

TW-72: A Potential New Bermudagrass For Golf Greens

A bermudagrass for golf greens that can be mowed at 1/8-inch may be released soon!

by DR. WAYNE W. HANNA

THERE HAS BEEN a growing concern about the existing hybrid bermudagrasses used for putting greens in the Southern portions of the United States. Historically, bermudagrass has been the dominant putting green turfgrass for Southern courses, given its superior heat, traffic, and disease tolerance. Tifgreen and Tifdwarf, released by Dr. Glenn Burton in 1956 and 1965, respectively, initially provided acceptable putting surfaces when Southern greens were mowed at 3/16-inch or higher. But as demands on bermudagrass greens have increased in an effort to provide putting green quality comparable to bentgrass, problems with bermudagrass have become serious. Tifgreen won't hold up at mowing heights lower than 3/16-inch and is practically never used on greens in the Southeast today. Tifdwarf is the present industry standard, but this variety cannot tolerate today's lower mowing heights, demanded by golfers, for any extended period of time without decline. Mutation, contamination, and a lack of reliable planting stock also have resulted in golf superintendents and golfers losing faith in one of golf's most important turfgrass species.

Even if golfers would allow golf superintendents to mow the existing varieties at a higher height, everyone agrees it will be difficult to clean up the existing Tifdwarf and Tifgreen planting stock. Additionally, it is dangerous to have only two genotypes on all of the golf courses in the South. Development of genetically different, fine-textured

genotypes would lessen the threat of the industry not having a suitable grass to plant if either Tifgreen or Tifdwarf suddenly became susceptible to a pest. By focusing on the development of new dwarf varieties and protecting their purity through new tougher certification standards, better bermudagrass greens for golf would result.

Breeding Program Objectives

In the mid-1980s, a bermudagrass breeding program was started at the Tifton, Georgia, Experiment Station to develop a new dwarf bermudagrass that would maintain good putting green quality at a 1/8-inch (or less) cutting height. After considering the possibilities for developing such a putting-green bermudagrass, we arrived at three alternatives: 1) select or induce (with radiation) finer-textured types in Tifdwarf; 2) make new *Cynodon transvaalensis* x *C. dactylon* crosses to produce new triploid hybrids; or 3) induce fine-textured mutants in an established cultivar such as Tifway 2 (released in 1981) that has been known for its heat tolerance and disease resistance. We decided to try the third procedure since much is known about this popular hybrid bermudagrass used on fairways, roughs, and tees. Two other benefits of working with Tifway 2 would be that the genetic diversity of bermudagrass greens would be increased by this method, and the time needed for testing would be reduced. On January 10, 1988, we irradiated dormant stolons of

Tifway 2 with 7000 rads of gamma radiation. Sixty-five mutants were induced, 25 of which appeared more dwarf than Tifway 2. One of these, the most dwarf, we named TW-72.

Detailed Description of TW-72

TW-72 has several new agronomic qualities compared to Tifdwarf that should make it very popular with golfers and golf course superintendents. Although TW-72 has a lighter green color than Tifdwarf, it doesn't become as purple or red when nights become cool, since it lacks the red pigment of Tifdwarf. It produces a tighter and denser turf than Tifdwarf, especially at the 1/8-inch mowing height. Its close mowing tolerance produces a smoother, faster surface, and one with less algae growth. TW-72 had a Stimp-meter reading approximately 12 inches faster than Tifdwarf at The Landings Golf Club (Savannah, Georgia) test site last summer. At 1/4-inch, there may be less difference in turf quality between TW-72 and Tifdwarf, but our recommendation will be to mow TW-72 at 1/8-inch. Plenty of leaf tissue remains on this super dwarf even at the 1/8-inch mowing height compared to Tifdwarf. TW-72 tends to produce more thatch (because of the higher plant density) than Tifdwarf, but this can be controlled through verticutting.

Dr. Jeff Wilson observed more dollar spot on TW-72 than on Tifdwarf when plots were low on nitrogen, but no disease has been observed at Tifton on TW-72 when the grass received ade-



One test site to evaluate TW-72 is the practice putting green at Banyan Golf Club in West Palm Beach, Florida.

quate nitrogen. TW-72 appears to produce a stronger root system when growing on either a soil-based green (Tifton, Georgia) or a USGA-type sand green (Savannah, Georgia). We also have observed fewer mole crickets on TW-72 than on Tifdwarf at Tifton and at Savannah. At this point we cannot say whether the fewer mole crickets on TW-72 is due to non-preference, genetic resistance, or both. TW-72 did not appear to tolerate shade any better than Tifdwarf on the practice green at West Palm Beach, Florida.

Testing Sites

TW-72 has been compared with Tifdwarf on a practice green or in replicated plots at the University of Florida Fort Lauderdale Research and Education Center by Dr. Monica Elliott; The Landings in Savannah, Georgia, by Ralph Hinz; Pinehurst Resort and Country Club in North Carolina by Tommy Brown; Banyan Golf Club in West Palm Beach, Florida, by Dan Jones; and in five tests at the University of Georgia Coastal Plain Experiment Station in Tifton, Georgia. Now TW-72 has been planted on greens by Bryan Unruh, University of Florida-IFAS,

Jay, Florida; George Manuel, Pine Forest Country Club, Houston, Texas, where it is compared with Tifdwarf; and by Rodney Lingle, Memphis Country Club, where it is compared with Tifgreen. Dr. Richard White, Texas A&M University, College Station, Texas, is including TW-72 in a replicated test where many new dwarfs will be compared. Plans are being made to plant TW-72 this summer on greens in South Carolina, Florida, Alabama, and some Western U.S. states. The purpose of testing at multiple locations is to decide how broadly adapted TW-72 is to diverse environmental and management conditions when it is mowed at $\frac{3}{32}$ - or $\frac{1}{8}$ -inch. Data will be taken on such characteristics as turf quality, color, pest resistance, overseeding response, and response to various environmental and management conditions.

Stay Tuned

Overall, we are very pleased with the initial comments from golfers and golf course superintendents about TW-72. Testing at more sites will be done over the next two years to learn more about its range of adaptation. If it continues to perform well in these tests, a foun-

dation field will be established near Athens, Georgia. If TW-72 is released, it will be a limited release to only a few selected growers. Growers will be given strict guidelines on the maintenance of the sod and sprig fields to maintain the integrity of the variety. No off-type bermudagrasses will be allowed in the certification fields, and if some are observed, these must be removed immediately. Golf courses probably will pay a lot more for TW-72 because of the inspection costs and the requirements of growers to do more to maintain the fields.

TW-72 is a bermudagrass with bentgrass putting-green-type qualities. TW-72 appears to be a strong potential new candidate for those Southern golf courses desiring to provide the best possible bermudagrass putting surfaces. We plan to release TW-72 at the end of 1997 or beginning of 1998 if it continues to do well in tests.

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