



Teed Off: The Greening of Golf

By A.G. Pollard Jr. / Illustration by Blair Thornley

Why Pick Paspalum?

Stewart Bennett, a proponent of paspalum and the owner of Alden Pines Golf Course in Florida, shares some stats on his 55 acres of turf grass:

- Water Use**
- Annual allocation: 115.2 million gallons
 - Actual annual use (eight-year average): 35.1 million gallons
- Annual Costs of Fertilization**
- Paspalum grass: \$282 per acre
 - Bermuda grass: \$501 per acre

Droughts, floods, salt, pests—the list of things that can ruin a course is long enough to keep golfers and crew awake at night. But the grass is always greener when it's the sturdy, enviro-friendly new strain called paspalum.

The 18 new holes of golf at the Abaco Club in the Bahamas had just finished growing in. English architect Donald Steel, his assistant Tom MacKenzie, and Scottish-born course superintendent Mark Aitken had hacked the course out of the dense undergrowth alongside the perfect half-moon beach at Winding Bay, with the back nine clinging tenaciously to the windy top of a coral outcropping that overlooked the choppy surf of the blue Atlantic.

But no sooner had the members and guests of this upscale residence club begun to chase their little white balls hither and yon in the fall of 2005 than disaster struck in the form of two hurricanes in quick succession. The wind blew, the sand drifted, and the tides washed across the low-lying holes next to the beach.

Ordinarily, this would have been a disaster of the first rank. Turf grass doesn't generally thrive when flooded by salt water and buried in several feet of sand. Ordinarily, the club's developer, Peter de Savary, would have been on the phone to his insurance company seeking tens of millions of dollars to finance the course's reinstallation.

But Steel, MacKenzie, and Aitken had done their homework. They had planted the golf course at the Abaco Club not with Bermuda or zoysia or some other hot-weather grass, but with a variety called seaside paspalum, whose many beneficial properties include the ability not only to survive in salty conditions, but also actually to like them.

As a result, once they plowed the sand off the low-lying fairways, the salt-drenched paspalum took a few days to recover from the hurricane shock and then began sending out new green shoots. Within two weeks, the course was playable. Within a month, golfers were chasing little white balls hither and yon again as if nothing untoward had happened.

The implications for the game of golf, as more and more course architects and superintendents begin learning about seaside paspalum, are rather striking. And not just for oceanfront golf courses in places like the Caribbean, where hurricanes are frequent and salt incursion has long been a problem. Indeed, the potential of such grasses opens a whole new world for golf, both in the U.S. and elsewhere. These grasses can be irrigated with recycled "dirty" effluent and gray, brown, or even some salt water, and they require far less maintenance and fertilization than other grasses. Call it, if you will, the greening of golf, as silly as that may sound.

Though turf grass laboratories at the University of Georgia and University of Florida have been busy propagating, patenting, and marketing varieties of paspalum for more than a dozen years, the grass is a product of nature. *Paspalum vaginatum* grows along the coast in South and Central America and western Africa. It's usually found in boggy, brackish backwaters, clinging to dunes.

There are several natural varieties of the grass, some resembling the broad-leafed St. Augustine and others, the tighter Bermuda. Paspalum propagates not through seed, but through its rhizome and root spread, which can be amazingly fast. To install it on a golf course, it is sprigged or cut into a sandy topsoil base, watered a bit, and left alone to grow. Once it comes up and is cut a few times, it presents a lovely and sturdy surface for a golf ball. Varieties developed for putting greens are verticut, top-dressed, and mowed into a smooth, fast surface. It also makes a great surface for soccer and football fields and baseball diamonds.

But the grass really struts its stuff once it has grown in. In addition to standing up to the occasional hurricane-induced flooding, it can be irrigated regularly with gray or brackish water. Bermuda grass can withstand some effluent water but eventually will reach a limit and die because of a buildup of solvents in the soil. Paspalum thrives

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on bad water. And it can transfer oxygen from the atmosphere down to its roots and rhizomes, so the quality of the soil is largely unimportant. Fresh water is needed on a paspalum-planted course only to rehydrate the golfers and occasionally to flush accumulated salts out of the soil—a good rainstorm can do the trick.

There's more. Paspalum does not require frequent mowing to maintain its smooth surfaces. Further, the amounts of nitrogen and other fertilizers required to keep the grass hale and hearty are about half those needed for regular turf grass. Paspalum also is resistant to most of the bugs, molds, and bacteria that can give course superintendents ulcers.

About the only thing paspalum can't do is prosper in cool conditions: It goes dormant after experiencing temperatures lower than 50 degrees Fahrenheit. But it's useful near many coasts and in most of the Sunbelt states and is especially important in the deserts of the American Southwest. And I'll wager that the scientists and agronomists in those university labs are exploring ways to transfer the salt-loving gene in paspalum to regular bent grass or another cool-weather turf grass.

If there's a Father of Paspalum, one of the nominees would have to be Stewart Bennett. A trained course superintendent, he became a golf course owner in 1993 when he bought Alden Pines, an 18-hole public course on Pine Island along Florida's Gulf Coast near Fort Myers. The course had been built in 1980 and planted with a paspalum cultivar called Adalyd, developed and patented in the 1970s by Hugh Whiting. The earlier owner had specified paspalum because the island didn't have a source of clean water. The best the wells could produce had a total dissolved solids (TDS) count of 5,000 parts per million (ppm), whereas fresh water is considered to have less than 500 ppm.

Several weeks after Bennett bought the place, a tropical storm flooded the front nine fairways. He was worried that his investment had drowned with the grass. But then he noticed something unusual. All the weeds and invasive plants on his flooded fairways immediately showed signs of saltwater distress from the flooding, but the paspalum quickly greened up and showed life and vigor. "That's when I knew I was dealing with a very unusual turf grass," Bennett says.

Over the years, Bennett has turned his working golf course—it does more than 40,000 rounds a year—into a real-life laboratory for testing paspalum. He has irrigated with everything from clean, fresh water to briny soups of more than 45,000 ppm of TDS. He's watched the grass survive scorching heat waves, elongated droughts, and drenching monsoons. Paspalum has thrived through it all. He has found some varieties that do well in partial shade, others that are more suitable for the close-mowing of putting greens, and still others that do well when the temperatures drop. And he has kept careful records through the years, which demonstrate that paspalum requires 30 percent to 50 percent less watering than other turf grass and 50 percent less fertilizer, especially nitrogen.

Bennett began patenting and marketing some of his paspalum varieties in the late 1990s and has found a niche as the Johnny Appleseed of paspalum, spreading news and rhizomes and consulting with course architects and superintendents around the world who want to use the miracle grass. Indeed, the Abaco Club's MacKenzie made the bold decision to use paspalum on the Bahamas course and sent superintendent Aitken to bunk in at Alden Pines with Bennett for six weeks to learn how to care for it.

In the past five years, the number of golf courses built in the Caribbean, which is short on fresh water and long on hurricanes, has skyrocketed, in large part because of paspalum. More and more courses in southern Florida, such as the Fairmount Turnberry Isle resort in Aventura, have completely renovated their courses, ripping out thirsty Bermuda and replacing it with plucky paspalum.

Now imagine playgrounds, athletic fields, parks, and even backyards planted with this grass that likes salty and recycled water and doesn't need much fertilizer or frequent mowing, and then add up the ecological savings for the planet.

See? Greening up the world can start with golf.

A.G. Pollard Jr., a committed environmentalist, is always careful to rake over his carbon footprint.



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