further uptake, even when supplies are increased through fertilization,” Kussow says. “Nutrient demand gives rise to a strong link between the concentrations of nitrogen, phosphorus and potassium in turfgrass shoots. It will vary somewhat with the time of year and weather, but on an annual basis, it stays close to a 9:1:7 ratio for a high-quality creeping bentgrass green. In fertilizer terms, this equates to an N-P₂O₅-K₂O ratio of 4:1:3. In other words, the bentgrass utilizes the equivalent of ¼ pound P₂O₅ and ¾ pound K₂O for every pound of nitrogen applied. But to compensate for potassium leaching in sand putting greens, one pound of K₂O needs to be applied for every pound of nitrogen.”

Soil testing

University researchers have analyzed more than 300 greens throughout Wisconsin, and the results vary. For example, the greens on one course had a phosphorus concentration of 175 parts-per-million when they only needed 4 ppm. On another course, the pH level on the greens was less than five. The superintendent didn’t know because he had never done a soil test.

“People have said for years that there seems to be a fairly constant ratio of N-P-K, but didn’t know why,” Kussow says. “Now we know it’s because nitrogen is driving the uptake of phosphorus and potassium. I call it the ‘4:1:3’ because that’s about the ratio a bentgrass green is going to utilize. And that becomes a very useful management tool. Let’s say a superintendent wants to increase his soil test phosphorus. All he has to do is apply more than ¼ pound P₂O₅ for every pound of nitrogen. If the phosphorus level is high, don’t put any down and over time the level will drop.”

Using these ratios from soil tests, superintendents can pick out a grade of fertilizer that will increase, maintain or reduce the levels of

these nutrients. Fertilization rates should be based on soil tests. While the frequency of testing varies, the key is studying trends.

“A superintendent should look at his soil tests and note increases or declines in nutrient levels over time,” Kussow says. “If he doesn’t need to increase the level, then back off. From our research, the constancy in plant tissue N-P-K ratios implies that if your current soil test levels of phosphorus and potassium are where you want them to be, you can hold them near those levels simply by adhering to the 4:1:3 ratio in your fertilizer applications.”

Many superintendents strive to keep bentgrass shoot potassium levels high with the belief that this improves drought tolerance and reduces winter injury.

“If your soil test potassium levels are high, all you have to do to increase tissue potassium concentrations is apply nitrogen,” Kussow says. “If you do choose to apply potassium, create some demand for it by applying nitrogen as well.”

Superintendents often ask Kussow what lab to use. He tells them they’re all good, just stay with one.

“Different labs give different results, so just be consistent,” Kussow says. “Over time they can track the results and determine how well they’re managing the soil. Soil testing is a very useful tool to tell superintendents if they have a problem at the moment. Repetitive testing over time is the best guide. It tells them what they need to be doing.”

Test critical areas

At Blackhawk Country Club, an 18-hole private course in Madison, Wis., superintendent Monroe Miller, who has been at the facility more than 32 years, only conducts soil tests every three to five years because of his familiarity with the property.

“On greens, we take about 20 subsamples to get one composite sample,” Miller says. “We take fewer subsamples on tees. Fairways are where experience and local knowledge really come into play. There can be quite a variation in soils within 500 yards. We take samples in critical areas for more meaningful results.”

Fertilizer application rates on greens depend on yearly conditions, but Miller’s primary concern is the nitrogen-potassium ratio.

“We don’t concern ourselves much about

“If you want to increase the content of any other nutrient, you have to put down nitrogen because that is what drives the uptake of everything else.” – WAYNE KUSSOW



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A championship plan

The following is the month-by-month fertility plan for greens developed by Straits Course superintendent David Swift for the 2004 PGA Championship at Whistling Straits in Kohler, Wis.

"Our fertilization program hasn't changed too much in the last few years," Swift says. "The course is six years old now, and our soil tests show we are starting to mature, which has helped make our program easier to monitor."

Whistling Straits plays host to 30,000 rounds annually, and gets additional traffic from caddies because it is a walking-only course.

"Along with soil testing, we really monitor thatch accumulation and wear patterns to help keep the fertility as simple as possible," he says. "Fairways and rough are fescues, and greens and tees are bentgrass, which require totally different programs and products. With this in mind, we watch how the different plants are responding from the contrast between them and sometimes adjust fertilization applications accordingly."

"Nearly two-thirds of our fertilizer applied to the greens comes through applications of slow-release granular products," he adds. "The additional applications of nutrients come from a biweekly spray program that can be adjusted according to traffic, Mother Nature and cultural practices."

April

14 - spray greens with soluble fertilizer
19 - apply Anderson's Super K, 0-0-45
28 - spray greens with soluble fertilizer

May

6 - granular fertilizer application
12 - spray greens with soluble fertilizer
26 - spray greens with soluble fertilizer

June

7 - granular fertilizer application
9 - spray with soluble fertilizer
23 - spray with soluble fertilizer

July

7 - spray with soluble fertilizer
9 - granular fertilizer application
21 - spray with soluble fertilizer

August

18 - spray greens
20 - granular fertilizer application

September

1 - spray greens with soluble fertilizer
15 - spray greens with soluble fertilizer
29 - spray greens with soluble fertilizer

October

4 - granular fertilizer application

November

22 - dormant granular fertilizer application

phosphorus because at this course it doesn't move through the soil," he says. "On greens, we strive for a 1:1 nitrogen-potassium ratio, putting down about three to five pounds of nitrogen a year. This seems to increase the winter hardiness of the turf."

On fairways, the grass tells Blackhawk's staff when it needs to be fertilized.

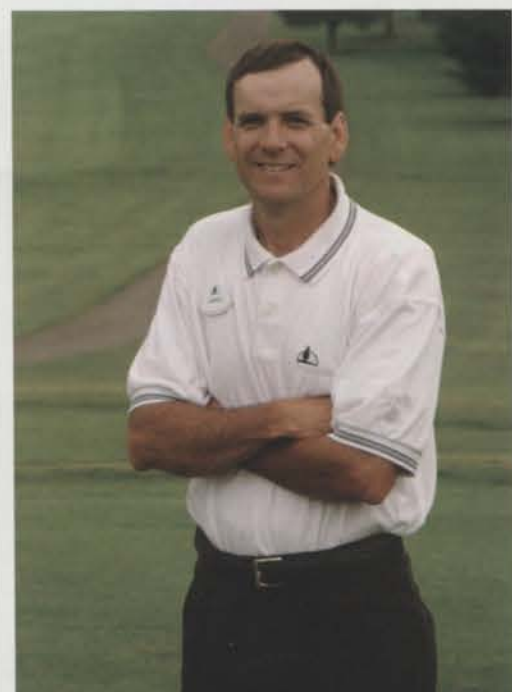
"When we fertilize, it also depends on the product we're using," Miller says. "Last year we used 1.5 to 1.75 pounds per 1,000 square feet of coated spray fertilizer incorporating a couple of ounces of fine-grade urea fertilizer with a foliar application. We fertilize greens in spring using one pound of nitrogen before we aerify. In the warm season, we use foliar

applications. In the fall, we go back to granular when most of the events are over and we're not mowing as frequently."

Battling high pH levels

Superintendent J.D. Franz has been testing the soil at Cottonwood Creek Golf Course in Waco, Texas, since he arrived in 1997. Soil testing helps him determine the amounts of primary, secondary and micronutrients needed to keep the turf healthy and growing. The 18-hole public course struggles with high alkaline and pH levels, due primarily to the high sodium content in irrigation water.

"We add gypsum when we aerify to help rebuild the soil with calcium," Franz says.



John Stawovy, superintendent at Cedarbrook Golf Course, has been testing the soil at the course for 15 years.

"This also helps with the cation exchange capacity so we get better nutrient uptake. We keep our nitrogen and potassium ratios relatively close. We add phosphorus only when we overseed to make sure the top one quarter inch of the soil has enough for the new seedlings to develop."

Traffic also is an issue for the fertilization program. Cottonwood Creek recorded more than 53,000 rounds last year.

"All that play wears down the turf and requires more fertilization," Franz says. "We try to keep the course a little lean, but we also want good color. Soil testing, water quality and traffic all play a significant role in determining our cultural practices."

At Cedarbrook Golf Course in Belle Vernon, Pa., superintendent John Stawovy also battles high sodium content in the soil. He uses gypsum to flush the soil.

"If the soil is better biologically, there will be a better environment for growing good, healthy turf," Stawovy says. "We've been testing our soil extensively in spring and fall for 15 years and can't operate without it. Soil testing is vital."

Cedarbrook's fertilization program uses an organic product after spring aerification to build up the microbial population in the soil, which also enhances the relationship with the root system. High calcium lime in a foliar feeding is used during the summer, and organic fertilizer is used in fall to get the turf ready for winter. GCN

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