SHENZHEN SAND RIVER IN CHINA SELECTS THE ULTRA-DWARF BERMUDAGRASS WITH

Over 25 Years of Genetic Stability

New Sunday™ Ultra-Dwarf Bermudagrass greens at Sand River Golf Club provide smoother, faster putting surfaces.

Built more than 20 years ago, Shenzhen Sand River Golf Club in China recently decided to renovate their greens. The 27-hole links-style course designed by Gary Player featured Tifdwarf greens, which over two decades had become extremely contaminated. The premier property, once said to be ranked in China's top ten golf courses, no longer offered the quality putting surfaces desired by its 3,000 members.

Selection of the Turfgrass

To satisfy the membership and stand up to approximately 85,000 rounds of golf each year, the greens renovation called for a turfgrass able to meet many challenges. Sand River representatives traveled to the United States to visit turf farms and research the various putting green grasses available. After a thorough investigation of many turfgrasses, they selected Sunday™ Ultra-Dwarf Bermudagrass distributed internationally by Atlas Turf International. Sunday's 25 plus years of genetic stability would ensure a uniform and consistent putting surface, but other features stood out as well. With a massive root system and dense growth canopy, Sunday would also provide durability.

SUNDAY
ULTRA-DWARF BERMUDAGRASS™

Greens Renovation Process

While the club benefits from regular agronomic support from Ron Carlyle, a veteran consultant throughout Asia, Carlyle encouraged Sand River to hire someone full-time who was familiar with the region and experienced in golf course construction and grow-in. Thomas Radetic, a turfgrass professional with 27 years of experience in the Asian golf course market, became Sand River's deputy general manager and director of golf course maintenance. He recently completed the renovation of the second nine holes at Sand River. Thanks to the rapid establishment of Sunday and its quick grow-in, the renovation of the second nine, from start to finish, took only three months.

The first 30 days of the process consisted of stripping out the old grass, probing out the old profile, re-establishing the contours or surface, and planting the Sunday.

"Over the span of 22 years of agronomic cultural practices such as topdressing, the greens profile increased in elevation over 40 centimeters," Radetic explains. "After probing down to the gravel layer and running tests, we discovered that the original green profile and sand were fine – good and clean."

Forty-five centimeters of the top of the green was removed, including the complete root layer. The entire area of the greens was probed to ensure that 30 centimeters of sand was in place throughout for the greens profile. They then tied-in the surrounds, floated out the greens surfaces, compacted the mix, and began the planting process.

Removing contaminated Tifdwarf Bermudagrass

Hand-planting the Sunday Ultra-Dwarf Bermudagrass

Grow-in and Establishment

"With 45 laborers, we hand-planted sprig-by-sprig," says Radetic. "We started on June 1st and planted our last green on June 29th. On September 1st, the club hosted a major member tournament to celebrate the reopening. In just three months, we completely renovated nine holes and went straight back to regular play."

Sunday 12 days after planting

Sunday 36 days after planting

Sunday 47 days after planting

Results and Greens Speeds

Member reaction to the renovation confirmed its success. "The members are thrilled to death with the putting surfaces," says Radetic. "The greens are so much better. They are smoother and faster achieving stimp speeds of 10-10.5 over the summer."

Current Management Practices

During the growing season, Radetic's maintenance program includes verticutting twice a month and lightly topdressing each week. Due to the amount of play they see (an average of 275-300 rounds per day plus the double impact of a caddy for each player), aerifying occurs approximately once per month. They double-cut Wednesday through Sunday and conduct a speed roll each Friday. When winter arrived, Radetic backed off the rolling and double-cutting.

Disease Resistance and Cold Tolerance

In addition to achieving the goal of improved putting surfaces, Sunday offered other valuable benefits to Sand River including disease resistance and cold tolerance. Despite a climate prone to disease, Radetic reports having no problems at all on the Sunday greens.

"We get a tremendous amount of rain during the rainy season," Radetic says. "We have seen no disease on this grass this year – nothing. The disease resistance is really there. I was flabbergasted about that."

As Shenzhen's winter weather arrived, Radetic witnessed another advantage of Sunday.

"When the temperatures dropped to the low 40s, Sunday kept its color for seven to ten days before it even started turning off a little bit," says Radetic. "On the other courses in the area with TifEagle, their greens were turning purple before we even began to turn. We were very impressed with that."

The Importance of Certified Turfgrasses

When asked about the importance of sourcing certified turfgrass, Radetic states that licensed, first generation turfgrass for putting greens is a must to avoid mutations.

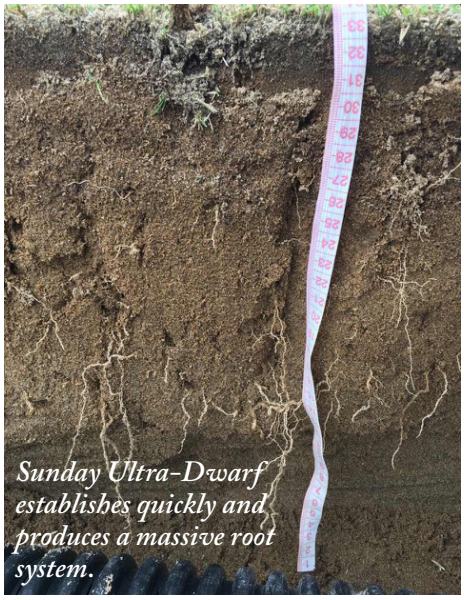
"You certainly get what you pay for," he says. "When you choose a non-certified grass, you never know where it's been or what has been grown in next to it, especially in this part of the world. There are cheaper, non-certified grasses out there, but when you get them grown in, all of a sudden you have three different types of grass in your greens.

"Any golf course that I have been associated with where we brought in the turf from a certified grower, those greens have stood the test of time," says Radetic. "The bottom line is that certified is the way to go if you want to do it right. It will definitely save you in the long run."

Reaching Their Goals

Radetic credits the renovation success at Shenzhen Sand River thus far to a marriage of good cultural maintenance practices and the excellent quality of the Sunday.

"The members and our owner are extremely pleased," he says. "They're telling us we have the best greens in Shenzhen now. Our new goal is to put Sand River back into the top ten golf courses in China. We are in the process of making that happen, and obviously, the greens renovation and bringing in Sunday is a big part of that."



Sunday Ultra-Dwarf establishes quickly and produces a massive root system.

THE HISTORY OF SUNDAY ULTRA-DWARF BERMUDAGRASS

Sunday Ultra-Dwarf Bermudagrass originates from South Alabama where, in the mid-1980s, it was selected from samples on Cotton Creek Golf Club for its dense growth canopy, lighter color, and reduced seed heads. John Chapman propagated the samples and planted experimental greens in 1987. From the very beginning, Chapman saw performance characteristics superior to the normal dwarf and observed requirements of less maintenance.

After initial selection, the variety was protected and isolated from commercial use until genetic stability could be established. With a track record of over twenty years mutation-free, the variety was offered commercially in 2012 through Sod Solutions, the developer and marketer of quality warm and cool season turfgrasses.

With proven genetic stability going on 30 years, Sunday benefits from controlled production with the entire supply originating from just four licensed farms employing the highest quality-control program in the industry. The Sunday provided to Sand River came from Modern Turf in Rembert, South Carolina.

Sunday Ultra-Dwarf Bermudagrass offers proven genetic stability of more than 25 years.

The Benefits of Sunday Ultra-Dwarf Bermudagrass

- *Superior putting surfaces through uniform grain and a softer, finer-textured leaf blade*
- *Cost savings and improved appearance through disease resistance*
- *Excellent wear tolerance and injury recovery through a massive root system and dense growth canopy*
- *Fast greens stimping 11+ and mowing heights as low at .08 inches*
- *Improved appearance through good spring green-up, good fall color retention, and excellent cold tolerance*
- *Improved performance through excellent weed control and good drought and shade tolerance*

ENDORSEMENTS

"With the climatic challenges in Shenzhen - long, hot and humid summers, an extended rainy season, and cooler winter temperatures - we needed a greens grass that can perform well in low light conditions and resist disease. Sunday Ultra-Dwarf Bermudagrass met these challenges and currently performs better than TifEagle in the region."
– ***Thomas Radetic***, *Deputy General Manager and Director of Golf Course Maintenance at Sand River Golf Club in Shenzhen, China*

"In Sunday versus the other ultra-dwarfs, you will see less thatch and more consistent green speeds day to day. Sunday has less grain due to the more vertical growth compared to other ultra-dwarfs. I would recommend Sunday. It's one of my favorite grasses to grow. Sunday Ultra-Dwarf makes a superintendent's life much easier."
– ***Shannon Easter***, *Director of Golf at Broken Sound Club in Boca Raton, Florida*

"I became familiar with Sunday Bermudagrass twenty years ago while working at Craft Farms Golf Resort in Alabama. From the beginning, Sunday provided an exceptional putting surface, and I am excited it is gaining recognition around the world."
– ***Andy Johnston***, *General Manager and Director of Agronomy at Sentosa Golf Club in Singapore*

RESEARCH ON SUNDAY ULTRA-DWARF BERMUDAGRASS

Root Biomass and Root Length Density

In 2013, Mississippi State University conducted research on root morphology of warm season putting green grasses. The root measuring software WinRhizo Pro was used to capture findings scientifically. The root biomass and root length density of Sunday far exceeded those of the other ultra-dwarfs studied.

Sunday *Champion* *MiniVerde* *TifEagle*

Root biomass and root length density of four bermudagrass cultivars evaluated at the Mississippi State University greenhouse complex. Plugs of sod were planted on 13 August 2013 and harvested on 14 November 2013.

Bermudagrass cultivars	Root biomass (g)	Root length density (m/cm^3)
Sunday	0.56 a	1.89 a
TifEagle	0.31 b	1.42 ab
Champion	0.30 b	1.22 bc
MiniVerde	0.27 b	0.78 c
LSD	0.158	0.511

A root measuring software, WinRhizo Pro (Regent Instruments Inc., Quebec, QC), analyzed scanned root images for root length density and total root length.

Root Length Density: total root length (m) per volume of soil (cm^3)

A high RLD is correlated with nitrate leaching reductions for turfgrasses

NTEP Warm Season Greens Tests

Sunday is included in the current NTEP Warm-Season Greens Tests. Among the commercially available varieties included, Sunday had the highest mean quality ratings in six of the 11 testing locations in the 2013-2014 report, six of the ten testing locations in the 2015 report, and four of the nine testing locations in the 2016 report. In all three reports, Sunday had the highest overall mean quality ratings among the commercially available varieties.

SUNDAY
ULTRA-DWARF BERMUDAGRASS™

Sunday™ Ultra-Dwarf Bermudagrass is available internationally through Atlas Turf International Limited. For more information about Sunday, visit **atlasturf.com** or email **info@atlasturf.com**.

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