

2007 NTEP Bermudagrass Trial – Year 3 Results

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Photo by Aaron Patton

Bermudagrass cultivars perform differently in Arkansas.

Summary. Bermudagrass continues to be the prevailing turfgrass species used in Arkansas for golf courses, sports fields, home lawns and utility turf situations. Identifying adapted cultivars for the region remains a central focus of the University of Arkansas turfgrass research program. The National Turfgrass Evaluation Program (NTEP) is the predominant means by which cultivars are tested throughout North America. A bermudagrass cultivar trial was planted in the summer of 2007 at Fayetteville, Ark. This trial was maintained under typical lawn conditions and data on spring green-up, overall quality, turf density, and seedhead formation were collected during 2009. Average

turf quality across months for the year was highest for Premier, OKC 1119, Tiftsport, Tifway, Patriot, Tifgreen, SWI-1113, Tift-11, Midlawn, OKC 1134, OKS 2004-2, and SWI-1057. Turf quality for the year was lowest for PSG-91215, PSG-94524, Sunsport, and Numex Sahara, which is similar to 2008 data. Evaluations over the next two years will provide a more complete picture of cultivars that perform best under these management and climate conditions.

Abbreviations: NTEP, National Turfgrass Evaluation Program

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Bermudagrass (*Cynodon* spp.) remains the most commonly-used turfgrass on golf courses, sports fields, and lawns in Arkansas and throughout southern and transition-zone environments. Bermudagrass has many positive attributes that have made it a successful turfgrass species, including good heat and drought tolerance, pest resistance, traffic tolerance, and tolerance to a wide range of soil types and water quality.

The National Turfgrass Evaluation Program (NTEP) is an organization within the U.S. Dept. of Agriculture that annually oversees turfgrass cultivar evaluation experiments at various sites throughout the U.S. and Canada. Each turfgrass species is tested on a four- to five-year cycle at sites throughout the growing region for that particular species. The University of Arkansas has been an active participant in the NTEP and has conducted several tests on bermudagrass cultivars since 1986. This report will describe the data collected in 2009 for the 2007 NTEP bermudagrass trial at Fayetteville, Ark.

Materials and Methods

The majority of the bermudagrass entries in this trial were planted on 9 June 2007 at the University of Arkansas Research and Extension Center in Fayetteville. Some additional entries were planted in August 2007 for comparison over the life of the trial (Table 1). Plot size was 7 by 8 ft and there were three replications of each cultivar. Vegetative cultivars were planted as 2-inch diameter plugs on 12-inch spacings within the plots, while seeded cultivars were broadcast planted at a seeding rate of 1.0 lb/1000ft². Plots were maintained under lawn, sports field, and golf course rough conditions, with a mowing height of 1.5 inch, and monthly applications of 1.0 lb N/1000ft² during the growing season. Irrigation was applied as needed to prevent drought stress.

Overall turf quality was evaluated monthly during the growing season. Quality was visually assessed on a 1 to 9 scale, with 9 representing ideal dark green, uniform, fine-textured turf and 1 representing dead turf. Cultivars were visually evaluated for spring green-up using a scale of 1 to 9, with 9 representing complete green color and

1 representing a completely dormant turf stand. Density was rated on a scale of 1 to 9, with 9 representing maximum density. Seed-head density was evaluated using a scale of 1 to 9, with 9 representing no visible seed heads.

Results and Discussion

Spring green-up was similar among vegetatively established cultivars and seeded cultivars when evaluated in April (Table 1). Spring green-up was greatest for a large group of cultivars including PSG 9Y20, Riviera, Premier, RAD-CD1, PSG 91215, OKC 1134, SWI-1083, IS-CD10, GN-1, PSG 94524, OKS 2004-2, SWI-1117, SWI-1081, PSG 9BAN, Tifgreen, SWI-1070, SWI-1122, PSG PROK, SWI-1113, J-720, and OKC 1119 and least for Patriot, BAR 7CD5, Princess 77, Celebration, Tift-11, and Veracruz.

Turf density was highest for cultivars established vegetatively compared to those established by seed (Table 1). Turfgrass density was greatest for OKC 1119 and OKC 1134 and least for PSG 9BAN, SWI-1083, PSG 94524, Sunsport, BAR 7CD5, PSG-91215, and Numex Sahara.

Seed heads were present in greatest quantities for Tift-11 (Table 1). No seed heads were present in OKC 1134 or Patriot, and few seed heads were present in OKC-1119, Premier, and GN-1 (Table 1). As expected, cultivars established by seed had more seed heads present than those established vegetatively, although some vegetatively established cultivars such as Tift-11 did produce high numbers of seed heads.

On four of the five rating dates in 2009 and when averaged over the year, turf quality was statistically higher for vegetatively established cultivars (Table 2). However, turf quality was similar among establishment types in August. Turf quality in 2009 varied for each cultivar by month. Average turf quality across months for the year was highest for Premier, OKC 1119, Tiftsport, Tifway, Patriot, Tifgreen, SWI-1113, Tift-11, Midlawn, OKC 1134, OKS 2004-2, and SWI-1057. Among this top grouping, SWI-1113, OKS 2004-2, and SWI-1057 were the only seeded common bermudagrass cultivars. The seeded bermudagrass cultivar SWI-1113 is the only one of these seeded

bermudagrass cultivars to be statistically similar to the top performing cultivar in all three years. Turf quality for the year was lowest for PSG-91215, PSG-94524, Sunsport, and Numex Sahara similar to 2008.

These ratings were collected on two-year old plots and should be reliable, but use caution as shifts in cultivar performance are typical in these trials as the plots age and are subjected to various stresses. Additionally, these plots are maintained at 1.5 inch, which is common for a home lawn or sports field and may not compare well to previous data collected at our location at a lower mow-

ing height of 0.5 inch (Patton et al., 2008). Future evaluations over the next two years will provide a more complete picture of the cultivars that perform best under these management and climate conditions.

Literature Cited

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Table 1. Spring green-up, density, and seed head ratings in 2009 for various bermudagrass cultivars in Fayetteville, Ark.

Cultivar	Spring green-up ^z	Density ^y	Seed heads ^x
	April 30	July 31	June 23
	-----visually rated on a 1-9 scale-----		
BAR 7CD5 ^w	5.3	4.3	5.0
Celebration	5.0	7.0	4.7
GN-1	6.7	6.7	8.0
IS-01-201 ^w	6.0	6.0	4.7
IS-CD10 ^w	6.7	6.0	5.7
J-720 ^w	6.3	5.3	6.0
Midlawn	5.7	7.0	5.0
NuMex -Sahara ^w	6.0	4.0	7.3
OKC 1119	6.3	9.0	8.3
OKC 1134	7.0	8.3	9.0
OKS 2004-2 ^w	6.7	6.0	5.3
Patriot	5.3	7.3	9.0
Premier	7.3	7.7	8.7
Princess 77 ^w	5.3	6.3	5.0
PSG 91215 ^w	7.0	4.0	6.7
PSG 94524 ^w	6.7	5.0	6.0
PSG 9BAN ^w	6.7	5.0	4.7
PSG 9Y20 ^w	7.3	6.7	5.7
PSG PROK ^w	6.3	5.7	6.3
PST R6EY ^w	6.0	5.3	4.3
PST R6LA ^w	5.7	5.3	3.3
PST R6ON ^w	5.7	6.0	3.7
PST-R6FLT ^w	6.0	7.0	3.3
Quickstand	6.0	6.7	6.0
RAD-CD1 ^w	7.0	5.7	5.7
Riviera ^w	7.3	6.0	5.7
Sunsport ^w	5.7	4.3	5.7
SWI-1057 ^w	5.7	6.7	4.7
SWI-1070 ^w	6.3	6.0	4.3
SWI-1081 ^w	6.7	5.7	5.3
SWI-1083 ^w	7.0	5.0	4.7
SWI-1113 ^w	6.3	7.3	5.3
SWI-1117 ^w	6.7	5.3	6.7
SWI-1122 ^w	6.3	5.3	6.0
Tifgreen	6.7	7.7	6.7
Tifsport	6.0	7.7	7.3
Tift-11	4.3	6.7	2.0
Tifway	6.0	7.7	7.3
Veracruz ^w	4.3	6.3	5.0
Yukon ^w	5.7	6.0	5.0
Average	6.2	6.2	5.7
LSD (P=0.05)	1.0	1.0	1.1

Propagation type			
Seeded	6.2	5.6	5.3
Vegetative	6.0	7.4	6.8
P – value	0.24	<0.0001	<0.0001

^z Spring green-up was visually evaluated for bermudagrass cultivars using a scale of 1 to 9, with 9 representing complete green color and 1 representing a completely dormant turf stand.

^y Density was rated on a scale of 1 to 9, with 9 representing maximum density.

^x Seed-head density was evaluated using a scale of 1 to 9, with 9 representing no visible seed heads.

^w Seeded bermudagrass cultivar.

Table 2. Turf quality ratings in 2009 for various bermudagrass cultivars in Fayetteville, Ark.

Cultivar	Turfgrass quality ^z					Average
	May	June	July	August	September	
	-----visually rated on a 1-9 scale-----					
OKC 1119	7.0	7.0	7.0	7.3	7.0	7.1
Premier	7.7	7.0	6.7	7.7	6.7	7.1
Tifsport	6.0	7.0	7.0	8.0	7.3	7.1
Tifway	6.3	7.3	7.0	7.7	7.0	7.1
Patriot	6.3	7.3	6.3	7.7	7.3	7.0
Tifgreen	6.3	7.0	6.7	7.3	7.0	6.9
SWI-1113 ^y	5.3	7.0	7.3	7.7	6.7	6.8
Midlawn	5.7	7.0	7.0	7.3	6.3	6.7
OKC 1134	5.7	6.3	6.7	7.3	7.3	6.7
OKS 2004-2 ^y	5.0	6.7	6.7	8.0	7.0	6.7
SWI-1057 ^y	5.3	6.3	7.3	7.7	6.7	6.7
Tift-11	6.0	6.0	6.7	7.7	7.3	6.7
GN-1	6.0	7.0	6.3	7.3	6.3	6.6
Riviera ^y	4.7	6.7	6.7	7.7	7.3	6.6
Yukon ^y	5.0	6.7	7.0	8.0	6.3	6.6
Celebration	5.3	6.7	6.3	7.0	7.0	6.5
PSG 9Y20 ^y	4.3	6.3	7.3	7.7	6.7	6.5
Quickstand	5.3	6.7	6.7	7.7	6.0	6.5
Princess 77 ^y	4.7	6.0	6.7	7.7	6.7	6.3
SWI-1122 ^y	5.0	6.7	6.7	7.0	6.0	6.3
J-720 ^y	4.0	6.3	6.7	7.3	6.7	6.2
Veracruz ^y	4.0	6.0	6.7	7.7	6.7	6.2
PSG 9BAN ^y	4.3	6.0	6.0	7.7	6.3	6.1
RAD-CD1 ^y	4.7	6.0	6.7	7.3	6.0	6.1
SWI-1070 ^y	4.0	6.0	6.7	7.7	6.3	6.1
IS-01-201 ^y	5.0	5.3	6.3	7.3	6.0	6.0
PST R6LA ^y	4.7	6.0	6.3	6.7	6.3	6.0
PST-R6FLT ^y	5.0	6.0	6.3	6.7	6.0	6.0
IS-CD10 ^y	4.7	6.0	6.0	7.0	6.0	5.9
PST R6ON ^y	4.3	5.7	6.7	6.7	6.0	5.9
SWI-1081 ^y	4.0	5.7	6.3	7.3	6.3	5.9
PST R6EY ^y	4.7	5.3	5.7	7.0	6.3	5.8
SWI-1083 ^y	4.0	5.0	6.0	7.3	6.7	5.8
SWI-1117 ^y	4.7	5.7	5.7	7.7	5.3	5.8
PSG PROK ^y	4.0	5.7	5.7	7.0	6.0	5.7
BAR 7CD5 ^y	3.3	5.7	5.3	7.0	6.0	5.5
PSG 94524 ^y	3.7	5.0	6.0	7.0	5.3	5.4
Sunspport ^y	3.7	5.0	5.0	7.3	5.0	5.2
PSG 91215 ^y	3.7	5.0	5.0	6.3	5.0	5.0
NuMex -Sahara ^y	3.3	4.7	5.0	6.7	5.0	4.9
Average	4.9	6.2	6.4	7.4	6.4	6.2
LSD (P=0.05)	0.8	0.9	0.9	0.8	0.8	0.4

Propagation type						
Seeded	4.4	5.9	6.3	7.3	6.2	6.0
Vegetative	6.1	6.9	6.7	7.5	6.9	6.8
P - value	<0.0001	<0.0001	0.0067	0.07	0.0059	0.0025

^z Turf quality rated on a scale of 1 to 9 (9 = ideal dark green, uniform, dense, fine-textured turf, 1 = dead).

^y Seeded bermudagrass cultivar.