

ST-5: A Shade-Tolerant BERMUDAGRASS

By Wayne Hanna, Ph.D., and Kris Braman, Ph.D., *University of Georgia*

A cosmopolitan grass, bermudagrass will grow in many different environments around the world. It tolerates broad ranges in soil fertility, soil pH, soil texture, temperatures, etc. However, one weakness is that it does not usually thrive in shade. Bermudagrass likes light – at least 8 to 10 hours of sunlight per day – to produce healthy turf. The quality of sunlight that a plant receives can be affected by a number of factors, such as age and species of trees, direction(s) of the shade, time(s) of day of the shade, clouds, etc.

For a number of years, we have been identifying shade-tolerant bermudagrasses. By “shade tolerant,” we mean that we have found grasses that require less light to produce a desirable or acceptable turf than most bermudagrasses. The grasses we have selected performed well when they received only 40% of the light needed for plant growth, compared with plants requiring full sunlight.

We have three of the best shade (60% continuous) resistant hybrids in replicated advanced tests since 2003. One hybrid, ST-5 (originally tested as Tift #4), has performed well under shade (Table 1) and non-

shade conditions in our plots at Tifton, GA, and at 22 locations (Table 2) across the southern half of the U.S. in the National Turfgrass Evaluation Trials (NTEP) since 2003 (non-shade). ST-5 is a dark-green and dense triploid hybrid that was originally selected for its high tolerance to tawny mole cricket damage. However, we found that ST-5 also performs well under lower light conditions.

In replicated plots under a shade regime, ST-5 continues to perform well today. In the 0.5”-0.65” mowed height non-shade tests of the NTEP trials (mean of 11 states), ST-5 rated 6.8, behind Tifway (7.1) and TifSport (7.0), with an LSD=0.2 (needs to be at least this much difference between cultivars to be significant). In the 0.75”-1.0” mowed height non-shade NTEP trials (11 states), ST-5 rated 6.1 behind TifSport (6.4), Tifway (6.3) and Patriot (6.2), with an LSD=0.3.

Table 2 shows the performance of ST-5 by regions. It has performed well in all areas of the U.S. where it was tested and was in the top 25% of the entries 65% of the time.

ST-5 has performed well in a shaded lawn in Roswell and Augusta, GA, since 2003 where it is

mowed at 1.5” height weekly (with clippings removed) and receives 3 lbs. of nitrogen per 1,000 sq. ft. yearly. It has not needed dethatching, and it produces only a few seed heads under these shade conditions (as well as in our shade tests at Tifton). This hybrid tends to produce more-than-desirable seed-head numbers in June under non-shade conditions. ST-5 has been planted in low-light areas on golf courses in GA, AL and NC. We have received positive reports from golf course locations where ST-5 has been growing.

Why is ST-5 shade resistant? It appears that its dark green color and its density allow it to produce an acceptable turf under lower light conditions. If low-light conditions thin traditional cultivars, ST-5 will produce a desirable turf. If low light completely kills the traditional cultivars, ST-5 will probably produce a thinner, yet acceptable turf. The fact that ST-5 is able to maintain a stand of grass (even though thinner) under very heavy shade is an advantage, in that it stabilizes the soil and reduces erosion.

ST-5 has applications where traditional bermudagrass cultivars



After 5 years in shade on lawn in Roswell, GA



After 4 years in shade on rough at the Country Club of Mobile

are used, yet where light is limiting. We tentatively plan for ST-5 to be available in 2010 (some may be available at the end of 2009). It will only be available as certified grass.

For more information, contact Wayne Hanna at whanna@uga.edu.

Editor's note: Parts of this article have been previously published in other trade magazines. ❖

Table 1. Turf quality ratings (9 = best) on shade-resistant (ST) bermudagrasses after two years of 60% continuous shade at Tifton, GA.

ENTRY	TEST 2	TEST 3	TEST 4
ST-3	7.3	7.5	8.1
ST-5 (Tift No. 4)	7.8	7.3	8.6
ST-7	7.5	6.5	8.1
Tifway	5.3	4.1	4.8
TifSport	6.0	3.6	5.0
LSD-5%	1.1	1.1	1.0



Renowned turfgrass scientist Wayne Hanna, Ph.D., from the University of Georgia, presented an update on his research to identify shade-tolerant bermudagrass at the 2008 ATA Annual Conference.

Table 2. Rank[Rating(9=best)] for Turf Quality in NTEP Trials (2005)

ENTRY	TZ (9)	SE (8)	SW (5)	OVERALL	% TIME IN TOP 25%
TifSport	2 (6.7)	1 (6.9)	1 (6.4)	1 (6.7)	91%
Tifway	2 (6.7)	1 (6.9)	2 (6.3)	2 (6.6)	78%
Patriot	1 (6.8)	4 (6.2)	5 (5.7)	4 (6.3)	56%
ST-5 (Tift No. 4)	4 (6.4)	2 (6.8)	3 (6.1)	3 (6.5)	65%
Lowest Rated	13 (5.0)	13 (5.7)	13 (5.6)	13 (5.4)	13%
LSD-5%	(0.3)	(0.3)	(0.3)	(0.2)	