

2004 Update on Bermudagrass Cultivar Evaluations

Clint Waltz
Extension Turfgrass Specialist
The University of Georgia

The old adage “using the right plant in the right place” holds every bit as true for turfgrasses as for ornamentals. Establishing a turfgrass species or cultivar which is best adapted to its region or microclimate is more likely to thrive and need fewer inputs (e.g. water, fertilizer, pesticides, etc.) than a plant that must constantly struggle due to adverse environmental conditions. Ideally, turfgrass selection should be based on the site’s microclimate characteristics such as temperature, shade, and soil type, pH, fertility, and moisture holding capacity. After narrowing the species selection process based on the specific site, the qualities for aesthetic appearance and maintenance requirements should then be considered. However, the reality is turfgrass appearance often dictates which turfgrass species is planted, regardless of its adaptation to the site.

To assess the general adaptation of a grass species, and more specifically turfgrass cultivars, to a particular geographic region the National Turfgrass Evaluation Program (NTEP) sponsors multi-year evaluations of turfgrasses. Locally, the Georgia Turfgrass Foundation Trust has a history of providing additional support to evaluate the grasses suited to Georgia’s climate. In 2002, The University of Georgia in Griffin was chosen to be one of the sites to evaluate three warm-season turfgrass species (bermudagrass, St. Augustinegrass, and zoysiagrass). These species were to be tested under various conditions from low mowing heights (0.5-inch) and low nitrogen fertility (2 to 4 lbs N / 1000 ft² / year) for the bermudagrasses and zoysiagrasses, to performance under heavy shade for the St. Augustinegrass cultivars.

Plots were evaluated for rate of establishment and overall turfgrass quality (TQ).

Turfgrass quality is a general rating which accounts for genetic color, leaf texture, canopy density, and cultivar persistence. The NTEP rating method uses a 1 to 9 visual rating scale with 1 being least desirable, 6 being minimally acceptable, and 9 being ideal. For example, if the TQ of a cultivar is rated 9.0 then it was judged to have a combination of dark-green color, fine leaf texture, a dense canopy, and surviving well under our management and environmental conditions. A cultivar with a TQ rating of 5.0 was assessed to have below acceptable characteristics in one or several of the TQ factors.

Bermudagrass

After the plot area was fumigated with methyl-bromide in fall 2001, this trial was originally established in July 2002. The trial evaluated three replications of 42 bermudagrass entries, 29 seeded cultivars and 13 vegetative materials, and 3 seashore paspalum cultivars, all vegetative. Of 45 total cultivars, 21 are commercially available in 2004 (Table 1). According to NTEP protocol, plots were seeded and plugged at the same time and the seeded plots were hydro-mulched to minimize seed movement. Weather conditions were ideal and the grasses were allowed to germinate under irrigated conditions. Although precautions to prevent cultivar mixing were taken, contamination problems arose and by the end of the summer it was determined all plots would need to be destroyed and reestablished.

In 2003, the site was treated with multiple applications of glyphosate and the seeded plots were planted, covered with fabric and allowed to germinate under irrigation. The plots which were to be established with vegetative cultivars were treated with an additional application of glyphosate to kill any seed which may have moved. It should be noted that three weeks following seeding, no bermudagrass plants were observed in the alleyways between plots.

Vegetative materials were plugged three weeks after the seeded plots to minimize the

potential of contamination. Like 2002 and despite best efforts, some contamination was observed in a few plots. These individual plots were subsequently spot treated with glyphosate and hand-weeded, the effects of these practices will not be fully realized until the 2004 growing season.

Table 1. 2004 commercially available bermudagrass cultivar performance during 2003 establishment and growing season.

Cultivar	Establishment Type	Seedling Stand (8 DAS*)	Turfgrass Quality	
			10 WAS**	18 WAS
Sunstar	Seeded	9.0 a	7.2 bcd	6.0 def
Arizona Common	Seeded	9.0 a	7.0 cd	6.2 d
NuMex Sahara	Seeded	8.3 ab	7.0 cd	6.3 cde
Princess 77	Seeded	6.3 b	7.2 bcd	6.2 d
Mohawk	Seeded	9.0 a	7.0 cd	6.3 cde
Sundevil	Seeded	8.3 ab	7.3 abc	6.2 d
Southern Star	Seeded	7.0 ab	7.2 bcd	6.3 cde
Riviera	Seeded	6.3 b	7.5 ab	6.5 bcd
Transcontinental	Seeded	7.0 ab	7.2 bcd	6.2 de
Panama	Seeded	7.0 ab	7.0 cd	6.5 bcd
SR 9554	Seeded	7.7 ab	7.2 bcd	5.5 ef
Yukon	Seeded	1.2 c	2.0 h	4.0 g
Tifway	Vegetative		6.2 fg	6.8 a-d
Midlawn	Vegetative		7.0 cd	7.5 a
TifSport	Vegetative		6.3 f	6.8 a-d
MS-Choice	Vegetative		6.3 f	5.2 f
Aussie Green	Vegetative		7.7 a	7.3 ab
GN-1	Vegetative		6.8 de	6.0 def
Ashmore	Vegetative		5.8 g	7.2 abc
Patriot	Vegetative		7.2 b	6.3 cde
Celebration	Vegetative		6.5 ef	6.3 cde

Within a column, means with the same lower-case letter are not statistically different.

* Days After Seeding (DAS), plots were seeded June 24, 2003.

** Weeks After Seeding (WAS), vegetative plots were plugged July 16, 2003.

Eight days after seeding (DAS), 92% of the commercially available cultivars had

germinated and were beginning to establish acceptable stands (Table 1). Once the grasses had established to the point where TQ could be rated (10 weeks after seeding), all seeded cultivars, except 'Yukon', had acceptable (> 6.0) TQ. Similarly, 89% of the vegetative propagated grasses had acceptable TQ.

2003 was an establishment year and the 2004 growing season should provide greater information regarding the performance of these bermudagrass cultivars in Georgia's environment. In fact, some cultivars greened-up during the spring transition sooner than others (green-up data will be presented after 2 years of observations) but all bermudagrasses survived the 2003 – 2004 winter. Currently, all cultivars are being mowed at 0.5-inches and will receive 1 lb N / 1000 ft² / month through the growing season.

Look for an update on the zoysiagrass and St. Augustinegrass cultivars in the next issue of "GTA Today". Also, these plots will be on display at the biennial UGA Turfgrass Field Day scheduled on August 12, 2004, come see them for yourself.