



Game changer

Zoysia has proved its mettle in golf as a viable warm-season turfgrass option. Now, it gets its chance to shine on one of the sport's biggest stages — the 2016 Summer Olympics in Rio.

Stacie Zinn Roberts

Before hosting the 2011 PGA Championship, Atlanta Athletic Club switched from bermudagrass, which struggled under the Georgia pines, to more shade-tolerant zoysiagrass.
Photo by Bob Maynard



Bladerunner Farms in Poteet, Texas, the world's largest privately owned zoysiagrass research and development facility, will be a stop on the field trip, "Zoysia as a Game Changer," that will take place as part of the Golf Industry Show in San Antonio.

Photo courtesy of Bladerunner Farms

"If you want to be better, you have to do something different.

Zoysiagrass sets us apart and makes us better."

— Ken Mangum, CGCS

More than 15 years ago, Ken Mangum, CGCS, director of golf courses and grounds at Atlanta Athletic Club, was sitting through a club board meeting when the discussion turned to grass selection for a renovation of the club's Riverside Course, which was in the planning stages.

At that time, most courses in the Atlanta area were grassed with bermudagrass, although it tended to struggle in the deep shade of the tall Georgia pine trees. "As many do, you have an area where the grass doesn't perform well and dies," Mangum says. "You have the option of insanity, which is putting the same thing back every time, or trying something different. Well, I wanted to try something different."

On the shadiest tees on the golf course, he tested a cultivar of zoysiagrass called Zeon, which was known to withstand deep shade. It worked.

Back at the meeting, a board member quite firmly stated his desire to regrass with bermudagrass. Mangum bristled, but he decided to be democratically persuasive in his response.

"I said, 'We can do that, and we guarantee ourselves to be just as good as everybody else. Surely you don't expect to do the same thing and be better? If you want to be better you have to do something different. Zoysiagrass sets us apart and makes us better,'" the 40-year GCSAA member says.

The Riverside Course was grassed with Zeon zoysia on every surface except the greens. The renovation was so well received that, even though its sister course, the Highlands, had just hosted the PGA Championship, the Riverside was now getting almost 60 percent of all play at AAC.

That put pressure on the club to step up the renovation of the Highlands Course, too.

"You've got the PGA coming back in 2011," Mangum says. "The question was, how do we make our championship golf course, which is now the second-best golf course on the property, better than Riverside?"

They'd tested another zoysia cultivar called Diamond and decided to use that grass on the fairways and tees of the Highlands. At the 2011 PGA Championship, the grass was a big story.

"(CBS Sports announcer) David Feherty said the fairways are as good as the greens they used to play on the Europeans Tour," Mangum says. "The fairway's surfaces ... nobody had seen a fairway surface like that, the firmness and the color and the density. These were firm, fast and pretty. It got a tremendous amount of publicity as the first major played on the new zoysiagrass."

Tiger, Bill and Ben

Since then, zoysia's impact on the game of golf has continued to grow. Bluejack National, located north of Houston, is the first golf course built in the United States designed by Tiger Woods. It began grassing last month with L1F zoysia on tees and green surrounds, and Zeon zoysia in the fairways (the course has no rough). Trinity Forest, a new course designed by Bill Coore and Ben Crenshaw in Dallas, which will eventually become the home of the PGA Tour's AT&T Byron Nelson Championship, is slated to grass with L1F zoysia this spring.

And, of course, zoysia is playing a starring role in one of the biggest stories in the



Eric Bauer, director of agronomy at Bluejack National, suggested Zeon zoysia for the course. Photo courtesy of Eric Bauer



More than 15 years ago, Ken Mangum, CGCS, urged the Atlanta Athletic Club to replace bermudagrass with zoysia. Photos courtesy of Bladerunner Farms



In the 1980s, Milt Engelke, Ph.D. and professor emeritus from Texas A&M, began his research on zoysia when he and the late Jack Murphy made several collection trips to Asia.

game of golf right now — the return of golf to the Olympics after more than 100 years — as the course under construction in Rio de Janeiro, Brazil, is also using Zeon on its tees, fairways and roughs.

It seems that everywhere you look, zoysiagrass is the new go-to warm-season grass for golf course architects and superintendents alike.

Bill Coore has been designing golf courses with his business partner, two-time Masters champion Ben Crenshaw, for nearly 30 years. Coore says when designing a golf course, grass selection “is hugely important. It’s critical because if you don’t have the proper grass, you can’t produce the playing conditions and you can’t produce the right look.”

Coore and Crenshaw have designed a limited number of golf courses grassed with zoysiagrass, even though it was frequently a contender in the design process. Coore says older varieties of zoysiagrass were very slow to grow in, which could add some four to eight months of grow-in time to a project, depending upon the climate and when it was planted. At Trinity Forest, the timeline to open was less critical, he says, because the project did not have a resort or housing component compelling a developer to open quickly. However, L1F, the zoysia cultivar selected for Trinity Forest, “while not as fast as bermudagrass, is significantly faster to establish from sprigs than other commonly known or used zoysias,” Coore says.

And, for this project, speed of grow-in was not the driving force behind grass selection. Instead, the developers of Trinity Forest, Coore says, “look at the long term for the best grass we can use to get the play-

ing conditions, the look we want, and also be sensitive to environmental issues from a resource usage perspective, meaning water, fertility and chemical usage.”

Zoysia makes sense

Eric Bauer, the GCSAA Class A director of agronomy at Bluejack National, worked closely with Woods’ design team and had input into the grass selection for the course. Prior to taking this position, he managed the 36-hole operation at The Club at Carlton Woods near Houston, where the fairways of the Fazio-designed course were grassed with zoysia, and the Nicklaus-designed course was grassed with bermudagrass. For a decade, Bauer managed those courses, side by side, and was able to track and compare the inputs needed for both grasses. Once he arrived at Bluejack National, Bauer says he lobbied for Zeon zoysia, in part, because of the environmental benefits he’d seen with zoysiagrass compared to bermudagrass.

“We saw generally with bermuda that we would put down 6 to 8 pounds of nitrogen a year. With zoysia, it was 1.5 to 2 pounds. That’s a significant difference in N alone. We had about a third less water consumption (on the zoysiagrass) between the two courses. As far as weed control, we’d be able to control more with a post-emergent mentality versus bermudagrass, where it’s typically better as a blanket application. Insecticides, we were not having to spray for army worms, cut worms or sod webworms because they don’t affect zoysiagrass due to the physiological makeup of the grass compared to bermuda. We saw less mowing, which has a good impact on your carbon

footprint. You’re not using as much fuel to give the quality. We’d mow 50 percent less. Bermudagrass, we mowed four times a week. Zoysiagrass, we mowed two times a week,” says Bauer, a 21-year member of GCSAA.

“I knew what my nutrient inputs would be, types of disease pressure, weed pressure. I knew our water requirements. Compared to bermudagrass, it was a very easy decision. As well as the fact that we’ll be able to give the beauty of zoysia — all those benefits — but also to give the playability the members and designers look for. That’s a win-win.”

Expert opinions

Milt Engelke, Ph.D., professor emeritus at Texas A&M University and a member of Team Zoysia, a group of researchers and companies dedicated to spreading the word about zoysiagrass, is one of the world’s foremost experts on this family of grasses. Beginning in 1980, he made several trips to Asia with the late Jack Murray, who was a USDA researcher. Together they collected several hundred zoysiagrass samples that grew in a wide area of adaptation: from the extreme cold to sweltering heat, in soils that ranged from pH 4.7 all the way up to a pH 9 and even growing on coral reefs constantly inundated with seawater.

Zoysiagrass is a halophyte, Engelke explains, although it functions differently from most other halophytes. A halophyte can better survive in the presence of higher saline conditions than most plants, but at some point in time, the saline levels of the root zone must be reduced or the soil fails. The common means of salt reduction is flushing with excessive quantities of water,



Golf Club of Texas

Zoysia takes center stage during GIS field trip

The 2016 Summer Olympics won't be the only big event where zoysiagrass steals the spotlight.

It will also be on display during a unique event at the 2015 Golf Industry Show in San Antonio. "Zoysia as a Game Changer: The Olympic Golf Course, New Zoysiagrasses and You," set for Monday, Feb. 23, is an interactive, full-day tour of the world's largest privately owned zoysiagrass research and development facility — Bladerunner Farms in Poteet, Texas — that will feature presentations by some of the industry's most-respected zoysia researchers.

Attendees will also get a first-hand look at a fully renovated golf course, the Golf Club of Texas, which was grassed with zoysia from tee to green, in addition to a panel discussion on the construction of the golf course in Rio de Janeiro, Brazil, that will be the site of the golf competition during the 2016 Summer Olympics.

Speakers will include Neil Cleverly, the superintendent of the 2016 Olympic golf course; Marcelo Matte, owner of Green Grass Brazil; Ambika Chandra, Ph.D. from Texas A&M; Brian Schwartz, Ph.D. from the University of Georgia; Milt Engelke, Ph.D., professor emeritus at Texas A&M; David Doguet, president of Bladerunner Farms; Ken Mangum, CGCS, director of golf courses and grounds at the Atlanta Athletic Club; Arthur Milberger with Team Zoysia International; Aaron McWhorter, Ken Morrow and Bill Carraway with The Turfgrass Group; and Don Roberts, principal with D. Roberts International.

This field trip is presented in partnership with Team Zoysia, a consortium that includes Bladerunner Farms, Team Zoysia International, The Turfgrass Group, Doguet Ventures, Jacobsen: A Textron Company, Cushman, Rain Bird, TurfMaker and Green Up Services.

The event costs \$195 and includes lunch. Participants will receive 0.7 education points. For more information and to register, visit www.golfindustryshow.com/gcsaa-education-conference/field-trips.



Bill Coore (left) and Ben Crenshaw selected L1F zoysiagrass for Trinity Forest, a new course in Dallas that will become the home of the PGA Tour's AT&T Byron Nelson Championship. Photo courtesy of Coore & Crenshaw

especially when rainfall isn't sufficient. In the case of zoysiagrass, however, the plant has the ability to absorb salt from the soil and move it on to salt glands on the grasses' leaf blades. This unusual mechanism means that salt can be remediated from the soil by mowing the zoysiagrass and removing the clippings from the site.

Take, for example, the way zoysiagrass was used to remediate greens at Tanglewood Golf Course on Lake Texoma in Pottsboro, Texas. Zoysia was sodded on the greens following an extended drought that caused the existing greens to fail due to high levels of salt. Soil salinity approached 17,000 ppm prior to sodding with zoysiagrass. Within a year, analysis of grass clippings revealed salt levels of up to 10,000 ppm on leaf blades removed from the site where previous attempts at grassing with bermudagrass and bentgrass had failed. Within three years, salt levels were negligible. Engelke believes that the zoysiagrass was instrumental in restoring the root zone to healthy growing conditions without extensive renovation or exceptional cultivation.

While maintenance and environmental considerations are important for grass selection, playability, too, is a big factor. Engelke says he's excited to see golf courses, such as the Golf Club of Texas in San Antonio, being built with new zoysiagrass varieties from tee-to-green without sacrificing green speeds.

"L1F and Diamond are very close to Tifgreen 328," as far as green speeds, Engelke says.

But newer cultivars, now in development, will roll even faster. In early November, David Doguet, breeder of Zeon, L1F and other zoysiagrasses at Bladerunner

Farms in Poteet, Texas, took Stimpmeter measurements on unmanicured test plots at his research facility. The test plots had been mowed that morning, and toppedressed three days earlier, but had not been rolled or verticut — certainly not maintained for tournament conditions. Even so, some of the research varieties measured 10 feet or faster.

"We are very close to having zoysiagrasses that will Stimp at the level that major tournaments are looking for — 11, 12, 13," Engelke says.

After more than 30 years of research, Engelke is convinced that zoysiagrass is poised to change the game of golf.

"Zoysiagrass is a game changer because we have the lower maintenance, we have the ability to tolerate low-light conditions, it's ideal for renovation and we can deal with salt and bad water without going into extensive renovation costs," he says. "Zoysiagrass is a game changer when it comes to being able to provide a high-quality playing surface with minimal inputs and minimal maintenance. It will give you the quality you want at a much more reasonable price, up front as well as in management.

"You've got salt tolerance, shade tolerance, drought tolerance, low water use, cold hardiness, color retention. With zoysiagrass, we've solved all of those problems."

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